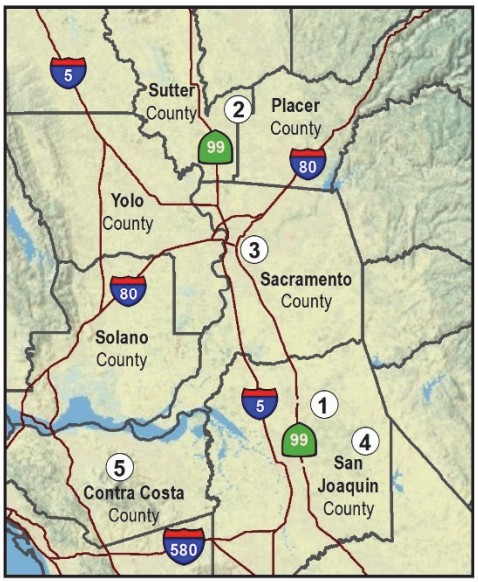

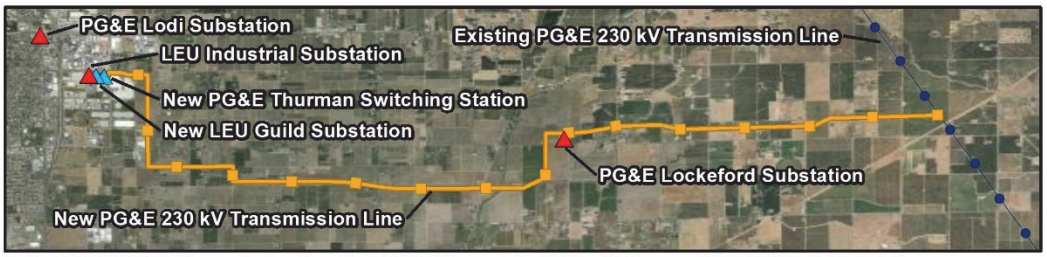

1. New PG&E 230 kV Transmission Line, New PG&E Thurman Switching Station, and New LEU Guild Substation

2. PG&E Rio Oso Substation

3. PG&E Brighton Substation

4. PG&E Bellota Substation

5. PG&E Clayton Hill Repeater Station

Proponent's Environmental Assessment for Pacific Gas and Electric Company's Northern San Joaquin 230 kV Transmission Project

September 1, 2023

A new 230 kV transmission system with approximately 10.6 miles of new double-circuit 230 kV transmission lines, an expanded substation, a modified substation, a new substation, a new switching station, reconfiguration of four existing 60 kV lines, relocation or extension of two existing 12 kV lines, and upgrades at four remote-end substations and one repeater station are proposed.

The project would be located primarily in northeastern San Joaquin County and in the City of Lodi, California, with remote-end facilities in Contra Costa County, Linden, Lodi, Rio Oso, and Sacramento, California.

Application A.23-09-XX to the California Public Utilities Commission

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Acronyms and Abbreviations

‘	foot (feet)
“	inch(es)
<	less than
>	greater than
°F	degree(s) Fahrenheit
µg	microgram(s)
µg/m^3	microgram(s) per cubic meter
1B	rare, threatened, or endangered in California and elsewhere
A	ampere(s)
AADT	annual average daily traffic
AB	Assembly Bill
ACC	aluminum conductor
AC/DC	alternating current/direct current
ACM	asbestos-containing materials
ADA	Americans with Disabilities Act
ADT	average daily traffic
AES	aesthetics
A/G	general agriculture
AGR	agriculture
AIR	air quality
A/L	limited agriculture
ALUP	Airport Land Use Plan
AMM	avoidance and minimization measure
Anon.	anonymous
ANSI	American National Standards Institute
API	area of potential impact
APLIC	Avian Power Line Interaction Committee
APM	applicant-proposed measure
APN	Assessor Parcel Number

AQMP	air quality management plan
ASCE	American Society of Civil Engineers
AST	aboveground storage tank
A/UR	agricultural-urban reserve
BAAH	breaker-and-a-half
BCC	Birds of Conservation Concern
BESS	battery energy storage solution
BGEPA	Bald and Golden Eagle Protection Act
BLM	U.S. Bureau of Land Management
BIO	biological resources
BMP	best management practice
BSA	biological study area
BNSF	Burlington Northern Santa Fe Railway
C/RS	rural service commercial
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
CA HSC	California Health and Safety Code
CAISO	California Independent System Operator
cal BP	calendar years before present
CalEEMod	California Emission Estimator Model
Cal/EPA	California Environmental Protection Agency
CAL FIRE	California Department of Forestry and Fire Protection
Cal/OSHA	California Division of Occupational Safety and Heath
CAPCOA	California Air Pollution Control Officers Association
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CBC	California Building Code
CCaIC	Central California Information Center
CCR	California Code of Regulations
CCRD	PG&E Confidential Cultural Resource Database
CCT	Central California Traction Company

CCVT	coupling capacitor-type voltage transformer
CDF	California Department of Forestry
CDFW	California Department of Fish and Wildlife
CE	Candidate Endangered
CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CESA	California Endangered Species Act
CEC	California Energy Commission
CFR	Code of Federal Regulations
CGP	Construction General Permit
CGS	California Geological Survey
CH_4	methane
CHP	California Highway Patrol
CMP	Congestion Management Program
CNDDB	California Natural Diversity Database
CNEL	Community Noise Equivalent Level
CNPS	California Native Plant Society
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalent
CPCN	Certificate of Public Convenience and Necessity
CPUC	California Public Utilities Commission
CRHR	California Register of Historical Resources
CRPR	CNPS California Rare Plant Rank
CRS	PG&E Cultural Resources Specialist
CT	combustion turbine
CUPA	Certified Unified Program Agency
CUL	cultural resources
CVFPB	Central Valley Flood Protection Board
CWA	Clean Water Act
CWIP	California Water Indicators Portal

D	depth
dB	decibels
dBA	A-weighted decibels
DCTL	double-circuit transmission line
DMR	Division of Mine Reclamation
DOC	California Department of Conservation
DOL	U.S. Department of Labor
DOT	U.S. Department of Transportation
DPM	diesel particulate matter
DPR	Department of Parks and Recreation
DTSC	California Department of Toxic Substances Control
DWR	California Department of Water Resources
E	State Endangered
EBRPD	East Bay Regional Park District
EDR	Environmental Data Resources, Inc.
EIR	Environmental Impact Report
EMF	electric and magnetic fields
EPA	U.S. Environmental Protection Agency
ESA	federal Endangered Species Act
ESJGA	Eastern San Joaquin Groundwater Authority
FAA	Federal Aviation Administration
Far Western	Far Western Anthropological Research Group, Inc.
FEMA	Federal Emergency Management Agency
FERC	Federal Energy Regulatory Commission
FHWA	Federal Highway Administration
FHSZ	fire hazard severity zone
FIA	fire index area
FIRM	Flood Insurance Rate Map
FMMP	Farmland Mapping & Monitoring Program
FOCA	Swiss Federal Office of Civil Aviation
FP	Fully Protected Species

FPI	Fire Potential Index
fps	foot (feet) per second
FRA	federal responsibility area
FTA	Federal Transit Administration
GAMAQI	Guidance for Assessing and Mitigating Air Quality Impacts
GC	Government Code
GCC	grid control center
GEO	geology and soils
GHG	greenhouse gas
GIS	geographic information system
GO	General Order
GO 95	CPUC General Order No. 95
GO 131-D	CPUC General Order No. 131-D
GO 165	CPUC General Order No. 165
GWP	global warming potential
H	height
HAP	hazardous air pollutant
HAZ	hazards, hazardous materials, and public safety
HCP	Habitat Conservation Plan
HDD	horizontal directional drilling
HEPA	high-efficiency particulate air
HFTD	high fire threat district
HMBP	Hazardous Materials Business Plan
HRA	health risk assessment
HSAA	Hazardous Substance Account Act
HVAC	heating, ventilation, and air conditioning
HWCL	Hazardous Waste Control Law
HYD	hydrology and water quality
I	Interstate
IEEE	Institute of Electrical and Electronics Engineers
ISR	Indirect Source Review

Jacobs	Jacobs Engineering Group Inc.
kAIC	kilo ampere interrupting capacity
kcmil	thousands of circular mils
kg	kilogram(s)
KOP	Key Observation Point
kV	kilovolt(s)
kVA	kilovolt-ampere(s)
kW	kilowatt
kWh	kilowatt hours
L	length
L_{dn}	day-night sound level
L_{eq}	equivalent sound pressure level, time-averaged sound level
L_{max}	highest sound level measured during a single noise event
LAN	land use and planning
lbs	pounds, unit of weight
LEC	Lodi Energy Center
LEU	Lodi Electric Utility
Ln	Lane
LRA	local responsibility area
LOS	Level of Service
LTC	load tap changer
LZ	landing zone
m^3	cubic meter(s)
MBTA	Migratory Bird Treaty Act
MGCC	minimum ground conductor clearance
mi	mile
MLD	Most Likely Descendant
mph	mile(s) per hour
MRZ	mineral resource zone
MS4	municipal separate storm sewer system
MT	metric ton(s)

MVA	megavolt ampere(s)
MW	megawatt(s)
N_2O	nitrous oxide
n/a	not applicable
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
NCCP	Natural Communities Conservation Plan
NCEI	National Centers for Environmental Information
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NCPA	Northern California Power Association
NCR	Natural and Cultural Resources
NEPA	National Environmental Policy Act
NERC	North American Electric Reliability Corporation
NESC	National Electric Safety Code
NESHAP	National Emission Standards for Hazardous Air Pollutants
n.d.	no date
NFIP	National Flood Insurance Program
NFPA	National Fire Protection Association
NIOSH	National Institute for Occupational Safety and Health
NMFS	National Marine Fisheries Service
NO_2	nitrogen dioxide
NO_X	oxides of nitrogen
NOAA	National Oceanic and Atmospheric Administration
NOI	noise
NPDES	National Pollutant Discharge Elimination System
NPS	National Park Service
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NSJWCD	North San Joaquin Water Conservation District
NWCG	National Wildfire Coordinating Group
NWS	National Weather Service

O_3	ozone
O&M	operations and maintenance
OEHHA	Office of Environmental Health Hazard Assessment
OES	Office of Emergency Services
OHP	Office of Historic Preservation
OHWM	ordinary high water mark
OPGW	optical fiber ground wire
OPLA	Omnibus Public Lands Act
OSHA	U.S. Occupational Safety and Health Administration
PAL	paleontological resources
PEA	Proponent's Environmental Assessment
PG&E	Pacific Gas and Electric Company
Phase I ESA	Phase I Environmental Site Assessment
Ph.D.	Doctor of Philosophy
PM	particulate matter
PM_{10}	particulate matter with an aerodynamic diameter less than 10 microns
$PM_{2.5}$	particulate matter with an aerodynamic diameter less than 2.5 microns
PPE	personal protective equipment
ppm	part(s) per million (by volume)
PPV	peak particle velocity
PRC	Public Resources Code
PRP	Paleontological Resources Preservation
project	Northern San Joaquin 230 kV Transmission Project
PSPS	Public Safety Power Shutoff
PVC	polyvinyl chloride
Qha	Alluvium
Qm1	Modesto Formation
Qm2	Modesto Formation
Qm2e	Modesto Formation
Qm2f	Modesto Formation
Qr1	Lower Riverbank Formation

Qr2	Lower Riverbank Formation
Qr2f	Middle Riverbank Formation
Qr3	Upper Riverbank Formation
Qr3f	Upper Riverbank Formation
Qt1	Turlock Lake Formation
Qu	Alluvium/Colluvium
RCRA	Resource Conservation and Recovery Act
Rd	Road
ROG	reactive organic gases
ROW	right-of-way
RWQCB	Regional Water Quality Control Board
SB	Senate Bill
SCADA	supervisory control and data acquisition
SCAQMD	South Coast Air Quality Management District
SDS	Safety Data Sheet
SF_6	sulfur hexafluoride
SFHA	special flood hazard area
SGMA	Sustainable Groundwater Management Act
SIP	State Implementation Plan
SJ&SNR	San Joaquin and Sierra Nevada Railroad
SJCEHD	San Joaquin County Environmental Health Department
SJCOG	San Joaquin Council of Governments
SJCSO	San Joaquin County Sheriff's Office
SJC GIS	San Joaquin County Geographic Information Systems
SJMSCP	San Joaquin County Multi-species Habitat Conservation and Open Space Plan
SJVAPCD	San Joaquin Valley Air Pollution Control District
SLF	Sacred Lands File
SO_2	sulfur dioxide
SPCC Plan	Spill Prevention, Control, and Countermeasure Plan
SR	State Route
SRA	State Responsibility Area

SSC	Species of Special Concern
SSVT	station service voltage transformer
St	Street
STAA	Surface Transportation Assistance Act
SW STA	switching station
SWPPP	Stormwater Pollution Prevention Plan
SWRCB	State Water Resources Control Board
T	Federally Threatened or State Threatened
Tl	Laguna Formation
TCR	Tribal cultural resources
TMP	Traffic Management Plan
TPP	transmission planning process
TRA	transportation
TSP	tubular steel pole
UCMP	University of California at Berkeley Museum of Paleontology
UPRR	Union Pacific Railroad
USA	Underground Service Alert
USACE	U.S. Army Corps of Engineers
USC	United States Code
USFWS	U.S. Fish and Wildlife Service
UWMP	Urban Water Management Plan
V	volt
VELB	valley elderberry longhorn beetle
VMT	vehicle miles traveled
W	width
WEAP	worker environmental awareness training program
WECC	Western Electricity Coordinating Council
WID	Woodbridge Irrigation District
WFR	wildfire
WMP	Wildfire Management Plan
WUI	Wildland Urban Interface

yd^3	cubic yard(s)

1 Executive Summary

In accordance with the California Public Utilities Commission (CPUC) General Order (GO) 131-D, this Proponent's Environmental Assessment (PEA) has been prepared by Pacific Gas and Electric Company (PG&E) to support the application for a Certificate of Public Convenience and Necessity (CPCN) for the Northern San Joaquin 230 Kilovolt (kV) Transmission Project (project).

1.1 Proposed Project Summary

The Northern San Joaquin 230 kV Transmission Project will provide a new 230 kV transmission system in northern San Joaquin County, in central California. The project will loop the PG&E existing overhead Brighton-Bellota 230 kV transmission line through PG&E Lockeford Substation and install a new overhead double-circuit 230 kV transmission line between PG&E Lockeford Substation and a new PG&E switching station (PG&E Thurman Switching Station) at the City of Lodi's Lodi Electric Utility's (LEU) existing Fred M. Reid Industrial Substation (Industrial Substation) in Lodi, California. LEU will construct LEU Guild Substation, a new 230/60 kV substation, between the existing LEU Industrial Substation and the new PG&E Thurman Switching Station. At LEU Guild Substation, the new PG&E 230 kV transmission line will terminate and LEU transformers will step down the power to 60 kV to connect with LEU Industrial Substation. When the new 230 kV system is operating, the existing local PG&E 60 kV system will be reconfigured within existing alignments, including disconnecting as a source to LEU at LEU Industrial Substation. Existing LEU and PG&E 12 kV service/feeder lines and a third-party telecommunication line within the City of Lodi will be modified during construction to allow reuse of an existing alignment, continuation of existing service, and construction new permanent secondary station service.

The project will be located within unincorporated areas of northeastern San Joaquin County and partially within an industrial area of the City of Lodi (refer to Figure 3.1-1). Northeastern San Joaquin County is predominantly agricultural land use with retail wineries, rural and semirural residential development outside of the City of Lodi, and small concentrated areas of industrial and commercial business along transportation corridors.

PG&E will perform proposed project-related work to update the system protection scheme at four remote-end PG&E substations (Bellota, Brighton, Lodi, and Rio Oso), which are located in Linden, Sacramento, Lodi, and Rio Oso, California, respectively. PG&E project-related telecommunication work will include work at the existing PG&E Clayton Hill Repeater Station (communication tower) in Contra Costa County to create a new digital microwave path allowing redundant communication into PG&E Thurman Switching Station in support of PG&E's system protection scheme.

The purpose of PG&E's Northern San Joaquin 230 kV Transmission Project is to address reliability and capacity issues identified by the California Independent System Operator (CAISO) on the existing PG&E 230 kV and 60 kV systems serving the area between PG&E Lockeford and PG&E Lodi substations (Lockeford/Lodi, or 230/60 kV system) in northern San Joaquin County (Northern San Joaquin area). PG&E currently implements operational procedures to temporarily address the potential for 60 kV systemwide outages during peak loading conditions over approximately 165 megawatts (MW) of load. This temporary operational procedure draws from a single strong PG&E 230 kV source and can serve up to approximately 180 MW of load. If the 60 kV system load exceeds 180 MW, or if the single PG&E 230 kV line has an issue and cannot provide transmission, then the area's power load needs are not met.

The Northern San Joaquin area is forecasted to continue to grow its power load requirements. The PG&E 230/60 kV system's current normal load serving capability of approximately 194 MW under normal operating conditions is expected to be increasingly exceeded and the temporary mitigating operational procedures will not be a solution with forecasted power load increases. Power load needs to be shifted from the PG&E 60 kV lines to another source to accommodate the area's forecasted power load. The project will shift approximately 148 MW of load to a new PG&E 230 kV source. Adding this new PG&E 230 kV source to the area will result in increased 230/60 kV system reliability and an expected normal

load serving capability of approximately 404 MW under normal operating conditions that will accommodate the forecasted power demand from agricultural, industrial and residential growth in northern San Joaquin County.

The basic objective of the project is:

- Address voltage issues and thermal overloads on PG&E's Lockeford/Lodi system during normal operation (Category P0) and during Category P1 and P6 contingency scenarios with a 230 kV reinforcement and substation, as identified by the CAISO in its 2017-2018 Transmission Plan.
- More specifically, the objectives of the proposed project are to:
- Meet PG&E's legal obligation to implement the CAISO-approved project.
- Improve system reliability for PG&E's approximately 10,000 electrical customers, one of which is Lodi Electric Utility, which itself serves approximately 27,750 customers.
- Increase capacity to accommodate projected growth in demand and minimize future reliability issues.
- Address thermal overloads and voltage concerns on PG&E's 60 kV transmission system identified during P1 contingencies and maintain compliance with North American Electric Reliability Corporation (NERC) standards.
- Address thermal overloads on PG&E's 60 kV transmission system identified during P6 contingencies and maintain compliance with NERC standards.
- Reinforce the PG&E 60 kV system in the Lodi area by constructing a new 230 kV double-circuit line to provide an additional source of power.
- Construct a new 230 kV switching station to receive the new 230 kV double-circuit line and provide power to a new 230/60 kV substation to be constructed by LEU.
- Separate PG&E's 60 kV system at the LEU Industrial Substation from LEU's 60 kV system.
- Construct a safe, economical, and technically feasible project that minimizes environmental and community impacts.

1.2 Land Ownership and Right-of-Way Requirements

Project components include existing facilities within existing PG&E or LEU land ownership, right-of-way (ROW), and easements, some of which may be modified to accommodate new project components. New project components will include land acquisition, new ROW, and permanent and temporary construction easements. PG&E would acquire land from the City of Lodi for the new PG&E Thurman Switching Station. Otherwise, all PG&E substation and repeater station work would occur within existing PG&E property owned in fee. PG&E would establish permanent and temporary construction easements, use franchise rights, or seek encroachment permits or easements for construction and operation of its new and existing electrical facilities associated with the project. LEU's project-related activities would occur on City of Lodi property, city streets, or on LEU customer property.

Land rights issues are not part of this regulatory proceeding in which the CPUC is considering whether to grant or deny PG&E's application for a CPCN to upgrade existing electrical facilities. Rather, any land rights issues will be resolved in subsequent negotiations and/or condemnation proceedings in the proper jurisdiction, following the decision by the CPUC on PG&E's application (for example, refer to the Jefferson-Martin 230 kV Transmission Project, A.02-04-043, D.04-08-046, p. 85).

A list of parcels within 300 feet of the project including the Assessor's Parcel Number, mailing address, and the parcel's physical address will be provided when the PEA is filed with the CPCN Application. Refer to Appendix 1A.

1.3 Areas of Controversy

There are no known areas of controversy, and no major issues that must be resolved related to the project. PG&E considered public input and preferences during project development. Routing alternatives described in Chapter 4 reflect public preference to reuse existing alignments where feasible, reduce potential agricultural impacts by aligning with the edge of fields where feasible, and achieve set back from major throughfares and wineries while avoiding population centers. Route and project alternatives developed with public information include: the proposed project route, Central Route Alternative, Northern Route Alternative, Southern Route East, Victor Road/SR 12 Route, East Kettleman Lane Route, use existing 60 kV ROW, 60 kV reconductoring, upgrading existing PG&E 60 kV lines to 115 kV, undergrounding the new transmission lines, and paralleling other roads and linear alignments.

1.4 Summary of Impacts

Project impacts are primarily construction related and the project has been planned and engineered to avoid or minimize the largely temporary environmental impacts. Based on the analysis presented in Chapter 5, Environmental Analysis, the project is not expected to result in significant and unavoidable impacts. Applicant-proposed measures (APMs) proposed by PG&E and best management practices (BMPs) proposed by LEU are considered part of the proposed project and include project design features, standard practices, and regulatory requirements. APMs and BMPs will be implemented to further avoid or minimize impacts on environmental resources, ensuring that any remaining impacts will be less than significant. These APMs and BMPs are identified in the respective resource sections within Chapter 5 and are summarized in Chapter 3, Project Description, Table 3.11-1.

1.5 Summary of Alternatives

PG&E screened the potential alternatives based on three criteria: (1) does the alternative meet most basic project objectives, (2) is the alternative feasible, and (3) does the alternative avoid or substantially lessen any significant environmental effects of the proposed project (including consideration of whether the alternative itself could create significant environmental effects potentially greater than those of the proposed project). PG&E considered the no-project alternative and 13 alternatives (system, siting [or routing], energy storage, and demand response). PG&E compared the alternatives with the project purpose, project objectives, feasibility criteria (consideration of schedule, economic, environmental, legal, social, and technological factors), and the environmental criterion (reduction of potentially significant environmental impacts). PG&E obtained input on potential project alternatives and routing alternatives from community and agency stakeholder information, and project planners and engineers.

After screening the list of 13 potential alternatives for feasibility and support for project objectives, PG&E identified 3 alternatives, in addition to the no-project alternative, that were carried forward for consideration in this PEA. The alternatives are described in detail in Section 4.2.2 and are summarized as follows:

- *Central Route Alternative*. The Central Route Alternative would route the western portion of the new 230 kV line to the north of the proposed project between PG&E Lockeford Substation and LEU Industrial Substation. It would parallel portions of the existing PG&E Lockeford-Industrial 60 kV Line. For the eastern segment between PG&E Lockeford Substation and PG&E Brighton-Bellota 230 kV Line, this alternative would parallel the existing PG&E Lockeford-Bellota 230 kV Line, the same eastern alignment as the project. The total length of new PG&E 230 kV transmission lines would be approximately 10.04 miles. All other components of this alternative would be the same as the project, including the PG&E Thurman Switching Station, LEU Guild Substation, PG&E and LEU Thurman-Guild 230 kV No. 1 and No. 2 Transmission Lines, LEU Guild-Industrial 60 kV No. 1 and No. 2 Power Lines, and PG&E 60 kV power line reconfigurations.
- *Northern Route Alternative*. The Northern Route Alternative alignment would route the western portion of the new 230 kV corridor, between PG&E Lockeford Substation and LEU Industrial

Substation, to the north of the proposed project alignment. It would parallel portions of the existing PG&E Lockeford-Industrial 60 kV Line on the western segment. Most of the eastern portion of the Northern Route Alternative 230 kV transmission line would be the same as the project. Approximately 1 mile west of PG&E Brighton-Bellota 230 kV Line (approximately 0.25 mile west of North Linn Road), the corridor would turn north and then east on East Sargent Road. The total length of new PG&E 230 kV transmission lines would be approximately 10.39 miles. All other components of this alternative would be the same as the project, including the PG&E Thurman Switching Station, LEU Guild Substation, PG&E and LEU Thurman-Guild 230 kV No. 1 and No. 2 Transmission Lines, LEU Guild-Industrial 60 kV No. 1 and No. 2 Power Lines, and PG&E 60 kV power line reconfigurations.

- *Lockeford-Lodi Area 230 kV Development (Eight Mile Substation) Alternative*. This version of the proposed project was included in the CAISO 2012-2013 Final ISO Transmission Plan (CAISO 2013). This alternative would include a 230 kV double-circuit transmission line (DCTL) from PG&E Eight Mile Substation to PG&E Lockeford Substation, construction of a new LEU 230 kV bus at LEU Industrial Substation and looping one of the new PG&E Eight Mile-Lockeford 230 kV lines into this bus from an adjacent new PG&E switching station. A combination of potential route options presented at the December 2016 open houses for the 2013 CAISO project is used as the alternative's centerline for comparison purposes. The alternative centerline avoids existing and planned land use constraints and generally is a shorter length than other potential route combinations. Combining the Southern Route Via Industrial and the Central routes to connect the end points creates a total length of new PG&E 230 kV transmission lines of approximately 19.85 miles. Components of this alternative would include construction of a new PG&E Thurman Switching Station and LEU Guild Substation; construction of a new 230 kV DCTL between PG&E Eight Mile Substation and PG&E Lockeford Substation with a loop into PG&E Thurman Switching Station; expansion of PG&E Eight Mile Substation by approximately 3.38 acres and grade approximately 5.85 acres to connect to the new 230 kV DCTL; expansion of approximately 1.5 acres and grading to PG&E Lockeford Substation to connect to the new 230 kV DCTL; and PG&E 60 kV power line reconfigurations.

1.6 Pre-filing Consultation and Public Outreach Summary

Pre-filing consultation and public outreach has occurred with CAISO, CPUC, public agencies with jurisdiction over the project area, Native American tribes affiliated with the project area, other utility owners and operators, and the local community and public. Information received from the public and interested parties supported the development and refinement of routes. Routing alternatives within Chapter 4 reflect public preference to reuse existing alignments where feasible, reduce potential agricultural impacts by aligning with the edge of fields where feasible, and achieve set back from major throughfares and wineries while avoiding population centers.

1.7 Conclusions

This PEA describes the project and its alternatives and evaluates potential environmental impacts that could result from construction or operation and maintenance of the project. Potential impacts on environmental resources are expected to be avoided or be less than significant. APMs and BMPs will be implemented to further avoid or minimize potential less-than-significant impacts on environmental resources.

1.8 Remaining Issues

There are no known major issues that remain to be resolved related to the project.

2 Introduction

This chapter introduces background information for the Northern San Joaquin 230 Kilovolt (kV) Transmission Project (project), including the project purpose and need, project objectives, and project applicant and a participating utility. Following the project background is a description of the project's pre-filing consultation and public outreach. This chapter concludes with an explanation of the expected environmental review process and a summarized list of the document's contents and organization.

2.1 Project Background

The electricity industry includes utilities, private power plant owners, and state and federal agencies, each playing a distinct role. The California Independent System Operator (CAISO), a nonprofit public benefit corporation, is charged with ensuring the safe and reliable transportation of electricity on the power grid serving 80% of California and a small part of Nevada. As the impartial grid operator, CAISO has no financial interest in any individual segment, ensuring fair and transparent access to the transmission network and market transactions. CAISO conducts an annual transmission planning process (TPP) that uses engineering tools to identify any grid expansions necessary to maintain reliability, lower costs, or meet future infrastructure needs based on public policies. CAISO engineers design, run, and analyze complex formulas and models that simulate grid use under wide-ranging scenarios, such as high-demand days coupled with wildfires. CAISO TPP includes evaluating proposals submitted for study into the interconnection queue to determine viability and impact to the grid (CAISO 2022).

2.1.1 CAISO Project Development

CAISO refers to the project as Lockeford-Lodi Area 230 kV Development in its transmission planning documents. An annual CAISO TPP beginning in 2012 identified system reliability issues that did not meet certain thermal and voltage performance requirements established by the North American Electric Reliability Corporation (NERC)[1].

In the CAISO 2012-2013 TPP assessment, five Pacific Gas and Electric Company (PG&E) 60 kV lines between PG&E Lockeford and PG&E Lodi substations (Lockeford/Lodi, or 230/60 kV system) in northern San Joaquin County (Northern San Joaquin area) were identified as having existing overload and high voltage deviation. These reliability issues did not meet certain thermal and voltage performance requirements established by NERC. To address the reliability issues, CAISO selected one of the proposals submitted through CAISO's 2012 proposal request window. The selected solution submitted by the City of Lodi suggested a 230 kV reinforcement for the 230/60 kV system (CAISO 2013a).

CAISO's 2017-2018 planning cycle continued a reassessment of projects approved in previous transmission planning cycles. CAISO reevaluated the need for a 230 kV reinforcement project based on the latest system planning assumptions, which had changed since the 2012-2013 TPP because of gridwide evolving load forecasts and distributed energy resource growth scenarios. Again, CAISO conducted a reliability assessment on the 230/60 kV system in the Northern San Joaquin area, studying normal system and various outage conditions for peak loading over a 10-year planning horizon. The CAISO reliability assessment identified thermal overload and voltage issues resulting from NERC Category P1[2] contingencies on the PG&E 230/60 kV systems between PG&E Lockeford and Lodi Electric Utility (LEU) Industrial substations (CAISO 2018a). Additional CAISO assessment identified several NERC Category P6[3] outage scenarios that could result in thermal overloads on the 60 kV power lines in the Northern San Joaquin area (CAISO 2018b). CAISO identified Category P6 outages causing thermal

[1] NERC's transmission system planning performance requirements for normal system operation include assessment and planning for events that could impact a system's stability and service.
[2] A single outage, or a NERC Category P1 contingency, is defined as the loss of a generator, the loss of one transmission circuit, the loss of one transformer, the loss of one shunt device, or the loss of a single pole of direct current lines (NERC 2014).
[3] NERC Category P6 contingency, or outage, is defined as two overlapping single outages (transmission circuit, transformer, shunt device, or single pole of a direct current line) (NERC 2014).

overloads involving an outage of two of the five PG&E 60 kV power lines in its reliability assessment. While P6 is not required to be addressed by CAISO at this time, the project will address the thermal overloads identified by the P6 outage scenarios. CAISO's 2017-2018 TPP assessment showed that if the recorded 2017 peak load for LEU was modeled in its study, overloads for P1 outages would have been identified on the PG&E 60 kV lines between PG&E Lockeford Substation and LEU Industrial Substation (CAISO 2018b). After 2018, CAISO identified Category P1 outages on the PG&E 60 kV lines in the Northern San Joaquin area as peak loads has increased annually.

The LEU electric customers comprise the majority of the load in the area. In addition to LEU's three connections to PG&E's 60 kV system (PG&E Lockeford-Industrial, PG&E Lodi-Industrial, and PG&E Industrial Tap 60 kV lines), local generation can be dispatched under emergency conditions from the Northern California Power Agency (NCPA) 25 megawatt (MW) Lodi Combustion Turbine (Lodi CT, or Lodi CT1) within the City of Lodi through its connection at LEU Industrial Substation (CAISO 2018b). According to the CAISO 2017-2018 TPP Stakeholder Comment submissions, NCPA and the City of Lodi have indicated that Lodi CT should not be relied upon for load support[4]. CAISO indicated that Lodi CT was modeled as offline in the study cases in its response to the stakeholder comments (CAISO 2018e).

In its final 2017-2018 Transmission Plan (CAISO 2018a), CAISO reaffirmed the need for a 230 kV reinforcement for the area to address reliability and forecasted capacity increases and approved a revised scope for the project that refined the original project components. The current proposed project is the solution identified in CAISO's 2017-2018 Final Transmission Plan (CAISO 2018a).

CAISO Revised Scope:

- Loop Brighton-Bellota 230 kV line into the Lockeford Substation.
- A double-circuit 230 kV line from Lockeford to a new Industrial 230 kV switching station.
- 2017-2018 TPP estimated cost: $89 million.

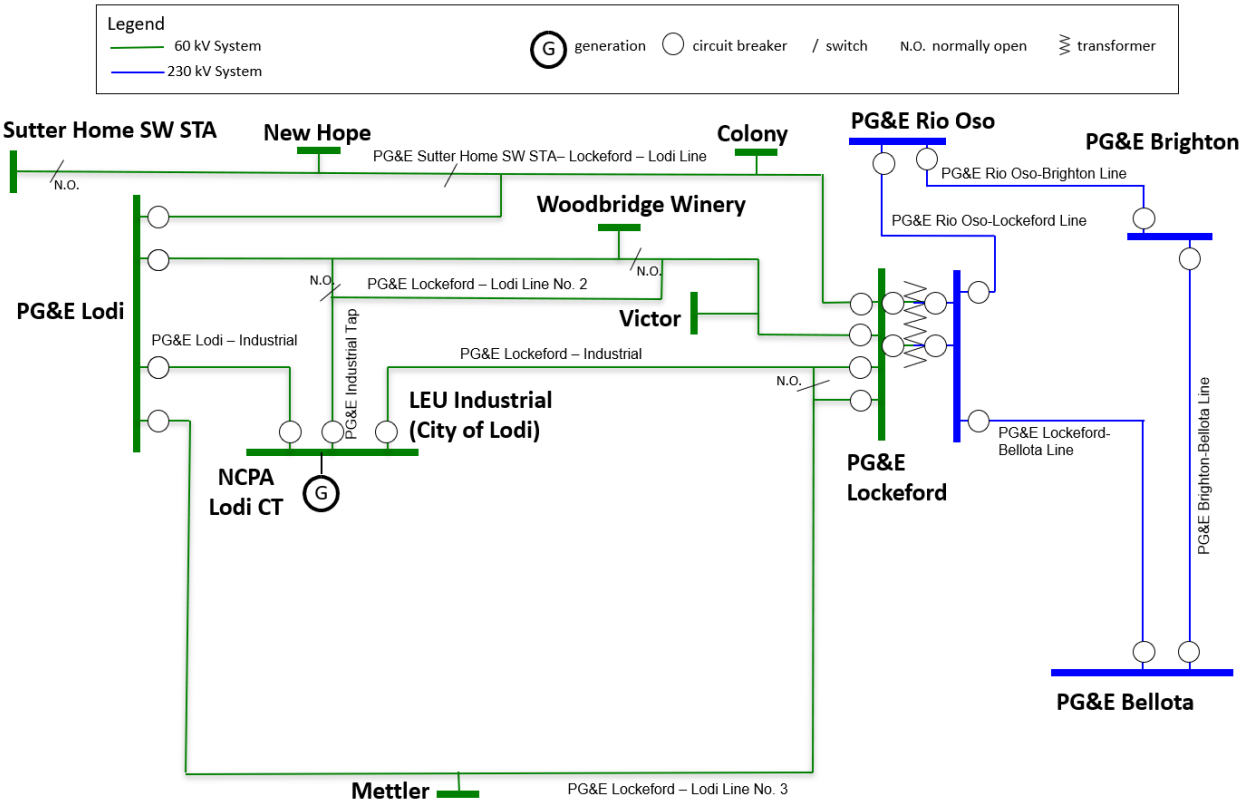
The original project was approved and assigned to PG&E consistent with the CAISO's tariff at the time. Changes related to the Federal Energy Regulatory Commission (FERC) Order 1000 came into effect after the project was originally approved. FERC Order 1000 removed of the right of first refusal from regional tariffs, where historically, incumbent transmission providers had been given a preference on transmission projects in their existing territories. CAISO administers the FERC Order 1000 competitive bid process for transmission projects installing new infrastructure. Since the need and the revised CAISO scope were not materially different as compared to the original project, CAISO stated that the revised scope was not eligible for competitive solicitation (CAISO 2018e).

2.1.2 Existing System and Service Area

PG&E customers in the Northern San Joaquin area are served by PG&E Lockeford Substation, which receives its power for its Lockeford-Lodi 60 kV line system from two PG&E 230 kV transmission lines. Refer to Figure 2.1-1. One 230 kV transmission line, PG&E Rio Oso-Lockeford, comes from PG&E Rio Oso Substation, which is 60 miles away from PG&E Lockeford Substation, and the other 230 kV transmission line, PG&E Lockeford-Bellota, comes from PG&E Bellota Substation, which is 11 miles away. The 230 kV transmission is stepped down to 60 kV through two 230/60 kV transformers at PG&E Lockeford Substation. PG&E's 60 kV system is capable of delivering up to 194 MW of power to the Northern San Joaquin area under normal conditions.

[4] Although the Lodi CT is listed as a Generating Plant in the TPP Study Plan, this plant was commissioned in 1986 and will be 40 years old during this TPP planning period. This plant is located on the load side of the Industrial bus and should not be considered as load support for the City of Lodi or the surrounding area. The 10-year peak load forecast for the Industrial bus, as submitted by NCPA on behalf of the City of Lodi, is flat for the planning period of this TPP and does not reflect recent economic developments in the area spurred on by the growing wine industry in the region. The revised 10-year load forecast will be made available to CAISO for further analysis of the Lockeford-Lodi Area 230 kV Development [CAISO 2018c and CAISO 2018d].

Figure 2.1-1. Existing System Single Line Diagram



PG&E's 60 kV system consists of five lines[5] delivering power to the Northern San Joaquin area: Sutter Home Switching Station (Sw Sta)-Lockeford-Lodi, Lockeford-Lodi No. 2, Lockeford-Lodi No. 3, Lockeford-Industrial, and Lodi-Industrial lines. The first three listed 60 kV lines start at PG&E Lockeford Substation and travel westward to PG&E Lodi Substation. In similar west-east configurations, PG&E Lockeford-Industrial 60 kV Line and Lodi-Industrial 60 kV Line both connect PG&E Lockeford and PG&E Lodi substations to LEU Industrial Substation. A third connection to LEU Industrial Substation comes from PG&E Industrial Tap 60 kV Line, which is an extension of PG&E Lockeford-Lodi No. 2 60 kV Line.

The project's service area is within northern San Joaquin County and includes approximately 37,750 PG&E and LEU electrical customers in the communities of Stockton, Lodi, Lockeford, Victor, Acampo, and Thornton. The City of Lodi and its LEU is one of PG&E's approximately 10,000 customers in the service area. LEU serves approximately 27,750 electrical customers within the City of Lodi (City of Lodi 2023).

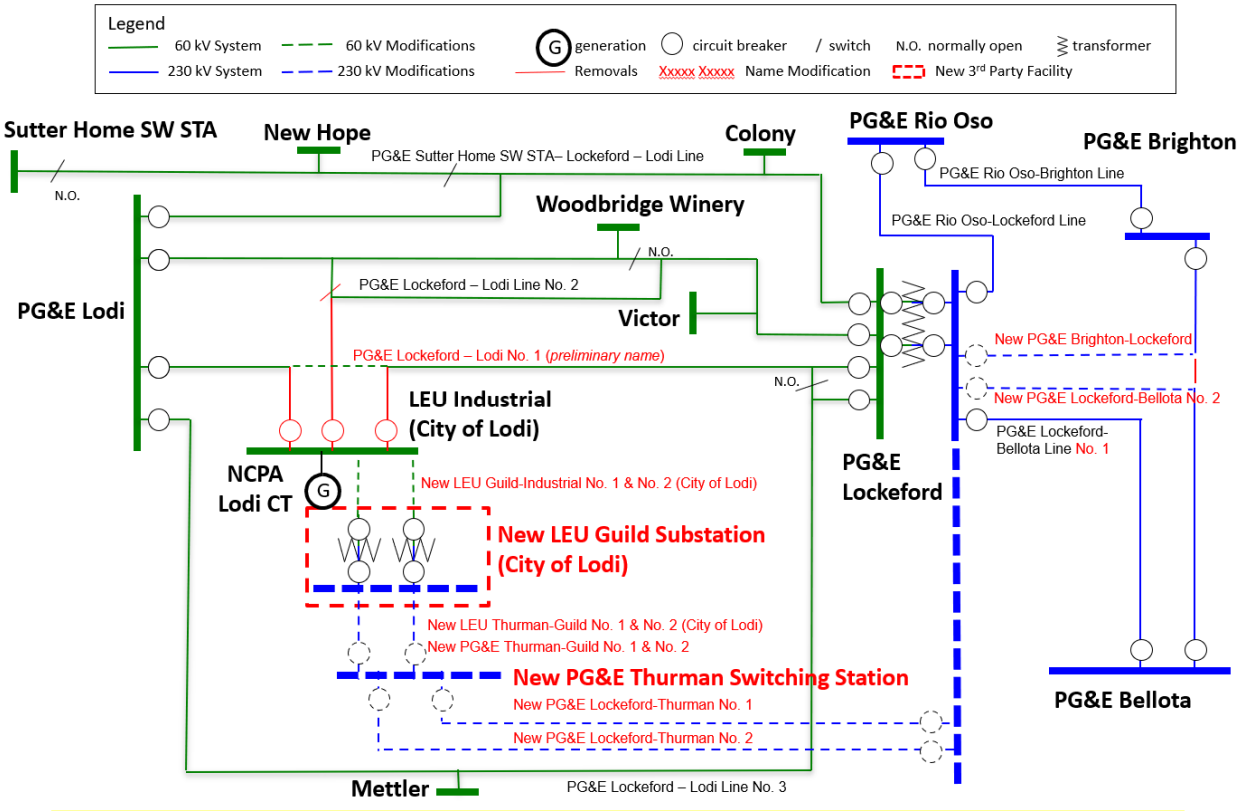
2.1.3 Proposed System and Service Area

Consistent with the CAISO scope, PG&E's proposed project scope would loop PG&E Brighton-Bellota 230 kV Line through PG&E Lockeford Substation and construct a new double-circuit 230 kV line through the new PG&E Thurman Switching Station at LEU Industrial Substation. The PG&E 230 kV scope includes the expansion of PG&E Lockeford Substation to accommodate the new 230 kV lines. LEU's connected action includes a new LEU 230/60 kV Guild Substation to receive the new 230 kV source from the new PG&E Thurman Switching Station. LEU Guild Substation will step down the new 230 kV source to 60 kV and connect to a modified LEU Industrial Substation. Refer to Figure 2.1-2.

[5] PG&E Sutter Home Sw Sta-Lockeford-Lodi and PG&E Lockeford-Lodi No. 3 lines will not be modified as part of the project. However, they are part of the PG&E 60 kV system delivering power and are affected by the reliability issues that the project will solve.

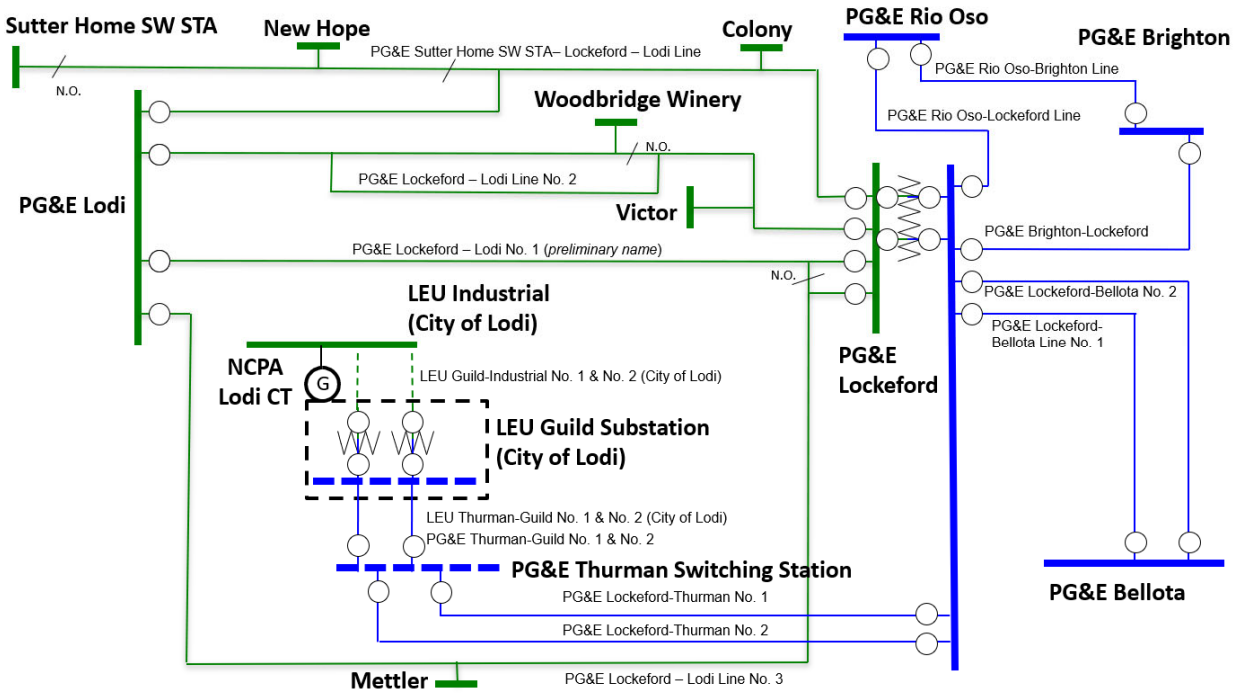
The three existing PG&E 60 kV lines currently connected to LEU Industrial Substation would be disconnected from LEU Industrial Substation as part of the project. PG&E Lodi-Industrial, PG&E Industrial Tap, and PG&E Lockeford-Industrial 60 kV lines would be reconfigured outside of LEU Industrial Substation when the new 230 kV source is in service.

Figure 2.1-2. Proposed System Changes Single Line Diagram



With the completion of the project, PG&E will no longer have a 60 kV connection with the City of Lodi through LEU Industrial Substation. At the completion of the project, the reconfigured PG&E 60 kV lines between PG&E Lockeford and PG&E Lodi substations will serve the PG&E 60 kV system as PG&E Lodi-Lockeford No. 1 60 kV Line (preliminary name). The reconfigured PG&E 60 kV line will have increased capacity, allowing more reliable service to the PG&E 60 kV network in northern San Joaquin County. The project's service area will not change with the implementation of the project. The proposed project at completion is shown on Figure 2.1-3.

Figure 2.1-3. Proposed System at Project Completion Single Line Diagram



2.1.4 Project Purpose and Need

Energy demand in the Northern San Joaquin area is increasing steadily with residential development as well as agricultural and industrial growth. The peak amount of electrical service, or load served, in the area has exceeded the capacity of the existing system during normal operation and under various outage conditions. When the system load exceeds capacity, voltage and thermal issues may arise that can impair the reliability of the system, which is happening on the existing PG&E 230/60 kV system in the Northern San Joaquin area. To accommodate existing and forecasted growth in electrical needs beyond the existing capacity, the system needs to shift load to improve system reliability. The project will shift load from the 60 kV system to a new 230 kV source identified as the solution by CAISO. CAISO concluded in its 2017-2018 Transmission Plan that this project would address reliability, thermal overload, and voltage issues on the 60 kV network between PG&E Lockeford and PG&E Lodi substations and the 230 kV system serving the area (CAISO 2018a).

2.1.4.1 Existing System Load Serving Capability

The current PG&E Lockeford-Lodi system has a load serving capability[6] of approximately 194 MW under normal operating condition, and an emergency load serving capability of approximately 152 MW under a modeled NERC Category P1[7] contingency.

Under peak loading conditions (more than approximately 165 MW of load), an outage of PG&E Lockeford-Bellota 230 kV Line[8] would result in significant voltage deviation and low voltages on PG&E Lockeford Substation 230 kV and 60 kV systems, which could lead to a systemwide outage in the Northern

[6] These load serving capability amounts were modeled most recently by PG&E in November 2022 using the line 2 fps emergency rating wherever it applied. The NCPA generation (Lodi CT, combustion turbine in the City of Lodi) was offline in the model, consistent the CAISO TPP 2017-2018 modeling.
[7] A single outage, or a NERC Category P1 contingency, is defined as the loss of a generator, the loss of one transmission circuit, the loss of one transformer, the loss of one shunt device, or the loss of a single pole of direct current lines (NERC 2014).
[8] A NERC Category P1 contingency

San Joaquin area for the approximately 37,750 electrical customers. The PG&E temporary operational procedure is to operate only the stronger transmission source – the shorter 11-mile PG&E Lockeford-Bellota 230 kV Line – serving PG&E Lockeford Substation. Currently, during peak loading conditions, PG&E open-ends the longer 60-mile PG&E Rio Oso-Lockeford 230 kV Line, effectively taking the line out of service to PG&E Lockeford Substation temporarily. This temporary operational procedure addresses voltage issues, allowing the existing PG&E 230/60 kV system in the Northern San Joaquin area to serve up to approximately 180 MW of load from the strong transmission source. However, this temporary operational procedure means only one 230 kV source is serving PG&E Lockeford Substation and the Northern San Joaquin area 60 kV system. Under these conditions, the reliability of the power supply for the Northern San Joaquin area is significantly reduced as it now only has a single 230 kV source. If the 60 kV system load exceeds 180 MW, or if the shorter PG&E Lockeford-Bellota 230 kV Line has an issue and cannot provide transmission, then service through the PG&E 60 kV system would be lost without the longer PG&E 230 kV line in operation. This temporary operational procedure mitigation will not be an effective solution with forecasted peak load regularly being greater than 180 MW.

2.1.4.2 System Load Forecast

LEU accounts for the majority of the load served from the PG&E 60 kV system. In 2017, LEU was approximately 80% of the peak load and NCPA forecasts that LEU will represent more than 90% of the peak load by 2025 (CAISO 2018b). Severe overload on the PG&E 60 kV lines were identified under P6 contingencies when LEU Industrial Substation's peak load was studied in 2017-2018 TPP (CAISO 2018b). Under the 2027 peak shift scenario, P1 contingency loading was at 99% and if the 2017 peak load was modeled in the studies, P1 overload would have been identified (CAISO 2018b). In 2018, LEU forecasted future growth within a few years to have a total load of approximately 200 MW (CAISO 2018b).

The Northern San Joaquin area is forecasted to grow at a rate of approximately 1.36% based on the 10-year load forecast in the 2021-2022 CAISO TPP cycle. Table 2.1-1 shows the PG&E 10-year load forecast used for the CAISO 2021-2022 TPP cycle. The forecast was used to identify overload scenarios, as discussed further in the following sections.

Table 2.1-1. 10-Year Load in Megawatts Forecast Used for the CAISO 2021-2022 TPP Cycle

Substation	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Victor (PG&E)	12.3	15.0	14.7	14.5	14.4	14.7	14.7	14.7	14.6	14.6	14.6
Lodi (PG&E)	19.6	19.3	19.1	19.0	18.9	19.3	19.5	19.6	19.7	19.8	19.9
Woodbridge Winery	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Colony (PG&E)	4.8	4.8	4.6	4.5	4.5	4.6	4.6	4.5	4.4	4.4	4.4
New Hope (PG&E)	4.7	3.9	3.7	3.6	3.6	3.7	3.6	3.6	3.5	3.5	3.5
Mettler (PG&E)	6.6	6.5	6.4	6.2	6.2	6.3	6.3	6.2	6.2	6.2	6.1
Industrial (LEU)	123.2	128.8	125.2	132.1	134.6	137.4	139.0	141.2	143.9	146.4	148.3
Total Approximate MW	176.7	183.8	179.2	185.5	187.6	191.5	193.1	195.2	197.7	200.3	202.3

Notes: Load values are shown in megawatts (MW). Source: PG&E Transmission Planning 2022

PG&E's 2022 reliability assessment, using the 2031 forecasted loads, identified overloads for Category P0[9], P1, and P6 contingencies with Lodi CT modeled offline[10]. Table 2.1-2 and Table 2.1-3 show the percent loading of the summer normal and summer emergency ratings of the 60 kV power lines for NERC P0, P1, and P6 contingency categories based on the projected load MW forecasts for year 2031 using PG&E's 2021 series base case.

PG&E and LEU operate their systems to minimize the potential for overloads. Ultimately, when other measures have been exhausted, the final remedy is to drop the load.

Table 2.1-2 shows forecasted percent loading in 2031 during normal system conditions for a single PG&E monitored facility in the far left column during P0 category contingency or no PG&E 60 kV system outage. For example, in 2031, it is forecasted that during normal system conditions, PG&E Industrial Tap would experience approximately 105.84% overload.

The 2031 forecasted percent loading of the PG&E monitored facility in the left column during a potential P1 category contingency (a single outage of PG&E monitored facility in second header row), is shown in the five right columns. For example, in 2031, it is forecasted that during a potential P1 category contingency where PG&E Lockeford-Lodi No. 3 Line experiences an outage, the PG&E Industrial Tap would have an overload of approximately 108.81%.

Table 2.1-2. Approximate Forecasted Percent Loading on PG&E's 60 kV System During NERC P0 and P1 Category Contingencies in 2031

PG&E Monitored Facility	P0	P1 Contingency					
	Normal Overload	Lodi-Industrial	Lockeford-Lodi No. 2*	Lockeford-Lodi No. 3	Lockeford-Industrial	230/60 kV TB 3	230/60 kV TB 2
Lockeford-Lodi No. 2*	105.84%	None	NA	108.81%	135.86%	None	None
Lockeford-Industrial	104.78%	108.47%	129.02%	111.02%	NA	None	None
Lockeford-Lodi No. 3	None	None	115.09%	NA	126.17%	None	None
Sutter Home SW Sta-Lockeford-Lodi	None	None	None	None	108.16%	None	None
230/60 kV TB 3	None	None	None	None	None	NA	102.19%
230/60 kV TB 2	None	None	None	None	None	101.99%	NA

Notes: *Lockeford-Lodi No. 2 includes PG&E Industrial Tap. PG&E Lockeford Substation Transformer Bank = TB, No overload forecasted for the contingency category = None, Not Applicable (compares the same monitored facility) = NA. Source: PG&E Transmission Planning 2022

Table 2.1-3 shows forecasted percent loading in 2031 during a P6 category contingency. In this scenario, the forecasted overload on one of three PG&E monitored facilities is shown when the other two PG&E monitored facilities experience an outage. For example, in 2031, it is forecasted that PG&E Industrial Tap would experience approximately 230.10% loading if both PG&E Lockeford-Industrial and PG&E Lodi-Industrial lines experienced an outage at the same time. The table presents where overloads for one of three PG&E monitored facilities would occur. Combinations of PG&E monitored facilities without forecasted overloads are not shown.

[9] NERC Category P0 is defined as the normal system condition without any outages on the system (NERC 2014).
[10] Lodi CT is identified in PG&E operating procedures as one of the immediate mitigation measures to support the area in the event of an outage. The absence of Lodi CT increases the likelihood of requiring customers to be deenergized to address potential thermal overloads and voltage concerns on the PG&E 60 kV and 230 kV systems. As of July 28, 2022, NCPA communicated to PG&E that NCPA plans to operate Lodi CT with no end of service date in mind.

The project will shift approximately 148 MW of load (2021 series base case forecasted 2031 peak load) from the 60 kV system to a new 230 kV source.

Based on current PG&E and LEU load forecasts in Table 2.2-1 for LEU Industrial Substation without Lodi CT, thermal overloads will increase in magnitude for the existing NERC Category P6 violations and will eventually occur for NERC Category P1 outages, or single-element outages. Although addressing P6 outages is not mandated, it would create a stronger, more-robust network and support prudent planning.

Table 2.1-3. Approximate Percent Loading on PG&E's 60 kV Network During NERC P6 Category Contingencies

	P6 Contingency			
	Lockeford-Industrial			
PG&E Monitored Facility	Lodi-Industrial	Lockeford-Lodi No. 2b	230/60 kV TB 2	230/60 kV TB 3
Lockeford-Lodi No. 2[a]	230.10%	134.80%	None	None
Sutter Home SW Sta-Lockeford-Lodi	None	106.80%	109.70%	109.40%
Lockeford-Lodi No. 3	None	124.20%	None	None
230/60 kV TB 3	None	None	104.60%	NA
230/60 kV TB 2	None	None	NA	104.20%
	Lockeford-Lodi No. 2*			
PG&E Monitored Facility	Lockeford-Industrial	Lodi-Industrial	Lockeford-Lodi No. 2a	Lockeford-Lodi No.3
Lockeford-Industrial	NA	203.70%	125.20%	186.20%
Lodi-Industrial	228.30%	NA	None	None
Sutter Home SW Sta-Lockeford-Lodi	224.20%	None	None	149.30%
Lockeford-Lodi No. 3	271.30%	None	111.10%	NA
	Sutter Home SW Sta-Lockeford-Lodi			
PG&E Monitored Facility	Lockeford-Industrial	Lockeford-Lodi No. 2a	Lockeford-Lodi No. 3	
Lockeford-Lodi No. 2[a]	159.20%	NA	123.30%	
Lockeford-Industrial	NA	148.10%	127.90%	
Lockeford-Lodi No. 3	154.60%	135.90%	NA	
	Lockeford-Lodi No. 3			
PG&E Monitored Facility	Lockeford-Industrial	Lockeford-Lodi No. 2[a]	Lodi-Industrial	
Lockeford-Lodi No. 2[a]	202.10%	105.90%	None	
Lockeford-Industrial	NA	107.60%	None	
Sutter Home SW Sta-Lockeford-Lodi	173.80%	None	101.70%	

Notes:

[a]Lockeford-Lodi No. 2 (Lodi to Woodbridge Winery section) includes Industrial Tap. PG&E Lockeford Substation Transformer Bank = TB, No overload forecasted for the contingency category = None, Not Applicable (compares the same monitored facility) = NA.
Source: PG&E Transmission Planning 2022.

After the project, the PG&E Lockeford-Lodi system will increase from its current normal Load Serving Capability of 194 MW to approximately 404 MW with the proposed 230 kV system upgrade under normal

operating condition, and from its emergency Load Serving Capability of 152 MW to approximately 456 MW under P1 contingency. It should be noted that the line 2 feet per second (fps) emergency rating has been used wherever it applies and the NCPA Lodi CT is off in the study model.

By connecting a new 230 kV source to LEU and removing LEU from its current PG&E 60 kV sources, low voltage and thermal overload issues on the PG&E 230/60 kV system would be addressed with less overall power demand on the PG&E 60 kV system. The need for the current operational procedure (open-ending PG&E Rio Oso-Lockeford) would be eliminated and capacity for peak loading would be increased when the project is complete, creating improved service reliability for the PG&E customers in the Northern San Joaquin area during current and forecasted peak loading conditions.

2.1.5 Project Objectives

Based on the project need discussed previously, PG&E identified several objectives to enable it to meet the need. The basic objective of the proposed project is to address reliability and capacity issues on the existing PG&E 230 kV and 60 kV systems serving the area between PG&E Lockeford and PG&E Lodi substations (Lockeford/Lodi, or 230/60 kV system) in northern San Joaquin County (Northern San Joaquin area). The proposed project is needed because the existing PG&E 230/60 kV system is experiencing voltage issues and thermal overloads. The Northern San Joaquin area is forecasted to continue to grow its power load requirements, which will worsen these voltage and thermal overload issues. Currently, systemwide outages could potentially occur if a second outage happened under peak loading conditions where a single outage was being addressed by open ending PG&E Rio Oso-Lockeford 230 kV Line (Category P1 voltage issues). The PG&E system is experiencing thermal overloads under P0, P1, and P6 contingencies based on the summer normal and emergency ratings of the system's 60 kV power lines, indicating insufficient system capacity for the current load. Load forecasts indicate continued growth in the area, which will increase the magnitude of the thermal overloads.

The proposed project will meet the basic objectives of the project by adding a new 230 kV double-circuit line to PG&E's 230/60 kV system. The new 230 kV source will be interconnected into the 230/60 kV system via a new 230 kV switching station constructed by PG&E that will connect to a new 230/60 kV substation constructed by LEU. With the new 230/60 kV substation in place, LEU will no longer need to be served by PG&E's existing 60 kV system and PG&E will disconnect its 60 kV system from LEU's local power grid. By bringing in a new 230 kV source and separating PG&E's and LEU's 60 kV systems, the current and projected voltage issues and thermal overloads on PG&E's 230/60 kV system will be addressed and forecasted demand growth will be accommodated.

Attainment of the project objectives is necessary because PG&E is required to comply with NERC standards and provide safe, reliable electric service to its customers. Attainment of the project objectives is also necessary because PG&E is legally obligated to implement CAISO-identified reliability improvement projects. In developing the project objectives, PG&E considered the scope of the Certificate of Public Convenience and Necessity (CPCN) application, California Environmental Quality Act (CEQA) Guidelines and PG&E's environmental commitment.

The basic objective of the project is to:

- Address voltage issues and thermal overloads on PG&E's Lockeford/Lodi system during normal operation (Category P0) and during Category P1 and P6 contingency scenarios with a 230 kV reinforcement and substation, as identified by the CAISO in its 2017-2018 Transmission Plan.

More specifically, the objectives of the proposed project are to:

- Meet PG&E's legal obligation to implement the CAISO-approved project.
- Improve system reliability for PG&E's approximately 10,000 electrical customers, one of which is Lodi Electric Utility, which itself serves approximately 27,750 customers.
- Increase capacity to accommodate projected growth in demand and minimize future reliability issues.

- Address thermal overloads and voltage concerns on PG&E's 60 kV transmission system identified during P1 contingencies and maintain compliance with NERC standards.
- Address thermal overloads on PG&E's 60 kV transmission system identified during P6 contingencies and maintain compliance with NERC standards.
- Reinforce the PG&E 60 kV system in the Lodi area by constructing a new 230 kV double-circuit line to provide an additional source of power.
- Construct a new 230 kV switching station to receive the new 230 kV double-circuit line and provide power to a new 230/60 kV substation to be constructed by LEU.
- Separate PG&E's 60 kV system at the LEU Industrial Substation from LEU's 60 kV system.
- Construct a safe, economical, and technically feasible project that minimizes environmental and community impacts.

2.1.6 Project Applicant

PG&E is the project applicant for the proposed Northern San Joaquin 230 kV Transmission Project and will modify existing PG&E facilities, and construct new PG&E facilitates, to create and operate the new 230 kV transmission source and reconfigure existing 60 kV facilities. PG&E will modify one existing substation, two existing 230 kV transmission lines, and four existing 60 kV power lines, and construct a new 230 kV transmission source and one new switching station with an extended secondary station service 12 kV line and a new microwave tower as detailed in Section 3.3.2. PG&E protection schemes will be updated at four remote-end substations and an existing remote PG&E microwave tower will be modified.

PG&E provides natural gas and electric service to approximately 16 million people throughout a 70,000-square-mile service area in northern and central California. The PG&E service area stretches from Eureka in the north to Bakersfield in the south, and from the Pacific Ocean in the west to the Sierra Nevada Range in the east. Electric interconnected transmission lines cover 8,466 circuit miles to serve 5.1 million electric customer accounts. PG&E's local electrical service area in northern San Joaquin County has approximately 10,000 customers in the communities of Stockton, Lodi, Lockeford, Victor, Acampo, and Thornton. The City of Lodi and its LEU is one of PG&E's approximately 10,000 customers in the service area.

LEU has a connected action to modify existing LEU facilities and construct new LEU facilities to connect with the new 230 kV transmission source and disconnect from the existing PG&E 60 kV lines. LEU will modify its Industrial Substation, construct a new LEU Guild Substation and new LEU transmission and power lines connecting the stations, and relocate sections of two LEU 12 kV feeder lines from LEU Industrial Substation. The utility ownership of the 230 kV lines between PG&E Thurman Switching Station and LEU Guild Substation will transition mid-span, with each utility responsible for the protection equipment within its respective station. LEU serves approximately 27,750 electrical customers within the City of Lodi. LEU is a department of the City of Lodi and is a participating utility in the project. LEU is one of 16 locally owned electric utility members of NCPA, which is a California Joint Action Agency.

2.2 Pre-filing Consultation and Public Outreach

This section describes pre-filing consultation and public outreach that has occurred for this project. Project communication includes reference to relevant outreach conducted before 2017 for the CAISO 2013 project footprint as well as for the current CAISO 2018 project.

Pre-filing consultation and public outreach has occurred with CAISO, California Public Utilities Commission (CPUC), public agencies with jurisdiction over the project area, Native American tribes affiliated with the project area, other utility owners and operators, and the local community and public.

2.2.1 California Independent System Operator

CAISO's 2012-2013 TPP assessment identified performance issues on the PG&E Lockeford/Lodi 60 kV system and approved the Lockeford-Lodi Area 230 kV Development Project in March 2013 for PG&E to execute. CAISO's 2017-2018 planning cycle continued a reassessment of projects approved in previous transmission planning cycles. In March 2018, CAISO approved a revised scope for the Lockeford-Lodi 230 kV Development Project for PG&E to execute.

2.2.2 Public Agencies with Jurisdiction over Project Areas or Resources that May Occur in the Project Area

PG&E coordinated with public agencies with jurisdiction over project areas or resources that may occur in the project area during development of the project application.

California Department of Transportation

In August 2022, the California Department of Transportation (Caltrans) replied to an inquiry from PG&E to discuss the transmission line anticipated crossing of State Route (SR) 88. Caltrans advised PG&E that it has no known projects along SR 88 that may conflict. Caltrans expects PG&E will apply for an encroachment permit as needed and any design updates needed after CPUC project approval.

California Public Utilities Commission

PG&E included the project in its quarterly presentations to the CPUC as part of its effort to present projects that were expected to be licensed under General Order 131-D (GO 131-D). The project was most recently discussed at a quarterly meeting on October 25, 2022. In March 2020, PG&E provided an overview of the project during an online meeting with the CPUC project manager and an initial project filing schedule was discussed. In January 2021 during an online meeting, PG&E provided an updated project schedule, a project description and overview figure, and a summary of information PG&E had received from coordination with local jurisdictions and public outreach. In January 2021, the CPUC inquired about whether PG&E had reviewed the feasibility of the battery energy storage alternative suggested as a solution during the CAISO 2018 TPP. Subsequently, PG&E reviewed the feasibility of a battery energy storage solution (BESS) project and a BESS hybrid project as discussed in Section 7.1. On June 24, 2021, PG&E, the CPUC, the CPUC consultant, and the City of Lodi attended a site visit to review the project end points and potential route alternatives. In December 2021, PG&E began to hold monthly pre-filing consultation meetings online with the CPUC and the CPUC consultant to discuss coordination of the CEQA review process.

Central California Traction Company

In July 2016, PG&E introduced the project to Central California Traction (CCT) Company and discussed project compatibility with the railroad alignment. CCT noted that Union Pacific Railroad (UPRR) owns the tracks on which CCC operates in and near the City of Lodi. UPRR would review any encroachment permit from PG&E. PG&E would coordinate with CCT's operation during construction occurring near or across the railroad tracks where CCT operates.

Central Valley Flood Protection Board

In August 2022, the Central Valley Flood Protection Board (CVFPB) replied to an inquiry from PG&E to discuss the transmission line anticipated crossing of CVFPB Regulated Stream and federal levees (Bear Creek and Paddy Creek). CVFPB expects PG&E will apply for encroachment permits which will require Section 408 review and advised PG&E of Title 23 standards, specifically sections 120 and 123.

City of Lodi

PG&E staff briefed City of Lodi Planning (now Community Development) and Public Works departments in 2016 and 2022 on the project and requested information on project compatibility with existing and planned land uses, zoning, and projects. No conflicts or concerns were communicated to PG&E. Discussions with LEU are summarized under Section 2.2.5.

Northern San Joaquin Water Conservation District

PG&E staff briefed the Northern San Joaquin Water Conservation District (NSJWCD) about the project in 2016. In June 2022, the NSJWCD replied to an inquiry from PG&E to discuss the transmission line potentially crossing its underground South Pipeline. NSJWCD advised PG&E that it did not see a conflict regarding an overhead transmission line potentially crossing an NSJWCD water pipeline.

San Joaquin Area Flood Control Agency

In August 2016, PG&E staff met with representatives from the San Joaquin Area Flood Control Agency and discussed channelized waterways within the study area and levee compatibility with transmission lines. Structure setback from levees (Senate Bill [SB] 5 and Title 22) were discussed.

San Joaquin Council of Governments

In 2015 and 2016, PG&E staff met with members of the San Joaquin Council of Governments (SJCOG) to introduce the 2013 project, siting and routing process, and the study area. Compatibility with infrastructure was discussed, focusing on SR 99 expansion between Harney Lane and the Mokelumne River, land use (airfields), and the County Habitat Conservation Plan. The 2018 CAISO project avoids the SR 99 expansion area and airfields, and PG&E does not plan to seek coverage under the County Habitat Conservation Plan. PG&E reviewed the SJCOG webpage listing active projects as discussed in Section 7.1.

San Joaquin County

PG&E staff briefed County Community Development and Public Works departments in 2015, 2016, and 2022 on the project and requested information on project compatibility with existing and planned land uses, zoning, and projects. In support of route compatibility, the departments noted that areas with more dense residential population should perhaps be avoided and that tubular steel poles (TSPs) would have smaller footprints that lattice steel towers. No conflicts or concerns were communicated to PG&E.

Native American Tribes Affiliated with the Project Area

PG&E contacted the California Native American Heritage Commission (NAHC) with an initial request for a search of the Sacred Lands File (SLF) for the 2013 CAISO project area on November 4, 2015. The NAHC response, dated November 25, 2015, stated that no Native American sacred sites are documented within the area of potential impact (API). The NAHC also provided a list of seven Native American contacts that may have knowledge about archaeological and tribal cultural resources in the area. PG&E's Cultural Resource Specialist, Mike Taggart, sent initial outreach letters to the contacts listed by the NAHC in May and November of 2016. These letters included information about the proposed project and public open houses to learn more about the project and provide feedback about the potential transmission line corridors. Wilton Rancheria Tribal Resources Coordinator, Ed Silva, responded on December 6, 2016, stating that they were unable to attend the open house dates but requested a meeting with PG&E.

A meeting to discuss the project was held on January 12, 2017; attendees included two contacts from the Wilton Rancheria, Ed Silva and Cultural Resource Officer Antonio Ruiz; PG&E's Mike Taggart and Bob Donovan; and Colleen Taylor from Jacobs Engineering Group Inc. (Jacobs). The meeting reviewed project information discussed at the open houses that occurred in 2016. The tribal representatives were encouraged to identify resources to support avoiding or minimizing potential impact during the project design/development and analysis phase that year. Information was not provided for the proposed project.

On April 13, 2021, Far Western Anthropological Research Group, Inc. (Far Western), on behalf of PG&E's Cultural Resource Specialist, Starla Lane, contacted the NAHC with a new request for a current search of the SLF. The NAHC response, dated May 10, 2021, stated that no Native American sacred sites are documented within the API. The NAHC also provided a list of 18 Native American contacts that may have knowledge about archaeological and tribal cultural resources in the area. On June 17, 2021, PG&E's Cultural Resources Specialist Starla Lane sent letters with associated project maps to the contacts listed by the NAHC to inform them of the proposed project and request input regarding tribal cultural resources and areas of cultural sensitivity. PG&E sent additional outreach letters to the 18 contacts on February 8, 2023. At the time of this report, four responses have been received from the Buena Vista Rancheria of Me-Wuk Indians, the United Auburn Indian Community of the Auburn Rancheria, Wilton Rancheria, and the Confederated Villages of Lisjan. Additionally, Buena Vista Rancheria of Me-Wuk Indians requests formal government-to-government consultation under CEQA to discuss a site visit and other measure to ensure any cultural resources are protected. PG&E provided access to cultural resource reports and GIS shapefiles to the four tribes who responded to PG&E on July 27, 2023. On August 2, 2023, the Confederated Villages of Lisjan responded with no further information about the project location. They asked to be notified if there are any findings during construction, and reminded the construction team to remain vigilant during construction since the project is on their ancestorial land and unanticipated discoveries are possible.

This correspondence timeline and responses are summarized in Table 5.5-3 and Table 5.18-1. Coordination between PG&E and the responding tribes regarding the project is currently underway and any formal comments or recommendations provided by the tribes will be addressed by PG&E cultural resources specialists. Consultation under Assembly Bill (AB) 52 will be conducted, with CPUC serving as the lead state agency.

Public Outreach and Private Landowners

PG&E held public open houses and gathered information from local community leaders, private landowners, government agencies/officials, and regional organizations. The PG&E public outreach team, and, in some cases, representatives from PG&E's environmental management team, participated in the outreach, during which they explained the project need and proposed scope and the process and timeline for implementation, and they requested information about the project's compatibility with the existing and planned land use, agricultural use, and infrastructure. The team also explained the community engagement process, upcoming opportunities for public involvement during project development, and looking to the CPUC for updates after the project application is filed. In 2015, PG&E actively began soliciting feedback from the community for the CAISO 2013 project and continued in 2018 to 2022 for the CAISO 2018 project. Outreach prior to 2017 is included in this summary where applicable to the CAISO 2018 project. For example, meetings with the City of Stockton that occurred for the CAISO 2013 project are not included.

In 2015-2016 and in 2019-2022, PG&E's outreach beyond open houses included Community Partnership for Families of San Joaquin County, Constellation Brands, d'Art Wines, El Concilio California, Harmony Wynelands Winery, Hospice of San Joaquin, Lodi Chamber of Commerce, Lodi District Grape Growers Association, Lodi Unified School District, Mettler Family Vineyards, Pacific Coast Producers, San Joaquin Farm Bureau Federation, Perlegos Family, San Joaquin Partnership, and Schaefer Systems.

PG&E sent local residents and local government officials a mailer in November 2015 inviting the public and interested parties to three open houses in the project area. PG&E invited discussion of the project study area (in support of the project as approved by CAISO in 2013) as part of obtaining information to develop project corridors. PG&E sent a project update with an open house recap in March 2016 to local residents, local government officials, and other parties who had requested project updates. PG&E invited the public and interested parties to four open houses in June 2016 to discuss project corridors (in support of the project as approved by CAISO in 2013). PG&E provided project updates in August and October 2016 recapping the June 2016 open houses and progress toward identifying potential project routes. PG&E invited the public and interested parties to three open houses in December 2016 to discuss potential project routes (in support of the project as approved by CAISO in 2013). PG&E paused work on the project

in early 2017 when CAISO announced it was reevaluating the previously approved project. After CAISO approved the revised project scope in March 2018, PG&E reset the project study area to include the revised end points and began to review potential routing for the revised scope. PG&E invited the public and interested parties to two open houses in July 2019 to discuss retained and refined project routes between PG&E Lockeford Substation and a new PG&E switching station near LEU Industrial Substation (from the CAISO 2013 project) and potential routes to east of PG&E Lockeford Substation to create the extension of PG&E Brighton-Bellota 230 kV Transmission Line into PG&E Lockeford Substation.

Information received from the public and interested parties supported the development of corridors and routes for the 2013 CAISO project as well as route refinement and route identification for the 2018 CAISO project. Community information indicated concerns around preserving key entryway aesthetics into the growing Lodi wine community, such as SR 12 between Interstate 5 and the City of Lodi, new infrastructure in rural areas and potential agritourism, aesthetics, and agricultural impacts and use of existing right-of-way (ROW). The importance of the wine community was central to many stakeholders' discussions. Some stakeholders suggested avoiding major roads altogether, noting the importance of thoroughfares for future development, agritourism use, and aesthetic value. Others suggested undergrounding, using or paralleling existing utility corridors and other linear ROW, including rebuilding or upgrading existing electrical lines. Use of TSPs generally was seen as more aesthetically appealing than lattice steel towers. Use of TSP structures was seen as more compatible than either towers or undergrounding through lands with agricultural use.

PG&E evaluated electrical transmission or power lines, railroads, and roads within the project area for potential paralleling or ROW reuse opportunities, as well as routes across agricultural land, as possible corridors for the new 230 kV lines. Routing alternatives within Chapter 4 reflect public preference to reuse existing alignments where feasible, reduce potential agricultural impacts by aligning with the edge of fields where feasible, and achieve set back from major throughfares and wineries while avoiding population centers. Route and project alternatives developed with public information include: the proposed project route, Central Route Alternative, Northern Route Alternative, Southern Route East, Victor Road/SR 12 Route, East Kettleman Lane Route, use existing 60 kV ROW, 60 kV reconductoring, upgrading existing PG&E 60 kV lines to 115 kV, undergrounding the new transmission lines, and paralleling other roads and linear alignments.

Other Utility Owners and Operators

PG&E has communicated with LEU, NCPA, NSJWCD, and Comcast regarding the project and its alternatives (refer to Section 4.1). PG&E and LEU typically held monthly meetings from 2021 to 2022 to gather information about LEU's portion of the project and coordinate development of the PEA to reflect the whole of the action.

Federal, State, and Local Fire Management Agencies

PG&E has not communicated with federal, state, or local fire management agencies regarding the project.

2.2.2.1 Significant Outcomes

No significant outcomes of consultation were incorporated into the project. PG&E considered public input and preferences during project development. Routing alternatives described in Chapter 4 reflect public preference to reuse existing alignments where feasible, reduce potential agricultural impacts by aligning with the edge of fields where feasible, and achieve set back from major throughfares and wineries while avoiding population centers. Route and project alternatives developed with public information include: the proposed project route, Central Route Alternative, Northern Route Alternative, Southern Route East, Victor Road/SR 12 Route, East Kettleman Lane Route, use existing 60 kV ROW, 60 kV reconductoring, upgrading existing PG&E 60 kV lines to 115 kV, undergrounding the new transmission lines, and paralleling other roads and linear alignments. No areas of controversy or major issues related to the project have been

communicated to PG&E by representatives from San Joaquin County, City of Lodi, or others contacted as described previously.

2.2.2.2 Development that Could Coincide or Conflict With Project Activities

PG&E is not aware of any developments that could coincide or conflict with project activities.

2.2.3 Records of Consultation and Public Outreach

Public open house notifications, project newsletters, and materials used for public notifications are available at https://www.pge.com/en_US/safety/electrical-safety/safety-initiatives/northern-san-joaquin/news-and-updates.page and https://www.pge.com/en_US/safety/electrical-safety/safety-initiatives/northern-san-joaquin/resources.page.

2.3 Environmental Review Process

The project will be subject to environmental review under CEQA.

2.3.1 Environmental Review Process

The state environmental review process schedule is anticipated to begin in the third quarter of 2023. During the pre-filing consultation with PG&E, CPUC has indicated that it expects the project's CEQA document will be an Environmental Impact Report (EIR). CPUC 2019 PEA Guidelines provide a calculated duration of 29 months for an EIR CEQA document after the project application is filed.

2.3.2 California Environmental Quality Act Review

CEQA requires state and local government agencies to inform decision makers and the public about the potential environmental impacts of proposed projects and to reduce those environmental impacts to the greatest extent feasible. The laws and rules governing the CEQA process are contained in the CEQA statute (Public Resource Code [PRC] Section 21000 and following), the CEQA Guidelines (California Code of Regulations [CCR], Title 14, Section 15000 and following), published court decisions interpreting CEQA, and locally adopted CEQA procedures.

CPUC as CEQA Lead Agency

Pursuant to GO 131-D, PG&E is applying to the CPUC for a CPCN authorizing PG&E to construct the project. Further pursuant to GO 131-D, to issue a CPCN, CPUC must find that the project complies with CEQA. Therefore, the CPUC will be the Lead Agency under CEQA for the project because it has the greatest responsibility for supervising or approving the project as a whole (14 CCR Section 15051(b)).

Other State and Federal Agencies that May Have Discretionary Permitting Authority

The Central Valley Regional Water Quality Control Board (RWQCB), among others, may have discretionary permitting authority over aspects of the Project.

2.3.2.1 Federal, State, and Local Agencies Not Expected to Have Discretionary Permitting Authority

Caltrans, CVFPB, City of Lodi, San Joaquin County, and San Joaquin Valley Air Pollution Control District are expected to have ministerial permitting authority over aspects of the Project.

2.3.2.2 Results of Preliminary Outreach with Agencies

PG&E's coordination with public agencies with jurisdiction over project areas or resources that may occur in the project area confirmed federal, state, regional, and local permits or authorizations are expected for the proposed project regarding air space, overall project approval, stormwater discharges during construction, electrical line crossing (encroachment with traffic control/management as needed) of roadways, railroad lines, waterways; air pollution control (dust, asbestos, construction emissions); grading and building permits. After the CPCN is issued, PG&E will apply for permits or authorization to the appropriate agencies or authorities listed in Section 3.10, as needed for the approved project. PG&E has not been made aware of any unexpected issues that would affect the CEQA process as a result of the preliminary outreach with agencies described in Section 2.2.2 or in review of posted ministerial permitting processes on agency websites.

2.3.3 National Environmental Policy Act Review

No portions of the project are on federal lands, and the project is not known to potentially result in impacts to federal jurisdictional waters or wetlands or federally listed threatened or endangered species that would require discretionary approvals subject to review under the National Environmental Policy Act (NEPA).

2.3.4 Pre-filing California Environmental Quality Act Coordination

Pre-filing coordination with the CEQA review agency, the CPUC, is described in Section 2.2. The coordination to date has confirmed that the City of Lodi will have a separate CEQA process for the LEU portion of the project. The City of Lodi expects to use the final CPUC CEQA document for its CEQA findings process. PG&E submitted a pre-filing Draft PEA to the CPUC in December 2022. PG&E expects to include additional information and make clarifications to the PEA based on comments on the pre-filing Draft PEA provided by CPUC Energy Division staff.

2.4 Document Organization

2.4.1 PEA Organization

This PG&E PEA document contains the following chapters as set forth in the CPUC's Guidelines for Energy Project Applications Requiring CEQA Compliance: Pre-filing and Proponent's Environmental Assessments, dated November 2019, Revision 1.0.

2.4.1.1 Chapter 1, Executive Summary

This chapter includes a summary of the project, a discussion of the land ownership and ROW requirements, a presentation of the areas of controversy identified to date, a summary of potential impacts, a summary of alternatives to the project, a summary of the pre-filing consultation and public outreach performed to date, a summary of the major PEA conclusions, and a listing of remaining major issues that remain to be resolved.

2.4.1.2 Chapter 2, Introduction

This chapter includes a presentation of the purpose and need for, and objectives of, the project. It identifies the Applicant and the participating utility, details the pre-filing consultation and public outreach activities conducted to date, outlines the environmental review process, and establishes the organization of the PEA document.

2.4.1.3 Chapter 3, Project Description

This chapter includes an overview of the project; a description of the existing and proposed system; a presentation of the project components; information related to land ownership, ROW, and easements; a description of the construction methodologies to be employed; data regarding the construction workforce, equipment, traffic, and schedule; information on post-construction activities; a discussion of operation and maintenance-related work; decommissioning-related information; a listing of anticipated permits and approvals; and a table presenting Applicant-proposed measures (APMs) and best management practices (BMPs) that are considered part of the proposed project.

2.4.1.4 Chapter 4, Description of Alternatives

This chapter identifies and describes alternatives to the project, including a discussion of a No Project Alternative. It also lists alternatives identified and considered, but rejected.

2.4.1.5 Chapter 5, Environmental Analysis

This chapter includes a description of the environmental setting, regulatory setting, and impact analysis for each resource area. The resource areas addressed include each environmental factor (resource area) identified in the most recent adopted version of the CEQA Guidelines Appendix G checklist and any additional relevant resource areas and impact questions that are defined in the CPUC's PEA checklist.

2.4.1.6 Chapter 6, Comparison of Alternatives

This chapter compares each alternative described in Chapter 4 to be carried forward for PEA evaluation against the project in terms of each alternative's ability to avoid or reduce a potentially significant impact. It also provides a detailed table that summarizes the Applicant's comparison results and ranks the alternatives in order of environmental superiority.

2.4.1.7 Chapter 7, Cumulative Impacts and Other CEQA Considerations

This chapter provides a detailed table listing past, present, and reasonably foreseeable future projects within and surrounding the project (within an approximately 2-mile buffer); presents a cumulative impact analysis; and provides an evaluation of potential growth-inducing impacts.

2.4.1.8 Chapter 8, List of Preparers

This chapter lists the major authors and preparers of the PEA document.

2.4.1.9 Chapter 9, References

This chapter includes a list of references cited in this PEA.

2.4.1.10 Required PEA Appendices and Supporting Materials

PG&E is submitting with this PEA those "Required PEA Appendices and Supporting Materials" listed in the CPUC's *Guidelines for Energy Project Applications Requiring CEQA Compliance: Pre-filing and Proponent's Environmental Assessments*, dated November 2019, Revision 1.0, that are applicable and necessary to support the environmental impact analyses contained in Chapters 5 and 6. An index to CPUC PEA Guidelines Requirements is provided in Appendix 2A.

3 Proposed Project Description

3.1 Project Overview

The Northern San Joaquin 230 kV Transmission Project will provide a new 230 kV transmission system in northern San Joaquin County, in central California. The project will loop the PG&E existing overhead Brighton-Bellota 230 kV transmission line through an expanded PG&E Lockeford Substation and install a new overhead double-circuit 230 kV transmission line between PG&E Lockeford Substation and a new PG&E switching station (PG&E Thurman Switching Station) at LEU's existing Fred M. Reid Industrial Substation (Industrial Substation) in Lodi, California. PG&E Lockeford Substation's physical address is stylized for mailing purposes as Lodi; however, PG&E Lockeford Substation is approximately 4.40 miles east of the City of Lodi city limits. LEU will construct LEU Guild Substation, a new 230/60 kV substation, between its LEU Industrial Substation and the new PG&E Thurman Switching Station. At LEU Guild Substation, the new PG&E 230 kV transmission line will terminate and LEU transformers will step down the power to 60 kV to connect with LEU Industrial Substation. When the new 230 kV system is operating, the existing local PG&E 60 kV system will be reconfigured along existing alignments, including disconnecting as a source to LEU at LEU Industrial Substation. Existing LEU and PG&E 12 kV service/feeder lines and a third-party telecommunication line within the City of Lodi will be modified during construction to allow reuse of an existing alignment, continue existing service, and construct new permanent secondary station service.

The project will be located within unincorporated areas of northeastern San Joaquin County and partially within an industrial area of the City of Lodi (refer to Figure 3.1-1). Northeastern San Joaquin County is predominantly agricultural land use with retail wineries, rural and semirural residential development outside of the City of Lodi, and small concentrated areas of industrial and commercial business along transportation corridors. Agriculture primarily is wine grapes with some fruit and nut orchards and grain fields. Within the City of Lodi, the general plan land use designation and zoning is industrial and quasi-public with industrial, utility, and commercial businesses and associated railroad lines on adjacent parcels. Major geographic features in the project area include Mokelumne River, Bear Creek, SR 99, SR 88, and SR 12. The topography in the area generally is flat with rolling hills increasing to the east. Elevation ranges from approximately 135 feet above sea level at the eastern end of the project to approximately 60 feet above sea level at the western end of the project.

PG&E will perform proposed project-related work to update the system protection scheme at four remote-end substations (Bellota, Brighton, Lodi, and Rio Oso), which are located in Linden, Sacramento, Lodi, and Rio Oso, California, respectively. PG&E project-related telecommunication work will include work at the existing Clayton Hill Repeater Station (on a communication tower) in Contra Costa County to create a new digital microwave path allowing redundant communication into PG&E Thurman Switching Station in support of PG&E's system protection scheme.

3.2 Existing and Proposed System

The existing and proposed systems include modification to PG&E facilities and LEU facilities as part of the project. In subsequent sections of this report, a facility typically will be identified by its proper name and utility ownership to provide clarification. Refer to Figure 2.1-1, Figure 2.1-2, and Figure 2.1-3 for schematic diagrams of the existing system features, proposed system features, and proposed system features at project completion, respectively. "Transmission" will indicate a 230 kV line, "power" will refer to a 115 kV or 60 kV line, and "distribution" is a 12 kV line, which also may be called a feeder line or a service line depending on its distribution purpose.

For identification within this document, the existing PG&E 60 kV wood pole structures that will be removed or modified are numbered sequentially from LEU Industrial Substation toward the other end of each of the three PG&E lines. Refer to Figure 3.3-2a and Figure 3.5-1 for PG&E 60 kV numbered structures. The new

PG&E 230 kV line structures are numbered east to west. The proposed PG&E transmission line structures are numbered E1-E23 and W1-W49 when east and west of PG&E Lockeford Substation, respectively. Refer to Figure 3.3-1b, Figure 3.3-2b, and Figure 3.5-1 for numbered PG&E transmission structures.

3.2.1 Existing System

The existing system that will be modified as part of the project includes four PG&E 230 kV transmission lines, five PG&E substations, one PG&E repeater station, four PG&E 60 kV power lines, one PG&E 12 kV service line, one LEU substation, two LEU 12 kV feeder lines, and one Comcast communication line. The existing system's modification is focused on extending an existing PG&E 230 kV line through a new 230 kV bus at PG&E Lockeford Substation to provide service to LEU as a new double-circuit transmission line (DCTL). PG&E's new 230 kV line will terminate within the new PG&E Thurman Switching Station. LEU will construct a new LEU Guild Substation adjacent to PG&E Thurman Switching Station. LEU Guild Substation will convert 230 kV to 60 kV and deliver 60 kV to the modified LEU Industrial Substation. Three existing PG&E 60 kV lines currently providing service to LEU Industrial Substation will be disconnected and reconfigured with a fourth PG&E 60 kV line during construction as part of changing the PG&E service to LEU from 60 kV to 230 kV. One LEU 12 kV feeder line is being relocated to accommodate a portion of the new PG&E 230 kV line in an existing alignment and will continue backup service to an LEU customer. A portion of an LEU 12 kV feeder line connecting to a PG&E 60 kV pole is not in service and will be removed during the project. A Comcast communication line currently underbuilt on a PG&E 60 kV line will be relocated by Comcast. One PG&E 12 kV line will be extended to provide secondary station service for the new PG&E Thurman Switching Station. A terminal structure of two PG&E 230 kV transmission lines on PG&E property is being relocated as part of PG&E Lockeford Substation's 230 kV bus modification. Four PG&E substations and a PG&E telecommunication repeater station are remote-end facilities that will be modified within existing station fence lines to align with project components in northeastern San Joaquin County. An overview of the existing system and ancillary system components in the northern San Joaquin County area is included on Figure 3.1-1, Figure 3.3-1a, and Figure 3.3-2a. Changes to existing components and proposed components are shown on Figure 3.3-1b, Figure 3.3-2b, and Figure 3.5-1.

3.2.1.1 PG&E Brighton-Bellota 230 kV Transmission Line

The existing PG&E Brighton-Bellota 230 kV Transmission Line is a single-circuit line approximately 42.5 miles long between PG&E Brighton and Bellota substations in Sacramento and Linden, respectively. Approximately 8.5 miles north of PG&E Bellota Substation, the line would be looped into PG&E Lockeford Substation, creating a new double-circuit 230 kV line extension approximately 3.8 miles long. When in service, the PG&E lines will operate as Brighton-Lockeford and Lockeford-Bellota No. 2. The existing Brighton-Bellota line name will be retired. Refer to Figure 3.1-1, Figure 3.3-1a, Figure 3.3-1b, and Figure 3.5-1.

3.2.1.2 PG&E Lockeford-Bellota 230 kV Transmission Line

The existing PG&E Lockeford-Bellota 230 kV Transmission Line is a single-circuit line approximately 12.3 miles long between PG&E Lockeford and Bellota substations in Lodi and Linden, respectively. During the project, the line's terminal position within the existing PG&E Lockeford Substation 230 kV bay will be relocated on the bay. The terminal structure the line shares with the existing PG&E Rio Oso-Lockeford Line outside of the substation fence will be moved approximately 85 feet to the north to accommodate the new substation bay location. The terminal structure is identified as RO1 in this document and on figures. The line will be renamed to operate as Lockeford-Bellota No. 1, and the existing Lockeford-Bellota line name will be retired. Refer to Figure 3.1-1, Figure 3.3-1a, Figure 3.3-1b, and Figure 3.5-1.

3.2.1.3 PG&E Rio Oso-Lockeford 230 kV Transmission Line

The existing PG&E Rio Oso-Lockeford 230 kV Transmission Line is a single-circuit line approximately 65.1 miles long between PG&E Rio Oso and Lockeford substations in Rio Oso and Lodi, respectively. During the project, the terminal structure (RO1) the line shares with PG&E Lockeford-Bellota Line outside

of the substation fence will be moved approximately 85 feet to the north to accommodate the new substation bay location. Refer to Figure 3.1-1, Figure 3.3-1a, Figure 3.3-1b, and Figure 3.5-1.

3.2.1.4 PG&E Lockeford Substation

The existing PG&E Lockeford Substation includes 230 kV, 115 kV, and 60 kV facilities and a general construction yard. Project activities will include expansion of the fenced substation footprint on substation property to locate a new 230 kV bay, as well as modification to the existing 230 kV facilities, existing drainage and retention basin components, and the general construction yard. Existing substation telecommunications facilities, control systems, and supervisory control and data acquisition (SCADA) systems will be modified to align with the new 230 kV lines and the reconfigured 60 kV line. Existing AT&T fiber lines will be extended with the substation to support telecommunication modifications. Refer to Figure 3.1-1, Figure 3.3-1a, Figure 3.3-1b, and Figure 3.5-1.

3.2.1.5 PG&E Lockeford-Industrial 60 kV Power Line

The existing PG&E Lockeford-Industrial 60 kV Power Line is a single-circuit line approximately 6 miles long between PG&E Lockeford Substation and LEU Industrial Substation in Lodi. For identification within this document, the existing wood pole structures that will be modified are numbered from west to east as pole 1 through pole 10 starting with the terminal structure outside of LEU Industrial Substation toward PG&E Lockeford Substation. During the project, a portion of the western end of the line (approximately 0.54 mile) into LEU Industrial Substation will be removed (pole 1 through pole 9). Refer to Figure 3.1-1, Figure 3.3-2a, Figure 3.3-2b, and Figure 3.5-1.

The 60 kV alignment will be reused for the new 230 kV transmission line where it enters the City of Lodi to PG&E Thurman Switching Station. The existing service and telecommunication underbuild using joint pole agreements (on pole 4) will be removed and relocated by the utility owners. The existing LEU 12 kV feeder lines and the existing Comcast telecommunication line will be removed and relocated. The remaining eastern portion of the line (approximately 5.46 miles) from PG&E Lockeford Substation to pole 10 at the western end of East Sargent Road will be connected to the west with a new span (approximately 115 feet) across the railroad tracks. This span connects to an existing portion of PG&E Industrial Tap (pole 13). Farther to the west along East Lodi Avenue to the north of LEU Industrial Substation, the western end of PG&E Industrial Tap (pole 2) will be connected to the eastern end of existing PG&E Lodi-Industrial Line (pole 2). This connection will occur after these two PG&E 60 kV lines are disconnected from service into LEU Industrial Substation. These reconfigured 60 kV line segments will operate as Lockeford-Lodi No. 1 (preliminary name) with updated control and SCADA systems at PG&E Lockeford and Lodi substations.

3.2.1.6 PG&E Lodi-Industrial 60 kV Power Line

The existing PG&E Lodi-Industrial 60 kV Power Line is a single-circuit line approximately 0.98 mile long between PG&E Lodi Substation and LEU Industrial Substation in Lodi. For identification within this document, the existing wood pole structures that will be modified are numbered from south to north as pole 1 and pole 2, starting with the terminal structure outside of LEU Industrial Substation toward PG&E Lodi Substation. Approximately 200 feet of the existing line will be disconnected from LEU Industrial Substation after the 230 kV feed is in service, pole 1 is removed, and the remaining western portion of the line (approximately 0.94 mile) is connected from pole 2 to PG&E Industrial Tap pole 2 to support reconfiguration to operate as Lockeford-Lodi No. 1 (preliminary name). The existing steel guy stub pole near 1303 East Lodi Avenue and the connecting horizontal guy wires to PG&E Lodi-Industrial pole 2 and PG&E Industrial Tap pole 2 are expected to be removed as part of construction. Refer to Figure 3.1-1, Figure 3.3-2a, Figure 3.3-2b, and Figure 3.5-1.

3.2.1.7 PG&E Industrial Tap 60 kV Power Line

The existing PG&E Industrial Tap 60 kV Power Line is a single-circuit line approximately 0.97 mile long between PG&E Lockeford-Lodi 60 kV No. 2 Power Line and LEU Industrial Substation in Lodi. Refer to

Figure 3.1-1. For identification within this document, the existing wood pole structures that will be modified are numbered from west to northeast as pole 1 through pole 22, starting with the terminal structure outside of LEU Industrial Substation to and including the PG&E Lockeford-Lodi No. 2 60 kV Line wood pole at SR 12/East Victor Road. Refer to Figure 3.3-2a and Figure 3.5-1. PG&E Industrial Tap will be disconnected from LEU Industrial Substation after the 230 kV feed is in service and pole 1 is removed. The remaining western portion of the line (approximately 0.42 mile) will be connected at pole 2 with the western portion of PG&E Lodi-Industrial Line at its pole 2. The existing steel guy stub pole near 1303 East Lodi Avenue and the connecting horizontal guy wires to PG&E Lodi-Industrial pole 2 and PG&E Industrial Tap pole 2 are expected to be removed as part of construction. PG&E Industrial Tap pole 13 will connect to the eastern portion of PG&E Lockeford-Industrial Line at its pole 10 to operate as Lockeford-Lodi No. 1 (preliminary name). The northern approximately 0.5 mile of PG&E Industrial Tap Line will be modified between PG&E Lockeford-Lodi No. 2 Power Line at Victor Road/SR 12 south to the alignment of new PG&E Lockeford-Lodi No. 1 Line. The approximately 0.5-mile portion of the existing power line is underbuilt with a PG&E 12 kV line. PG&E estimates that approximately eight existing power line wood poles (pole 14 to pole 21) will be topped after the 60 kV conductors and framing are removed. The existing PG&E 12 kV line will not be modified and will remain in service on the topped wood poles. Refer to Figure 3.3-2b. The existing Industrial Tap line name will be retired.

3.2.1.8 PG&E Lockeford-Lodi No. 2 60 kV Power Line

The existing PG&E Lockeford-Lodi No. 2 60 kV Power Line is a single-circuit line approximately 7.8 miles long between PG&E Lockeford and PG&E Lodi substations. Refer to Figure 3.1-1. Where the line turns west along SR 12/East Victor Road, PG&E Industrial Tap Line begins from a Lockeford-Lodi No. 2 Line wood pole and heads south to LEU Industrial Substation. Refer to Figure 3.5-1 for where project work on this line will occur and the existing PG&E distribution pole on the south side of East Victor Road/SR 88. The existing Lockeford-Lodi No. 2 wood pole is the only line structure that is expected to be modified as part of project construction. Before the connecting span from PG&E Industrial Tap is removed, the angle pole on PG&E Lockeford-Lodi No. 2 (identified as PG&E Industrial Tap pole 22) will be reframed. Aerial horizontal guy wire will be installed to the south from pole 22 to an existing PG&E distribution pole to replace the existing tap line tension along with new down guy wire installed on the existing PG&E distribution pole.

3.2.1.9 PG&E Service Line on South Guild Avenue

The existing PG&E 12 kV overhead service line that terminates on the east side of South Guild Avenue north of East Lodi Avenue will be extended underground by approximately 500 feet to provide secondary station service to the new PG&E Thurman Switching Station. Refer to Figure 3.3-2a, Figure 3.3-2b, and Figure 3.5-1 for the existing PG&E distribution pole on the east side of South Guild Avenue and two preliminary underground route options. The underground extension will be within franchise in South Guild Avenue and horizontal directional drilling (HDD), or another trenchless construction method, will be used to cross under the railroad tracks.

3.2.1.10 PG&E Bellota, Brighton, Lodi, and Rio Oso Substations

The existing PG&E 230 kV lines and 60 kV line terminate in remote-end Bellota, Brighton, Rio Oso, and Lodi substations in Linden, Sacramento, Rio Oso, and Lodi, respectively. Project-related actions will occur to update the system protection schemes and communication paths. At PG&E Bellota, Brighton, and Rio Oso substations, existing 230 kV communication equipment (line tuner and wave traps) associated with the three existing 230 kV transmission lines that are no longer needed will be retired in place or removed. Within existing PG&E Bellota, Brighton, and Rio Oso substations, existing AT&T fiber lines will be extended to support 230 kV communication. Existing system protection equipment in the control facilities will be updated to align with the modifications to the connecting 230 kV lines into PG&E Bellota, Brighton, and Rio Oso substations and the 60 kV line into PG&E Lodi Substation. Refer to Figure 3.1-1.

3.2.1.11 PG&E Clayton Hill Repeater Station

The existing PG&E Clayton Hill Repeater Station located in Contra Costa County is a communication tower with antennas providing system protection scheme communication paths between PG&E facilities. Approximately two new antennas will be installed on the tower to establish a communication path with the new microwave tower within the new PG&E Thurman Switching Station in Lodi. Refer to Figure 3.1-1.

3.2.1.12 LEU Industrial Substation

The existing LEU Industrial Substation is a 60 kV/12 kV substation in Lodi with connections to PG&E Lodi-Industrial, PG&E Industrial Tap, and PG&E Lockeford-Industrial 60 kV Power Lines. During the project, the substation will be interconnected within the substation's property to the new, adjacent LEU Guild Substation's 60 kV bus with the new Guild-Industrial No. 1 and No. 2 60 kV lines and will be disconnected from PG&E's three 60 kV lines. Existing LEU 60 kV lines within the substation will be transposed to address the changes in 60 kV feed. Refer to Figure 3.3-2a, Figure 3.3-2b and Figure 3.5-1.

3.2.1.13 LEU 12 kV Feeder Lines

Portions of two LEU 12 kV lines extending from LEU Industrial Substation and partially located on PG&E Lockeford-Industrial 60 kV Power Line (pole 2 to pole 6) will be removed and reconfigured by LEU to continue existing customer service. The overhead portion of a west-east LEU feeder line (pole 2 to pole 6) will be removed. The existing connecting underground lengths will be retired in place (west end) and extended to continue service (east end). The existing underground west portion between PG&E Lockeford-Industrial pole 2 and LEU Industrial Substation will be retired in place. A new LEU underground 12 kV line east segment will extend west from near PG&E Lockeford-Industrial pole 6 to connect to an existing overhead line segment on the existing LEU wood pole south of PG&E Lockeford-Industrial pole 4. The existing LEU wood pole has a single south-north LEU 12 kV span to PG&E Lockeford-Industrial pole 4. This span is not in service and will be removed without being replaced. Refer to Figure 3.3-2a and Figure 3.3-2b, and Figure 3.5-1.

3.2.1.14 Existing System Users, Area, and Local and Regional Systems

The project's service area is within northern San Joaquin County and includes more than 37,750 electrical customers in the communities of Stockton, Lodi, Lockeford, Victor, Acampo, and Thornton. PG&E has approximately 10,000 customers, including the City of Lodi, Mettler Winery, Sutter Home Winery, and Woodbridge Winery. The PG&E customer base generally consists of the following:

- Approximately 71.1% residential accounts
- Approximately 14.8% agricultural accounts
- Approximately 9.7% commercial accounts
- Approximately 1.7% industrial accounts
- Approximately 0.6% streetlights
- Approximately 2.1% other types of accounts, including a special load and a temporary load

Within the City of Lodi, approximately 27,750 electrical customers are served by the operation of its publicly owned electric utility, Lodi Electric Utility. The City of Lodi's customers generally consist of the following (Shahriar 2023):

- Approximately 91.4% are residential accounts
- Approximately 8.5% are commercial accounts
- Approximately 0.1% are industrial accounts

Electricity sources include several hydroelectric facilities (named as a powerhouse, PH), including NCPA Collierville PH, PG&E Tiger Creek PH, PG&E Electra PH, PG&E Salt Springs PH, PG&E West Point PH that feed PG&E Bellota Substation and PG&E Poe PH, PG&E Rock Creek PH, PG&E Cresta PH that serve PG&E Rio Oso Substation. The NCPA Lodi combustion turbine uses diesel fuel to generate electricity primarily during high load periods. In addition, California Department of Water Resources is completing a 48 MW natural gas generator, the Strategic Reliability Reserve, at Lodi's Surface Water Treatment Facility. This facility is to only be used in extreme peak-demand events to provide temporary power generation to stabilize and supplement existing grid-tied power supplies to avoid grid failures both statewide and locally, for up to five years. The Strategic Reliability Reserve is only planned for use until the proposed project is completed. If the City chooses to continue operating the generators after 5 years, the project would be subject to additional review and certification by the California Energy Commission (CEC).

3.2.1.15 Project and the Existing Local and Regional Systems

The project will shift load from the existing PG&E 230/60 kV system in Northern San Joaquin area to a new PG&E 230 kV source to address reliability and capacity issues on the existing PG&E 230/60 kV system serving the area between PG&E Lockeford and PG&E Lodi substations.

The project will loop the PG&E existing overhead Brighton-Bellota 230 kV transmission line through an expanded PG&E Lockeford Substation and install a new overhead double-circuit 230 kV transmission line between PG&E Lockeford Substation and a new PG&E Thurman Switching Station at LEU Industrial Substation. LEU will construct LEU Guild Substation, a new 230/60 kV substation, between the existing LEU Industrial Substation and the new PG&E Thurman Switching Station. At LEU Guild Substation, the new PG&E 230 kV transmission line will terminate and LEU transformers will step down the power to 60 kV to connect with LEU Industrial Substation. When the new 230 kV system is operating, the existing local PG&E 60 kV system will be reconfigured within existing alignments, including disconnecting as a source to LEU at LEU Industrial Substation by removing the connections with PG&E Lockeford-Industrial, PG&E Industrial Tap, and PG&E Lodi-Industrial 60 kV lines.

By bringing in a new 230 kV source and separating PG&E's and LEU's 60 kV systems, the current and projected voltage issues and thermal overloads on PG&E's 230/60 kV system will be addressed and forecasted demand growth will be accommodated.

3.2.2 Proposed Project System

The proposed system will include new proper names for four PG&E 230 kV lines, two PG&E and LEU 230 kV lines, two LEU 60 kV lines, one PG&E 60 kV line, one LEU substation, and one PG&E switching station through reconfiguration of existing lines and/or construction of new lines and facilities.

3.2.2.1 PG&E Brighton-Lockeford and Lockeford-Bellota No. 2 230 kV Transmission Lines

An extension, or loop, of the existing PG&E Brighton-Bellota 230 kV Transmission Line will be constructed between a span on the line and PG&E Lockeford Substation for approximately 3.8 miles. The extension will create a double-circuit 230 kV transmission line that will operate as PG&E Brighton-Lockeford and Lockeford-Bellota No. 2 230 kV Transmission Lines. For identification within this document, the new transmission structures are numbered from east to west as E1 through E23 between PG&E Brighton-Bellota Line and PG&E Lockeford Substation. Refer to Figure 3.3-1b and Figure 3.5-1.

3.2.2.2 PG&E Lockeford-Thurman 230 kV No. 1 and No. 2 Transmission Lines

PG&E will construct a new double-circuit 230 kV line approximately 6.8 miles long connecting the existing PG&E Lockeford Substation with the new PG&E Thurman Switching Station to operate as PG&E Lockeford-Thurman No. 1 and No. 2 230 kV Transmission Lines. For identification within this document, the new transmission structures are numbered from east to west as W1 through W49 between PG&E

Lockeford Substation and PG&E Thurman Switching Station. Refer to Figure 3.3-1b, Figure 3.3-2b, and Figure 3.5-1.

3.2.2.3 PG&E and LEU Thurman-Guild 230 kV No. 1 and No. 2 Transmission Lines

PG&E and LEU will own and operate their respective portions of the single spans of the new Thurman-Guild 230 kV No. 1 and No. 2 Transmission Lines constructed between the PG&E Thurman Switching Station 230 kV bay and the LEU Guild Substation 230 kV bay. Refer to Figure 3.3-2b and Figure 3.5-1.

3.2.2.4 LEU Guild-Industrial 60 kV No. 1 and No. 2 Power Lines

LEU will construct two spans of the new LEU Guild-Industrial 60 kV No. 1 and No. 2 Power Lines between the respective 60 kV bays within the new LEU Guild Substation and the existing LEU Industrial Substation. Two poles will be constructed within the existing LEU Industrial Substation 60 kV yard to receive the 60 kV lines from LEU Guild Substation. Refer to Figure 3.3-2b and Figure 3.5-1.

3.2.2.5 PG&E Lodi-Lockeford No. 1 60 kV Power Line (preliminary name)

As part of the project, PG&E will reconfigure its existing Lodi-Industrial, Industrial Tap, and Lockeford-Industrial 60 kV Power Lines to operate as Lodi-Lockeford No. 1 60 kV Power Line (preliminary name). A western portion of PG&E Industrial Tap Line (approximately 0.42 mile) will be connected with the western portion of PG&E Lodi-Industrial Line (approximately 0.94 mile) and the eastern portion of PG&E Lockeford-Industrial Line (approximately 5.46 miles) to operate as Lockeford-Lodi No. 1 Line (preliminary name). The reconfigured single-circuit 60 kV line will be approximately 6.82 miles long and connect PG&E Lockeford and Lodi substations. Refer to Figure 3.3-1b, Figure 3.3-2b, and Figure 3.5-1.

3.2.2.6 PG&E Thurman Switching Station

The proposed PG&E Thurman Switching Station will be a new PG&E 230 kV switching station within the City of Lodi. The switching station will switch the PG&E 230 kV feed from PG&E Lockeford-Thurman 230 kV No. 1 and No. 2 Transmission Lines to LEU. The new PG&E and LEU Thurman-Guild 230 kV No. 1 and No. 2 Transmission Lines will connect into the adjacent new LEU Guild Substation. New antennas on a new microwave tower located within the switching station yard will communicate with new antennas on the existing PG&E Clayton Hill Repeater Station. Refer to Figure 3.3-2b and Figure 3.5-1.

3.2.2.7 LEU Guild Substation

The proposed LEU Guild Substation will transform the 230 kV feed into 60 kV. The new LEU Guild-Industrial 60 kV No. 1 and No. 2 Power Lines will connect to LEU's 60 kV system at the adjacent LEU Industrial Substation. Refer to Figure 3.3-2b and Figure 3.5-1.

3.2.2.8 Proposed Facilities Expected Capacities and Proposed System Changes

The project will shift approximately 148 MW of load (refer to Section 2.1) from the existing PG&E northern San Joaquin 60 kV system to a new PG&E 230 kV source. Moving the LEU load to the PG&E 230 kV source will reduce demand on the PG&E 60 kV system, which will provide greater reliability to other existing PG&E customers within northern San Joaquin County.

After the project, the Lockeford-Lodi system will increase from its current normal Load Serving Capability of 194 MW to approximately 404 MW with the proposed 230 kV system upgrade under normal operating condition, and from its emergency Load Serving Capability of 152 MW to approximately 456 MW under N-1 contingency. It should be noted that the line 2 fps emergency rating has been used wherever it applies and the NCPA Lodi CT is offline in the study model.

The existing PG&E system includes service to LEU by PG&E through three existing PG&E 60 kV power lines. The proposed system would differ from the existing system by changing PG&E's service to LEU from the existing three P&E 60 kV lines into LEU Industrial Substation to two new PG&E 230 kV transmission lines from PG&E Thurman Switching Station to LEU Guild Substation.

3.2.2.9 Proposed Project Buildout

The proposed project system will have a single buildout to address purpose and need. While additional space is available within or adjacent to most stations being constructed or modified by the project, no current or reasonably foreseeable plans exist for future buildout for either PG&E or LEU needs.

3.2.2.10 Proposed System Users, Area, and Local and Regional Systems

The difference between the existing system and the proposed system is that the Lodi Electric Utility will now be served by a new PG&E-owned 230 kV transmission system through a new LEU-owned Guild Substation as opposed to the existing three PG&E 60 kV power lines through LEU's existing Industrial Substation. No changes will occur to the PG&E or LEU distribution systems serving their respective end-use customers or service area served by the proposed system. The proposed service area will continue to be within northern San Joaquin County and include the existing PG&E and LEU electrical customers in the communities of Stockton, Lodi, Lockeford, Victor, Acampo, and Thornton.

3.2.3 System Reliability

A portion of the project creates a system tie or loop for reliability. The extension, or loop, of the existing PG&E Brighton-Bellota 230 kV Line into PG&E Lockeford Substation creates a system tie or loop for reliability on the 230 kV system at PG&E Lockeford Substation. The looping results in increased reliability for PG&E Lockeford Substation by adding two new 230 kV sources. With the two new sources, PG&E Lockeford Substation will no longer need to be served by a single transmission source to address low-voltage issues in the area. The project will eliminate the risk of an areawide service interruption for the next single transmission line outage that could occur while PG&E Lockeford Substation was being served by a single transmission source.

3.2.4 Planning Area

The Electrical Needs Area is the area served by the Victor, Lodi, Colony, New Hope, and Mettler PG&E substations and third-party Woodbridge Winery Substation, plus LEU Industrial Substation. These substations are part of PG&E's Stockton Distribution Planning Area.

3.3 Project Components

The proposed project includes new or modified substations; a switching station with a microwave tower; a repeater station; a system protection scheme; and 230 kV transmission, 60 kV power, 12 kV distribution (service or feeder), and telecommunication (cable, optical ground, and shield wires) lines. Underground facilities or portions thereof include new and modified foundations, grounding grids, a new switching station secondary service line, a relocated customer feeder line, and telecommunication circuits at substations.

3.3.1 Preliminary Design and Engineering

The project is currently at the 60% design stage for lines and preliminary design stage for substations, which provides the preliminary design and engineering for the physical, civil, and outdoor components. The remaining design and engineering will focus on automation, system protection schemes, and indoor components. Figure 3.1-1 provides the approximate locations of the facilities. Figures associated with Section 3.3.3 and Section 3.3.4 show detailed project maps with facility locations and boundaries for

aboveground and underground facilities. Geographic information system (GIS) data are provided under separate cover to the CPUC. Project activities will occur within new and existing ROW, access, and PG&E property. LEU's activities will occur on existing LEU property, ROW, or access rights. Areas for operation will occur within PG&E or LEU property, permanent ROW, or access as discussed in Section 3.4. Construction work areas and access will occur within existing, modified, or new ROW with some adjacent or nearby temporary construction work areas and access as detailed in Section 3.5.

3.3.2 Segments, Components, and Phases

The project will include two main construction efforts: (1) construction of the proposed 230 kV facilities, and (2) final reconfiguration of the existing 60 kV and existing 230 kV ring bus. The existing PG&E 60 kV lines cannot be removed entirely from service to LEU Industrial Substation until the PG&E 230 kV transmission feed is established to LEU. The initial effort will focus on relocating existing lines and constructing the new station facilities in Lodi and the PG&E 230 kV feed into LEU Industrial Substation. The later construction effort will complete the reconfiguration of the existing PG&E 60 kV lines when they are disconnected from LEU Industrial Substation and complete the reconfiguration of PG&E Lockeford Substation's 230 kV bus.

For identification within this document, the wood pole structures of the three existing PG&E power lines are numbered from their first pole outside of LEU Industrial Substation toward the other end of the line. For example, PG&E Industrial Tap wood poles are numbered pole 1 through pole 22 to identify structures between LEU Industrial Substation and the end of the line at SR 12/East Victor Road. The north end of PG&E Industrial Tap is a span connecting to an existing wood pole of PG&E Lockeford-Lodi No. 2 60 kV Line (pole 22). Existing PG&E 60 kV wood poles are not given an identification number if no work is expected to occur at the structure as part of this project.

Table 3.3-1 summarizes the construction components of the 230 kV transmission system and the 60 kV reconfiguration. Figure 3.3-1a, Figure 3.3-1b, Figure 3.3-2a, Figure 3.3-2b, and Figure 3.5-1 include preliminary project maps showing the project components.

Table 3.3-1. Construction Components, Phases, and Timing

Construction Phase & Timing	Components
Constructing the new 230 kV facilities Q3 2026 to Q1 2028	• Relocate an existing LEU 12 kV feeder lines (approximately 0.20 mile), currently underbuilt on PG&E Lockeford-Industrial 60 kV Line (on poles 2 to 6, and unused span to pole 4) to an underground configuration within an existing easement for approximately 750 feet to allow construction of the new PG&E Lockeford-Thurman 230 kV Line. The underground configuration will connect to existing LEU 12 kV wood pole along South Guild Avenue to continue service. The existing underground portion of the LEU 12 kV feeder line between LEU Industrial Substation and PG&E Lockeford-Industrial pole 2 will be retired in place. • Remove a span of an existing LEU 12 kV service line (approximately 72 feet) currently between PG&E Lockeford-Industrial 60 kV pole 4 and LEU 12 kV wood pole to the south. The existing span is not in service. • Communicate the construction schedule to Comcast to relocate its existing telecommunication line on PG&E Lockeford-Industrial 60 kV Line pole 4. • Modify the existing PG&E Lockeford Substation, increasing the fenced area on the PG&E property by approximately 2.32 acres and extend AT&T fiber lines within substation. • Extend the existing PG&E Brighton-Bellota 230 kV Transmission Line by approximately 3.8 miles, ultimately creating PG&E Brighton-Lockeford and PG&E Lockeford-Bellota No. 2 230 kV Transmission Lines colocated as a double-circuit line.

Construction Phase & Timing	Components
	• Construct the new 230 kV PG&E Thurman Switching Station, with a permanent fenced area of approximately 5.71 acres. • Construct an approximately 125-foot-tall microwave tower within PG&E Thurman Switching Station, place fiber optic cables between PG&E Thurman Switching Station and LEU Industrial Substation, and place fiber optic cables or optical cable ground wires in the top position on the new PG&E 230 kV lines connecting from the last structure into the substations. • Modify PG&E Clayton Hill Repeater Station by adding two antennas to the existing south communication tower. • Extend an existing PG&E 12 kV line, underground in franchise, for approximately 500 feet creating a new PG&E Thurman Switching Station secondary station service feed. • Construct the new 230/60 kV LEU Guild Substation, with a permanent fenced area of approximately 3.25 acres. • Construct new PG&E and LEU 230 kV lines (approximately 135 feet) Thurman-Guild 230 kV No. 1 and No. 2 to connect the adjacent PG&E Thurman Switching Station and LEU Guild Substation. • Modify the existing 60 kV LEU Industrial Substation within its existing fence line to receive the new feed from the adjacent new 230/60 kV LEU Guild Substation. • Construct new LEU 60 kV lines (approximately 180 feet), Guild-Industrial 60 kV No. 1 and No. 2, to connect the adjacent LEU Guild and Industrial substations. • Construct the new double-circuit 230 kV transmission line, PG&E Lockeford-Thurman 230 kV Transmission Line, for approximately 6.4 miles. The final approximately 0.4 mile of the new PG&E 230 kV line (W44 to W48) will be constructed after PG&E Lockeford-Industrial 60 kV line is partially removed (pole 1 to pole 9). • Modify PG&E Lockeford-Industrial 60 kV line to remove ten spans (approximately 0.50 mile, pole 1 to pole 9) into LEU Industrial Substation; construct the final western portion (approximately 0.4 mile) of the new PG&E Lockeford-Thurman 230 kV Transmission Line (W44 to W48). • Extend AT&T fiber lines and modify system protection equipment in the control facilities at the remote end of PG&E Bellota, Brighton, and Rio Oso substations. • Test, commission, and place new 230 kV source in service.

Construction Phase & Timing	Components
Reconfiguring the existing 60 kV facilities (when the new 230 kV source is in service) and continuing the 230 kV updates Q4 2027 to Q2 2029	• Modify LEU Industrial Substation and remove connections with PG&E Lodi-Industrial and PG&E Industrial Tap 60 kV lines between facilities. • Modify PG&E Lodi-Industrial (remove pole 1, modify pole 2 and pole 3, new span from pole 2 to Industrial Tap pole 2), PG&E Industrial Tap (remove pole 1, modify pole 2, reframe pole 12 and pole 13, top pole 14 though pole 21, remove span between pole 13 and pole 22), PG&E Lockeford-Lodi No. 2 (install new horizontal guy wire from pole 22 across SR 12/East Victor Road to existing PG&E distribution pole), and PG&E Lockeford-Industrial (replace pole 10, new span from pole 10 to Industrial Tap pole 13) to operate as PG&E Lockeford-Lodi No. 1 (preliminary name). • Modify the system protection scheme in the control facilities at the remote end of PG&E Lockeford and Lodi substations. • Relocate approximately 85 feet north the existing terminal structure (RO1) for PG&E Rio Oso-Lockeford and Lockeford-Bellota 230 kV Transmission Lines at PG&E Lockeford Substation. • Complete reconfiguration of PG&E Lockeford Substation existing 230 kV Bus 1. • Remove or retire in place the line tuner/wave traps at the remote end of PG&E Bellota, Brighton, and Rio Oso substations. • Modify system protection equipment in the control facilities at the remote end of PG&E Bellota, Brighton, Lodi, and Rio Oso substations.

Notes:

Q1, Q2, Q3, Q4 = Quarter 1, Quarter 2, Quarter 3, Quarter 4

3.3.3 Existing Facilities

The proposed project will modify and remove facilities as summarized in Table 3.3-2. The subsequent sections summarize each project component in more detail.

Table 3.3-2. Types of Existing Facilities to be Removed or Modified

Component	Facilities Removed	Facilities Modified
PG&E Lockeford Substation	• Replace fence	• Expand permanent facility fence line by approximately 2.32 acres or approximately 1,330 feet. Replace all existing perimeter fence line in-kind and install new sections for new fence line. • Expand retention pond and rebuild existing concrete stormwater drainage. • Build new 230 kV bay, control, and battery buildings with potential ground system expansion; reconfigure existing 230 kV bay; move existing 230 kV control equipment to new building. • Improve existing western internal drive path for all-weather use; install interior gate between western side yard and central yard. • Extend AT&T fiber lines within substation. • Update system protection scheme in existing control facilities.

Component	Facilities Removed	Facilities Modified
PG&E Brighton-Bellota 230 kV Line	• Retire Brighton-Bellota 230 kV Line name	• Install a dead-end structure (E1) starting an approximately 3.8-mile line extension, creating a double-circuit 230 kV line (E1 to E23) into PG&E Lockeford Substation. • Operate the line extension so that the north circuit will be part of PG&E Brighton-Lockeford 230 kV Line and the south circuit will be part of PG&E Lockeford-Bellota No. 2 Line.
PG&E Rio Oso-Lockeford 230 kV Line	• Replace final structure at PG&E Lockeford Substation	• Replace final line structure, RO1 (shared with PG&E Lockeford-Bellota), approximately 85 feet north of the existing structure on the substation parcel to reduce the current approximately 30-degree structure angle.
PG&E Lockeford-Bellota 230 kV Line	• Replace final structure at PG&E Lockeford Substation • Retire Lockeford-Bellota 230 kV Line name	• Replace final line structure, RO1 (shared with PG&E Rio Oso-Lockeford), approximately 85 feet north of the existing structure on the substation parcel to reduce the current approximately 30-degree structure angle. • Relocate PG&E Lockeford-Bellota 230 kV Line within PG&E Lockeford Substation Bay 1 position and rename it for operation as PG&E Lockeford-Bellota No. 1 Line.
LEU Industrial Substation	Terminal connections to: • PG&E Lodi-Industrial • PG&E Industrial Tap • PG&E Lockeford-Industrial • Overhead LEU 12 kV feeder (to northeast)	• Expand ground system, replace eastern perimeter fence and install pedestrian gate. • Install new 12 kV feeder underground riser, two single-circuit 60 kV TSPs, underground telecommunication conduits to LEU Guild Substation. • Update relay setting. • Phase transposition of existing LEU substation 60 kV lines.
LEU 12 kV Feeder Lines from LEU Industrial Substation	• LEU 12 kV underbuild on PG&E Lockeford-Industrial 60 kV Line • Retire in place existing underground portion	• Relocate aboveground 12 kV line (PG&E Lockeford-Industrial pole 2 to pole 6) to an underground configuration along existing alignment and connect to a separate existing LEU 12 kV line from LEU Industrial Substation. Remove LEU 12 kV span between PG&E Lockeford-Industrial pole 4 and LEU 12 kV wood pole.
Comcast Telecommunication Line	• Comcast to remove its existing line on PG&E Lockeford-Industrial Line pole 4.	• Comcast will use other existing Comcast telecommunication lines and other joint poles as needed.
PG&E 12 kV Service Line on South Guild Avenue north of East Lodi Avenue	• None	• Extend service from PG&E 12 kV wood pole approximately 500 feet underground within South Guild Avenue to new PG&E Thurman Switching Station.

Component	Facilities Removed	Facilities Modified
PG&E Lockeford-Industrial 60 kV Line	• Remove 10 spans and 9 poles (pole 1 to pole 9), including span into LEU Industrial Substation • Retire PG&E Lockeford-Industrial 60 kV Line name	• Install new span to connect PG&E Lockeford-Industrial pole 10 with PG&E Industrial Tap pole 13 near western end of East Sargent Road. Replace pole 10 (east end of new span) with light-duty steel pole the same approximate height with a new down guy. • When PG&E Lodi-Industrial Line is disconnected from LEU Industrial Substation and connected with PG&E Industrial Tap, operate PG&E reconfigured 60 kV line as PG&E Lockeford-Lodi No. 1 Line (preliminary name).
PG&E Lodi-Industrial 60 kV Line	• Remove terminal span and pole 1 outside LEU Industrial Substation • Remove pole 2 horizontal guy and stub pole on north side of East Lodi Avenue • Retire PG&E Lodi-Industrial 60 kV Line name	• Replace arms of existing pole 2 and pole 3 along East Lodi Avenue to connect PG&E Lodi-Industrial to PG&E Industrial Tap pole 2 and install new conductor between existing pole 2s. • Operate the remaining portion of PG&E Lodi-Industrial Line as PG&E Lockeford-Lodi No. 1 Line (preliminary name).
PG&E Industrial Tap 60 kV Line	• Remove terminal span and pole 1 outside LEU Industrial Substation • Remove pole 2 horizontal guy and stub pole on north side of East Lodi Avenue • Retire PG&E Industrial Tap 60 kV Line name	• Reframe pole 12 and pole 13 and install a new down guy. Install new span to connect PG&E Industrial Tap pole 13 to PG&E Lockeford–Industrial pole 10 near western end of East Sargent Road. • Replace arms of pole 2 along East Lodi Avenue to connect PG&E Industrial Tap to PG&E Lodi-Industrial pole 2 and install new conductor between poles. • Modify the remaining northern portion of PG&E Industrial Tap (approximately 0.5 mile between East Sargent Road and East Victor Road/ SR 12), pole 14 to pole 21, with existing PG&E distribution underbuild. Remove 60 kV conductor and pole crossarms and top existing wood poles; northern portion of existing wood pole line will operate as distribution. • Operate the remaining west-east portion of PG&E Industrial Tap Line as PG&E Lockeford-Lodi No. 1 Line (preliminary name).
PG&E Lockeford-Lodi No. 2 60 kV Line	• Remove connecting PG&E Industrial Tap span	• Reframe pole 22 and install new down guy. Install horizontal guy wire from pole 22 to existing PG&E distribution pole across SR 12/East Victor Road and new down guy on distribution pole.
PG&E Remote-End Substations	• Remove or retire in place PG&E Bellota,	• Extend existing fiber lines at PG&E Bellota, Brighton, and Rio Oso substations

Component	Facilities Removed	Facilities Modified
(Bellota, Brighton, Lodi, and Rio Oso)	Brighton, Rio Oso line tuner/wave trap equipment and associated structures	• Install updated system protection schemes in existing control facilities of PG&E Bellota, Brighton, Lodi, and Rio Oso substations.
PG&E Clayton Hill Repeater Station	• None	• Install two new antennas on existing south communication tower within the station fence line.

Notes:

TSP = tubular steel pole

3.3.3.1 PG&E Lockeford Substation

PG&E Lockeford Substation at 12861 East Kettleman Lane has been in operation as a substation since 1948 in an unincorporated area within San Joaquin County. Refer to Figure 3.3-1a for the existing aerial view. The substation will be modified with a reconfigured 230 kV ring bus and associated modifications to accommodate the new 230 kV lines. Modified and new electric equipment will include 230 kV disconnect switches, instrument transformers, protective relaying, metering and control equipment, remote SCADA equipment, telecommunication fiber extension, telemetering equipment, an auxiliary alternating current and direct current (AC/DC) power system, an electric grounding system, and underground conduits or trench systems.

PG&E Lockeford Substation's existing 60 kV, 115 kV, and 230 kV facilities are not expected to be modified beyond activities related to the 230 kV expansion and updating the 60 kV system protection scheme with the reconfiguration of PG&E Lockeford-Industrial Line to PG&E Lockeford-Lodi No. 1 Line (preliminary name), which will likely include replacing the relay protection package and installing two new panels.

No substation components are expected to be removed or abandoned to complete the project. The existing power and transmission facilities within the substation include terminals, poles, and a control enclosure with the tallest existing structures (existing poles connecting to their respective terminals) at approximately 100 feet above the ground.

Approximately 10.2 acres are fenced on two parcels (5126022 and 5126023), creating the approximately 20.04-acre property owned in fee by PG&E (Figure 3.3-1a). The existing perimeter substation fence line encloses a western side yard and the 60 kV, 115 kV, and 230 kV facilities on approximately 2.9 acres and approximately 7.3 acres, respectively. The perimeter gray chain-link fence is approximately 10 feet tall with three strands of barbed wire along the top. Access to the western side yard and central yard is through two separate vehicle gates with entrances along East Kettleman Lane.

The existing 230 kV ring bus of approximately 1.25 acres is proposed to be effectively doubled, creating a four bay breaker-and-a-half (BAAH) configuration to accommodate the new 230 kV lines. Refer to Figure 3.3-1b for the proposed aerial view. The installation of two 230 kV bays will create four 230 kV terminals for the new transmission lines in the northeastern portion of the substation. Two new 230 kV terminals will accommodate the extended PG&E Brighton-Bellota 230 kV Line from the east and two new 230 kV terminals will accommodate the new PG&E Lockeford-Thurman 230 kV Lines to the west. The substation's existing 230 kV yard will be expanded approximately 21 feet east, approximately 143 feet north, then approximately 708 feet west (measured from the new northeast corner of the substation) to accommodate a 230 kV BAAH bus configuration, and new control and battery enclosures.

The new 230 kV aboveground bus support and dead-end steel structures will include equipment that will range in height from approximately 16 feet to 55 feet, with concrete foundations installed to approximately 28 feet below ground. Refer to Figure 3.3-1c for the proposed profile view of one bay looking north. Refer to Figure 3.3-1d for the proposed profile view looking west of the existing two bays and the proposed two bays. Each adjacent bay is approximately 53 feet by 384 feet with vehicle access of

approximately 16 feet around the new 230 kV bays. The 230 kV bays have the approximately same design dimensions as the existing 230 kV bay and terminals for PG&E Rio Oso-Lockeford and Lockeford-Bellota lines immediately to the south of the new 230 kV bay location. An underground conduit system is expected to be buried approximately 3 to 5 feet deep. The existing ground grid will be evaluated during final design's grounding system study and may be augmented with additional buried copper wires, which typically are placed in an approximately 10-foot by 10-foot grid, buried approximately 18 inches within the substation footprint.

The components of the 230 kV Bus 1 and Bus 2 extension to accommodate the Bus 3 and Bus 4 bay addition include:

Bay X. A new 230 kV BAAH bay, with three 230 kV circuit breakers, will be installed for the new 230 kV lines. The circuit breakers will be mounted to new concrete pads and connected to the existing Bus 1 and Bus 2 using conductor and tubing. Minor modifications to voltage transformers and bank positions will occur within the existing Bus 1 and Bus 2.

- Install eighteen single-phase 230 kV line coupling capacitor-type voltage transformers (CCVTs) on single-phase steel support structures and associated foundations. Three CCVTs will be installed on each connecting single-circuit transmission line for line voltage automatics and relaying. Line traps may be required for protection as determined during final design.
- Install two single-phase (C-phase only) 230 kV bus CCVTs and associated foundations, to be located, one each, on the existing 230 kV Bus 1 and Bus 2.
- Relocate the existing 230 kV PG&E Lockeford-Bellota (and change name to PG&E Lockeford-Bellota No. 1 Line) position in Bay 1 to be adjacent to a new 230 kV circuit breaker.
- Relocate existing 230/60 kV Bank 3 position in Bay 1 to be adjacent to the PG&E Lockeford-Bellota No. 1 Line position.

New 230 kV Circuit Breaker and Disconnect Switch. A new 230 kV circuit breaker will be installed for each new transmission line. The circuit breaker will be mounted to a new concrete pad and connected to the existing bay using conductor and tubing. New disconnect switches allow for electrical isolation for operating and maintenance purposes.

- Install eight 230 kV power circuit breakers (sulfur hexafluoride [SF_6] gas type; rated 230 kV, 2,000 amperes (A) continuous, 40 kilo ampere interrupting capacity [kAIC]) and associated foundations with two sets of current transformers per bushing.
- Install fifteen 230 kV 2,000 A air disconnect switches for circuit breaker isolation (center side break, manually operated) and associated foundations.
- Install six 230 kV 2,000 A air disconnect switches for line disconnect (vertical break, manually operated) and associated foundations.

Take-off Structure. A new H-frame take-off structure will terminate each new line inside the substation.

- Install three double-bay 230 kV switch and dead-end/pull-off H-frame structures and associated foundations, to interface with the new 230 kV lines entering the station.
- Install one double-bay 230 kV dead-end/pull-off H-frame structure and associated foundation, to connect the BAAH bays to the line terminal dead-end structures.

Lighting. New permanent structure lighting that is consistent with the existing Bus 1 and Bus 2 lighting will be installed at Bay X. The battery and control enclosures will have exterior entrance lighting consistent with the existing control enclosure. Outdoor lighting will include nonglare or hooded fixtures and directional lighting. The outdoor lighting will be operated as needed to support security technology and safety during unplanned work at night or low-light conditions where directional lighting is needed to improve safe access or work conditions.

Fiber Optic Cable. The new fiber optic cable, which will be installed in the top conductor position of both new transmission lines into PG&E Lockeford Substation, will be routed into the substation using a new underground conduit during final design. On the last transmission line structure for each line outside the substation W1 and E23, the fiber optic cable will be installed down the structure connecting to an underground conduit between approximately 3 feet and 5 feet below the ground in 4-inch conduit. The conduit will convey the cable into the substation, where it continues underground to the new control enclosure. The fiber optic cable is needed for facilities communication during operation.

Control and Telecommunication Equipment. Additional protection, control, and telecommunication equipment—including AC/DC panels, lighting, and climate/ventilation control—will be mounted in new equipment racks that will be required for the new 230 kV facilities. The addition of new 230 kV facilities requires additional control and telecommunication equipment to support its operation. The new control enclosure (approximately 128 feet by 16 feet by 12 feet) will be constructed to the west of the new 230 kV bays on a concrete pad. The enclosure's exterior and sloped roof will be steel sheeting. The equipment racks will be installed in a new control enclosure and replaced 230 kV equipment will be removed from the existing control enclosure, which also contains 60 kV and 115 kV equipment. A dedicated battery enclosure (approximately 34 feet by 16 feet by 12 feet) will be constructed to the west of the new 230 kV facilities on a concrete pad and covered in steel sheeting with a sloped roof. Both new enclosures will include a heating, ventilation, and air conditioning (HVAC) system of typical specifications.

An existing AT&T fiber line located at PG&E Lockeford Substation will be extended on existing structures at the street, or will be extended from within the substation and to the new control enclosure. The fiber line extension will occur using existing aboveground structures and will have a similar appearance to existing fiber lines along East Kettleman Lane and within PG&E Lockeford Substation. The fiber line is needed for facilities communication during operation.

Stormwater Retention Basin and Drainage Ditch. The existing substation retention basin is approximately 7,500 square feet with a connecting concrete stormwater drainage ditch of approximately 450 feet. The existing substation retention basin will be expanded by approximately 2,742 square feet, for a total area of approximately 10,242 square feet to collect stormwater from the expanded substation footprint. Approximately 50 feet of the existing concrete stormwater drainage ditch will be removed where the basin is expanded to the east and the modified connection between the ditch and basin will be stabilized with riprap. The existing concrete stormwater drainage ditch will be replaced in-kind and extended north by approximately 134 feet to align with the eastern edge of the new 230 kV bay footprint.

Interior Substation Vehicle Access. The existing interior access within the substation's west side yard will be improved for all-weather access and connected through a new interior vehicle gate into the central yard allowing an alternate, all-weather access to the new 230 kV components from East Kettleman Lane. The approximately 780-foot length of the approximately 15-foot-wide existing interior access will be bladed (approximately 0.35 acre of temporary ground disturbance expected) to create a more-level surface and rocked for all-weather access.

Substation Exterior Fence Line. The substation fence line will be expanded to include approximately an additional 2.32 acres on the northern and eastern sides of the currently fenced area to provide facility security and a public safety barrier. Approximately 2.17 acres will accommodate the two new 230 kV bays, vehicle path, extended stormwater drainage ditch, and control enclosure on a northern portion of the existing substation property. On an eastern portion of the existing substation property, the fence line will be expanded by approximately 0.15 acre to enclose the expanded retention pond. Approximately 2.65 acres of temporary ground disturbance is expected for the substation expansion. The length of new fence will be approximately 1,330 feet. During operation, the permanent fence line will enclose the reconfigured 230 kV ring bus and associated permanent modifications for a total fenced footprint of approximately 12.6 acres. The existing exterior fence will be replaced in-kind with the new fence sections to meet PG&E standards to replace the existing fence if more than approximately 10% is being modified.

Table 3.3-3 lists approximate metrics of proposed substation components. Also refer to Figure 3.3-1b, Figure 3.3-1c, and Figure 3.3-1d.

Table 3.3-3. Approximate Preliminary Metrics of Modified PG&E Lockeford Substation Components

Component[a]	Quantity	Approximate Preliminary Metrics
230 kV Circuit Breaker	8	16′ H x 12′ L x 5′ W
230 kV Bus Support Structure	8	20′ H
230 kV Bus Support Structure	24	9′ H
230 kV Disconnect Switch	21	Mounted on structures
230 kV Disconnect Switch Structure	21	7′-6″ H
230 kV CCVT	20	12′ H
230 kV CCVT Structure	20	9′ H
H-Frame Take-Off Structure (2-bay)	3	55′ H x 53′ W
H-Frame Take-Off Structure (2-bay)	1	45′ H x 53′ W
Bay X Lighting	#	In-kind with existing bay lighting
Control Building	1	79′ L x 15′-4″ W x 12′ H
Battery Building	1	34′ L x 15′-4″ W x 12′ H
Concrete Foundation (structures and buildings)	79	736 yd^3
Fiber Optic Cable (underground conduit)	4	1,000 feet
Stormwater Retention Basin	modified	2,742 square feet modification
Stormwater Drainage Ditch	modified	Replacement in kind with 84-foot extension (net)
Interior Vehicle Access and Interior Gate between Existing Substation Yards	modified within existing western yard	780-foot length x 15-foot width
Substation Fence	modified and replaced	3,150 feet of fence replaced and expanded to 3,385 feet

Notes:

[a] Exact structure type, configuration, and dimensions will be determined by CPUC requirements, final engineering, and other factors and are likely to change.

′ = foot (feet), ″ = inch(es), H = height, L = length, W = width, yd^3 = cubic yard(s)

New steel structures will be made from galvanized steel. Equipment typically will be American National Standards Institute (ANSI) 70 light gray, per PG&E and industry standards. The control enclosure, battery enclosure, and nonsteel substation equipment will be a nonreflective neutral gray color. New fence material is expected to have a similar finish to the existing gray chain-link fence with three strands of barbed wire along the top.

The expanded 230 kV area within the existing substation will incorporate outdoor lighting for safety and security. Design and layout for new outdoor lighting will integrate nonglare or hooded fixtures and directional lighting. The new lighting will be operated as needed to support security technology and safety during unplanned work at night or in low-light conditions when directional lighting improves safety for access and work.

3.3.3.2 PG&E Brighton-Bellota 230 kV Transmission Line

The existing overhead single-circuit PG&E Brighton-Bellota 230 kV Transmission Line is approximately 24.3 miles long and is on the west side of lattice steel towers between PG&E Brighton and PG&E Bellota substations. From approximately 8.4 miles north of PG&E Bellota Substation, the line will be extended from an existing span to loop into PG&E Lockeford Substation as a double-circuit 230 kV transmission line

to create a portion of the new 230 kV source identified by CAISO (refer to Figure 3.1-1). The new loop line length will be approximately 3.8 miles and will be located to the north of the existing double-circuit PG&E 230 kV transmission line (Rio Oso-Lockeford and Lockeford-Bellota).

The span of the existing PG&E Brighton-Bellota Line will be dead-ended on a new TSP (E1) that will begin the line extension to the west into PG&E Lockeford Substation. The existing conductor will be used and spliced to a new conductor installed after Structure E1 (refer to Figure 3.5-1). The extension of the PG&E Brighton-Bellota 230 kV Line, including this new TSP, is described in Section 3.3.4.1.

The existing line is not expected to be modified otherwise. The existing facility will operate with the extension as PG&E Brighton-Lockeford 230 kV Line and PG&E Lockeford-Bellota No. 2 230 kV Line when the project is complete. The PG&E Brighton-Bellota Line name will be retired.

3.3.3.3 PG&E Rio Oso-Lockeford 230 kV Line/PG&E Lockeford-Bellota 230 kV Line – Lockeford Terminal Structure Replacement

The existing overhead single-circuit PG&E Rio Oso-Lockeford 230 kV Line is approximately 19.8 miles long between PG&E Rio Oso and PG&E Lockeford substations. The existing overhead single-circuit PG&E Lockeford-Bellota 230 kV Line is approximately 12.3 miles long between PG&E Lockeford and PG&E Bellota substations. At the eastern end of the project, where the existing lines turn west toward PG&E Lockeford Substation, on an existing double-circuit 230 kV lattice, the PG&E Rio Oso-Lockeford Line is in the north position and the PG&E Lockeford-Bellota Line is in the south position (refer to Figure 3.3-1a and Figure 3.5-1). Structure RO1 is the last structure before PG&E Lockeford Substation. RO1 will be relocated approximately 85 feet north of the existing structure to reduce the current approximately 30-degree angle (refer to Figure 3.3-1b). The reduction in angle is proposed as an improved design for this portion of the existing 230 kV facilities that will be reconfigured as part of the substation expansion for the new 230 kV lines. The existing dead-end approximately 105-foot-tall lattice steel tower is expected to be replaced with a dead-end TSP of approximately the same height. The expected pole diameter dimension ranges at top, bottom, and excavation are common to the other new proposed 230 kV tubular pole structure types discussed in Section 3.3.4.1 and detailed in Table 3.3-4. The existing conductor to RO1 will not be replaced, but will be moved from the existing structure to the new structure and retensioned.

The relocation of PG&E Lockeford-Bellota 230 kV Line within PG&E Lockeford Substation is discussed in Section 3.3.3.1 (refer to Figure 3.3-1b and Figure 3.3-1d). With the construction of the new PG&E Brighton-Bellota 230 kV loop into PG&E Lockeford Substation, PG&E Lockeford-Bellota will be renamed for operation as PG&E Lockeford-Bellota No. 1 Line. The south position of the new 230 kV loop between PG&E Lockeford and PG&E Bellota substations will operate as PG&E Lockeford-Bellota No. 2 Line.

3.3.3.4 LEU Industrial Substation

LEU Industrial Substation was constructed originally in 1991 and is located on a 7.98-acre parcel (04931008) owned by the City of Lodi at 1215 East Thurman Road, as shown on Figure 3.3-2a. A City of Lodi well tank and pump station on the same parcel south of LEU Industrial Substation share a common paved access road from East Thurman Road, but it is not a part of the project. Currently, the existing substation fence line encloses its 60/12 kV facilities on approximately 3.50 acres of the parcel. The existing substation includes a 60 kV substation yard, three distribution 60/12 kV transformers, 12 kV distribution feeders, a control enclosure, and an approximately 125-foot by 175-foot laydown yard.

The existing LEU Industrial Substation will be modified to interconnect with the new LEU Guild Substation's 60 kV bus. The LEU 60 kV interconnection will be constructed within the existing LEU Industrial Substation property (refer to Figure 3.3-2b).

Minor modifications within LEU Industrial Substation will include phase transposition of existing power line facilities, power line terminations changing 60 kV feeds, installation of single-circuit 60 kV monopoles, expansion of the existing ground grid system, replacement of the existing eastern perimeter fence, and installation of underground conduits connecting LEU Industrial Substation's control enclosure with LEU

Guild Substation's protection and control enclosure. LEU Industrial Substation's existing eastern perimeter fence (approximately 400 feet) will be replaced by a common chain-link fence with the LEU Guild Substation to the east. An approximately 10-foot-tall fence consisting of approximately 3/8-inch wire mesh with approximately 1 foot of V-shaped barbed wire at the top will be installed where fencing is replaced.

The existing LEU Industrial Substation 60 kV bus will be interconnected with the new LEU Guild Substation 60 kV bus through the new LEU Guild-Industrial 60 kV Lines (LEU Guild-Industrial No. 1 60 kV Line and No. 2 60 kV Line). The lines will connect to two existing substation 60 kV buses each through a single-circuit 60 kV monopole approximately 65 feet high. The pole will have an approximately 4-foot diameter and approximately 20-foot drilled pier foundation.

A new telecommunication network will connect LEU Industrial and Guild substations to allow communication between substations for operation. Each of the two underground communication cables connecting the new LEU Guild Substation protection and control enclosure to the existing LEU Industrial Substation control enclosure will be approximately 315 feet long. Fiber optic cable will transition underground from each control enclosure in approximately 4-inch conduits at a minimum of approximately 2 feet below grade. The underground conduit will hold the 750 thousand circular mils (kcmil) aluminum, 15 kV, insulated or similar conductor. The LEU Industrial Substation SCADA information is transmitted through the City of Lodi's fiber loop through an RS900 converter. SCADA/remote terminal units for both the 60 kV and 12 kV equipment report to LEU's SCADA masters located at the Electric Utility Operations Center, with backup at the Operations Center at LEU Killelea Substation.

The existing LEU Industrial Substation copper ground system will be expanded to approximately 1,600 square feet with a minimum of 2/0 copper buried a minimum of approximately 24 inches below subgrade to create additional facility grounding. The expansion will occur in the area of the new 60 kV monopoles within the existing fence line. Additional, minimum 5/8-inch diameter by approximately 8-foot-deep copper-bonded steel ground rods will be installed as the ground model and the Institute of Electrical and Electronics Engineers (IEEE) Standard 80 requires.

Two spans of LEU Guild-Industrial No. 1 Line and No. 2 Line will connect to two existing 60 kV terminals currently connected with PG&E Lockeford-Industrial and PG&E Industrial Tap 60 kV lines to reuse the 60 kV terminals with power from the new source.

Two new single-circuit 60 kV monopoles (approximately 65 feet in height) will be installed within the existing LEU Industrial Substation footprint to connect to the new feed from LEU Guild Substation. These poles will support the 1,113 kcmil, 54/19-strand aluminum steel-supported conductor, code name "Finch," from LEU Guild Substation. The new conductor will be installed between the 60 kV terminals in LEU Guild and LEU Industrial substations on the new monopoles creating LEU Guild-Industrial No. 1 Line and No. 2 Line, which will be approximately 173 feet and approximately 267 feet in length, respectively. Table 3.3-4 lists approximate metrics of substation modification components.

Table 3.3-4. Approximate Preliminary Metrics of LEU Industrial Substation Components

Component[a]	Quantity	Approximate Preliminary Metrics
60 kV Monopole Structure	2	65 feet tall
60 kV Monopole Foundation	2	4-foot-diameter x 20-foot-length Pier9.308 yd^3 per foundation
LEU Guild-Industrial No. 1 Line and No. 2 Line	6	1,113 kcmil, 54/19-strand aluminum steel-supported conductor, code name "Finch", approximately 173 feet and 267 feet
Fiber Optic Cable Conduit	2	4-inch conduit x 315 feet length
Fiber Optic Cable	2	750 kcmil aluminum, 15 kV, insulated conductor

Component[a]	Quantity	Approximate Preliminary Metrics
Copper Ground System	1,600 square feet	2/0 copper buried a minimum of 24 inches below subgrade with minimum 5/8-inch diameter by 8-foot-deep copper-bonded steel ground rods

Notes:

[a] Exact structure type, configuration, and dimensions will be determined by City of Lodi requirements, final engineering, and other factors and are likely to change.

New monopole structures will be galvanized steel. The new area within the existing substation will incorporate outdoor lighting for safety and security similar to existing outdoor lighting. Design and layout for new outdoor lighting will integrate nonglare or hooded fixtures and directional lighting. The new lighting will be operated as needed to support security technology and safety during unplanned work at night.

All new LEU Industrial Substation components will be completed as one phase, prior to the 60 kV load transfer to the 230 kV feed. When the PG&E 230 kV source is operating and feeding LEU through LEU Guild Substation into LEU Industrial Substation, the PG&E 60 kV feed into LEU Industrial Substation will be cut over to the new LEU Guild-Industrial No. 1 60 kV Line and No. 2 60 kV Line.

PG&E Lockeford-Industrial Line will be removed from service prior to the final 230 kV construction activities to accommodate reuse of a portion of its alignment for the new PG&E 230 kV line. The PG&E 60 kV line will be removed when there is sufficient time to complete construction on the new 230 kV and place it in service during lower load requirement months for the existing service. Typically, during approximately November to March annually, the average and forecasted LEU load requirements can be served by two PG&E 60 kV lines. If it appears that the 230 kV feed cannot be placed into service before LEU load requirements increase after March, the removal of the third PG&E 60 kV line will be delayed until the next single PG&E line outage period, which could be the following November to March. A 60 kV bus outage at LEU Industrial Substation and a 60 kV bus outage at PG&E Lockeford Substation will be required to disconnect and remove PG&E Lockeford-Industrial Line from within the north side of the substation. When PG&E removes a 60 kV line termination from LEU Industrial Substation, LEU will remove the respective line drop from the line termination to its 60 kV switch. These LEU switches will be connected to the new LEU Guild-Industrial 60 kV Line feeds as part of construction.

To cut over to the new 60 kV source after the new 60 kV lines from LEU Guild Substation are ready for operation, a 60 kV bus outage at LEU Industrial Substation and a 60 kV bus outage at PG&E Lockeford and Lodi substations will be required. The two remaining existing 60 kV feeds (PG&E Industrial Tap and PG&E Lodi-Industrial lines) from PG&E to LEU Industrial Substation will no longer be required with the proposed 230 kV feed in operation. The two PG&E lines will be disconnected and removed from within the north side of LEU Industrial Substation.

3.3.3.5 LEU 12 kV Feeder Lines

The overhead existing LEU 12 kV line segment that extends south from PG&E Lockeford-Industrial pole 4 to an existing LEU wood pole is not in service and the span will be removed as part of the project. Refer to Figure 3.3-2a and Figure 3.3-2b.

An existing LEU 12 kV line extends from LEU Industrial Substation as an underbuild on PG&E Lockeford-Industrial Line to a customer across South Guild Avenue. The feeder line currently is underbuilt on PG&E Lockeford-Industrial (pole 2 to pole 6). The feeder line is underground between PG&E Lockeford-Industrial pole 2 and LEU Industrial Substation, and between its position on PG&E Lockeford-Industrial pole 6 and the LEU customer. This LEU feeder is a backup service to the LEU customer. This project will require an LEU 12 kV feeder outage to the LEU customer warehouse industrial facility on South Guild Avenue at East Thurman Road to relocate a portion of the feeder to an underground alignment. The project will not interrupt LEU's primary service to the LEU customer.

The overhead line portion will be replaced in an underground configuration on the customer's property. The line is being replaced underground to allow continued secondary service to the LEU customer and the PG&E Lockeford-Industrial 60 kV ROW to be reused by the new PG&E 230 kV line. Approximately 750 feet of the feeder line will be relocated underground from its aboveground position on PG&E Lockeford-Industrial pole 4 to pole 6 within the same utility corridor. Two pull boxes (or vaults) will be installed as part of the underground configuration. Pull boxes will be precast polymer concrete and traffic rated. No lighting will be installed for these facilities.

The western end of the relocated underground line will connect on the east side of South Guild Avenue to the existing LEU wood pole on the south side of the warehouse driveway, which is a separate existing LEU 12 kV line from LEU Industrial Substation. This existing LEU 12 kV line following South Guild Avenue south from the LEU 12 kV wood pole south of the warehouse driveway and then west underground in East Thurman Road to LEU Industrial Substation will not be modified past the LEU wood pole. The existing lines and modifications are shown on Figure 3.3-2a and Figure 3.3-2b.

The feeder line will be relocated underground within one approximately 6-inch conduit to hold the three phases of the conductor and be buried a minimum of approximately 4 feet deep and a maximum of approximately 10 feet deep. A 12 kV underground feeder riser will be installed at the end of the underground conduit on the existing LEU wood pole. Approximate preliminary metrics of the 12 kV line conversion are shown in Table 3.3-5.

Table 3.3-5. Approximate Preliminary Metrics of LEU 12 kV Feeder Line Components

Component[a]	Approximate Quantity	Approximate Preliminary Metrics
Underground conduit	750 feet	6-inch diameter conduit
Underground cable	750 feet	100 kcmil 600 volt cross-linked polyethylene
Pull box	2	Precast polymer concrete, traffic rated, 3 feet x 5 feet
Feeder riser	20 feet	cable cover attached to wood pole

Notes:

[a] Exact structure type, configuration, and dimensions will be determined by City of Lodi requirements, final engineering, and other factors and are likely to change.

The existing LEU 12 kV underbuild on PG&E Lockeford-Industrial pole 2 to pole 4 along the north end of LEU Guild Substation will be removed as part of the PG&E line removal. The existing 12 kV underground portion of the feeder line between pole 2 and LEU Industrial Substation will be retired in place after the aboveground portion is removed. With the LEU 12 kV line replaced underground and connected to another portion of LEU's 12 kV system, the existing 12 kV line is not needed and will be removed or retired in place.

3.3.3.6 PG&E 12 kV Service Line Extension

An existing PG&E 12 kV line currently terminates on a wood pole (PG&E 12 kV) along the eastern side of South Guild Avenue approximately 175 feet north of East Lodi Avenue (refer to Figure 3.3-2a). The 12 kV line will be extended southwest from the pole by approximately 550 feet underground in franchise to create a secondary permanent electric service into the new PG&E Thurman Switching Station (refer to Figure 3.3-2b). Currently, two potential routes are identified to either side of South Guild Avenue, and either route could be used depending on whether the line crosses the road to the west at the existing pole, or after the line is installed under the railroad tracks. Any portion of the 12 kV extension parallel to the road and then crossing under the railroad tracks would be installed using HDD at a 90-degree angle to the tracks. PG&E will conform with current UPRR *Guidelines for Horizontal Directional Drilling Under Union Pacific Railroad Right of Way* when finalizing the 12 kV extension design in preparation for applying for a crossing permit. Currently, the PG&E 12 kV extension is expected to be installed at least 15 feet underground when crossing under and within 30 feet of the railroad tracks. These depths conform with the

available UPRR *Wireline Installation Engineering Specifications* and its reference to the 2005 *Interim Guidelines for Horizontal Directional Drilling Under Union Pacific Railroad Right of Way.* Any portion of the 12 kV extension crossing South Guild Avenue east to west would be installed using an open trench.

Table 3.3-6 shows the approximate preliminary metrics of the 12 kV line extension.

Table 3.3-6. Approximate Preliminary Metrics of PGE's 12 kV Service Line Extension Components

Component[a]	Approximate Quantity	Approximate Preliminary Metrics
Underground conduit	550 feet	4-inch diameter
Rubber cables	550 feet	1/0A ethylene propylene rubber cables
Pull box (typical #5 box)	1	3 feet wide, 5 feet long, 3.5 feet deep
Cover for conduit on take-off structure	20 feet	Standard cable cover attached to wood pole

Notes:

[a] Exact structure type, configuration, and dimensions will be determined by CPUC requirements, final engineering, and other factors and are likely to change.

3.3.3.7 PG&E Lockeford-Industrial 60 kV Line

PG&E Lockeford-Industrial 60 kV Line is an approximately 6-mile wood pole line connecting PG&E Lockeford Substation with LEU Industrial Substation. Refer to Figure 3.1-1 and Figure 3.3-2a. Approximately 0.40 mile of the line is within the City of Lodi and the remaining length is within San Joaquin County. The wood poles are approximately 60 to 90 feet in length, have a diameter at base of approximately 19 inches, and are direct bury approximately 9.5 to 11 feet deep. Some spans have underbuilt distribution and/or telecommunication lines and these poles typically are 10 to 15 feet taller than poles without underbuild. The line is being replaced by the PG&E 230 kV source to LEU and its connection to LEU Industrial Substation is no longer needed. The eastern portion of the line will be connected with a portion of PG&E Industrial Tap to reconfigure PG&E's three 60 kV lines after being disconnected from LEU Industrial Substation. The three PG&E 60 kV lines are being reconfigured to provide a PG&E Lockeford-Lodi No. 1 60 kV line (preliminary name) which will have increased capacity, allowing more reliable service to the PG&E 60 kV network in northern San Joaquin County.

PG&E Lockeford-Industrial 60 kV Line will be modified with approximately 0.54 mile of line removed at its western end into LEU Industrial Substation. Approximately 0.54 mile,10 spans and 9 poles (pole 1 to pole 9), will be removed along with the existing LEU 12 kV feeder lines and Comcast telecommunication line underbuilt and connecting to joint utility poles (refer to Figure 3.3-2b). The LEU 12 kV feeder lines will be removed where not in service or relocated underground to continue LEU customer service (refer to Section 3.3.3.5). The initial activities on PG&E Lockeford-Industrial will occur when PG&E can take a single line 60 kV outage (typically November to March annually when LEU load can be provided by two existing PG&E 60 kV lines). Initial activities on PG&E Lockeford-Industrial will be followed by the remaining portion of the new PG&E 230 kV line being constructed within the existing utility corridor.

After the 230 kV line is in service and the other two PG&E 60 kV lines can be removed from service to LEU Industrial Substation, the remaining portion of PG&E Lockeford-Industrial (approximately 5.46 miles) from PG&E Lockeford Substation will connect to the nearby PG&E Industrial Tap. A new span (approximately 115 feet) across the railroad tracks will connect PG&E Lockeford-Industrial pole 10 at the west end of East Sargent Road to PG&E Industrial Tap pole 13. PG&E Lockeford-Industrial pole 10 will be replaced in kind with weatherized light-duty steel poles. The new pole on the eastern side of the new span will be replaced in kind at approximately 85 feet in length, have a diameter at base of approximately 22 inches, and have a direct-bury depth of approximately 13.5 feet. On this replaced pole, new down guy wire will be installed to the east. The new pole is expected to be located typically within approximately 5 feet from the existing pole and in-line with the existing power line alignment. Light-duty steel poles have a surface treatment designed to render the appearance of natural weathering (corten). This pole

design provides superior protection from wildfires, pole rotting, and woodpecker damage when compared to wood poles. Refer to Figure 3.3-3a.

Framing will be replaced on PG&E Lockeford-Industrial pole 10 to change from an angle type (DV-DE) to a through type (DV-DJ). When PG&E Industrial Tap and PG&E Lodi-Industrial lines are disconnected from LEU Industrial Substation and connected to one another, the reconfigured line will operate as PG&E Lockeford-Lodi No. 1 Line (preliminary name). Refer to Figure 3.3-3b. Table 3.3-7 shows the approximate preliminary metrics of the Lockeford-Industrial 60 kV components.

Table 3.3-7. Approximate Preliminary Metrics of PG&E Lockeford-Industrial 60 kV Line Components

Component[a]	Quantity	Approximate Preliminary Metrics
Light-duty steel pole, corten finish	1	85 feet aboveground 22-inch diameter at base Direct-bury depth of approximately 13.5 feet
Down guy wire	2	25 feet, 7/16 inch galvanized steel
DV-PJ Framing	1	Single set of new framing
715 all aluminum conductor	3	115-foot conductor length

Notes:

[a] Exact structure type, configuration, and dimensions will be determined by CPUC requirements, final engineering, and other factors and are likely to change.

3.3.3.8 PG&E Lodi-Industrial 60 kV Line

PG&E Lodi-Industrial 60 kV Line is an approximately 0.9-mile wood pole line within the City of Lodi connecting PG&E Lodi Substation with LEU Industrial Substation. Refer to Figure 3.1-1 and Figure 3.3-2a. The wood poles are approximately 60 to 85 feet in length and are direct bury approximately 9.5 to 11 feet deep. The connection into LEU Industrial Substation will be removed when the new 230 kV feed is operating, and the 60 kV feed is no longer needed. The western portion of the line will be connected with a portion of PG&E Industrial Tap to reconfigure PG&E's three 60 kV lines after being disconnected from LEU Industrial Substation. The three PG&E 60 kV lines are being reconfigured to provide a PG&E Lockeford-Lodi No. 1 60 kV line (preliminary name) which will have increased capacity, allowing more reliable service to the PG&E 60 kV network in northern San Joaquin County.

The existing wood pole outside of the substation (pole 1) will be removed. Pole 2 will have framing changed from an angle type (SV-PJ) to a through type (DV-PJ) and the existing down guy will be removed and not replaced. Pole 3 framing will change from SS-1 type to 3-HPD type. No changes will occur to the existing LEU underbuild on the PG&E Lodi-Industrial 60 kV Line. A new span of conductor will be installed from PG&E Lodi-Industrial pole 2 to PG&E Industrial Tap pole 2. The existing steel guy stub pole near 1303 East Lodi Avenue and the connecting horizontal guy wires to PG&E Lodi-Industrial pole 2 are expected to be removed as part of construction because they will not need to provide tension. Tension will be adjusted on the existing conductor between PG&E Lodi-Industrial pole 2 and pole 3. Refer to Figure 3.3-3b and Figure 3.5-1. When PG&E Lodi-Industrial Line is connected to PG&E Industrial Tap (which will be connected to the eastern portion of PG&E Lockeford-Industrial), the reconfigured line will operate as PG&E Lockeford-Lodi No. 1 Line (preliminary name). Table 3.3-8 shows the approximate preliminary metrics of PG&E Lodi-Industrial 60 kV components.

Table 3.3-8. Approximate Preliminary Metrics of PG&E Lodi-Industrial 60 kV Line Components

Component[a]	Quantity	Approximate Preliminary Metrics
3-HPD Framing	1	Set of new framing for pole 3
DV-PJ Framing	1	Set of new framing for pole 2
715 all aluminum conductor	3	63-foot conductor length

Notes:

[a] Exact structure type, configuration, and dimensions will be determined by CPUC requirements, final engineering, and other factors and are likely to change.

3.3.3.9 PG&E Industrial Tap 60 kV Line

The existing PG&E Industrial Tap 60 kV Line, approximately 0.97-mile long, connects PG&E Lockeford-Lodi No. 2 Line at SR 12/East Victor Road into LEU Industrial Substation. Refer to Figure 3.1-1, Figure 3.3-2a, Figure 3.3-3a, and Figure 3.5-1, page 24. The north end of the wood pole line starts at a PG&E Lockeford-Lodi No. 2 Line wood pole immediately north of SR 12/East Victor Road approximately 0.25 mile east of South Guild Avenue. From its north end, PG&E Industrial Tap continues south for approximately 0.50 mile before turning west along the north side of the railroad tracks, where it enters the City of Lodi and continues for approximately 0.47 mile into LEU Industrial Substation. The wood poles are approximately 55 to 85 feet in length and are direct bury approximately 8.5 to 10.5 feet deep. The approximately 0.5-mile length from south of PG&E Lockeford-Lodi No. 2 Line has underbuild distribution lines and these poles typically are taller.

As part of the proposed project, approximately 0.43 mile of PG&E Industrial Tap within the City of Lodi will be reconfigured to connect to segments of PG&E Lockeford-Industrial (to the east) and PG&E Lodi-Industrial (to the west) to create PG&E Lockeford-Lodi No. 1 60 kV Line (preliminary name) that will have increased capacity, allowing more reliable service to the PG&E 60 kV network in northern San Joaquin County. After the 230 kV feed is in service, PG&E Industrial Tap pole 13 will be connected by one new span to PG&E Lockeford-Industrial pole 10 at the western end of East Sargent Road. PG&E Industrial Tap pole 12 existing T-1 frame will be replaced with a T1-1A frame and pole 13 will be change from SV-PJ to DV-PJ framing type. A new down guy wire will be installed on existing pole 13 to the west. The final two spans of PG&E Industrial tap into LEU Industrial Substation will be disconnected. The existing wood pole outside of the substation (pole 1) will be removed. Pole 2 will have framing changed from the SV-DE angle type to a through type (DV-DJ) and the existing down guy will be removed and not replaced. Refer to Figure 3.3-3b. The existing PG&E Industrial Tap pole 2 along East Lodi Avenue will be connected by one new span to the adjacent PG&E Lodi-Industrial pole 2. No changes will occur to the existing LEU underbuild on the PG&E Industrial Tap 60 kV Line. The existing steel guy stub pole near 1303 East Lodi Avenue and the connecting horizontal guy wires to PG&E Industrial Tap pole 2 are expected to be removed as part of construction because they will no longer be needed to provide tension.

The approximately 0.5-mile length of PG&E Industrial Tap south from PG&E Lockeford-Lodi No. 2 Line will be removed because the 60 kV line length is no longer needed for the system. The existing wood pole tops will be removed leaving the line to operate as a PG&E distribution line. Refer to Figure 3.5-1. Table 3.3-9 shows the approximate preliminary metrics of PG&E Lodi-Industrial 60 kV components.

Table 3.3-9. Approximate Preliminary Metrics of PG&E Industrial Tap 60 kV Line Components

Component[a]	Quantity	Approximate Preliminary Metrics
Down guy wire	4	20 to 25-foot, 7/16" galvanized steel
T1-1A Framing	1	Set of new framing for pole 12
DV-PJ Framing	2	Set of new framing for pole 2 and pole 13
DV-DE Framing	1	Set of new framing for pole 22
Horizontal guy	2	86-foot 5-16" galvanized steel length, pole 22 to distribution pole across SR 12

Notes:

[a] Exact structure type, configuration, and dimensions will be determined by CPUC requirements, final engineering, and other factors and are likely to change.

3.3.3.10 PG&E Lockeford-Lodi No. 2 60 kV Line

The existing PG&E Lockeford-Lodi No. 2 60 kV Line, approximately 7.8 miles long, connects PG&E Lockeford and PG&E Lodi substations. PG&E Industrial Tap begins from PG&E Lockeford-Lodi No. 2 approximately 0.25 mile east of South Guild Avenue along SR 12/East Victor Road. Refer to Figure 3.1-1 and Figure 3.5-1, page 24. As part of the project, a horizontal guy wire will be installed on the PG&E Lockeford-Lodi No. 2 pole where PG&E Industrial Tap begins to support this angle pole (refer to PG&E Industrial Tap pole 22 on figures) before the PG&E Industrial Tap span removal. The horizontal guy wire will be installed to the south to an existing PG&E distribution pole to strengthen the operation of the PG&E Lockeford-Lodi No. 2 Line angle pole in preparation for the removal of the connecting PG&E Industrial Tap span. Where the new horizontal guy wire crosses SR 12/East Victor Road, the lowest point the span is expected to reach is approximately 37.5 feet aboveground on the southern edge of the road. Additionally, a new down guy will be installed on the south side of the existing PG&E distribution pole. As such, Caltrans may request PG&E to complete a Design Standard Decision Document to review alignment with the Caltrans policy as part of the encroachment permit application to modify PG&E's existing encroachment for the existing PG&E Industrial Tap span at this location. After PG&E Industrial Tap is removed from its position on pole 22, the pole will be reframed from a three-way vertical top (3WV-T) to double vertical deadend (DV-DE) framing for the angle turn of PG&E Lockeford-Lodi No. 2 (pole 22). Refer to Figure 3.3-3b.

3.3.3.11 PG&E's Remote-End Substations

Project activities at PG&E Lodi Substation will update the system protection scheme within the control room, likely replacing the relay protection package and installing two new panels, as needed for the reconfiguration of PG&E Lodi-Industrial 60 kV Line to operate as PG&E Lockeford-Lodi No. 1 60 kV Line (preliminary name). Related system protection scheme updates at PG&E Lockeford Substation for the operation of PG&E Lockeford-Lodi 60 kV Line No. 1 (preliminary name) are discussed in Section 3.3.3.1.

At PG&E Rio Oso, PG&E Bellota, and PG&E Brighton substations, new fiber lines will be extended from within the substations or from existing lines adjacent to the substations, and digital communication equipment will be installed for protection relays in the existing control facilities at the three substations to align with the connected 230 kV lines that are part of the proposed project. The existing line tuner/wave trap equipment and associated structures will be removed or retired in place since they will no longer be needed for communication when the new system is in operation. This existing telecommunication equipment is a relatively minor component of the equipment within each substation and will be a minor modification to the appearance of each substation. New telecommunication equipment installed as part of this project will replace the communication functions provided by existing line tuner/wave trap equipment. Figure 3.3-4 provides example photographs of existing line tuner/wave trap equipment that will be removed or retired in place.

3.3.3.12 PG&E Clayton Hill Repeater Station—South Tower

An existing approximately 90-foot microwave tower within PG&E Clayton Hill Repeater Station in unincorporated Contra Costa County will be modified as part of the project to create a communication path with PG&E Thurman Switching Station for operation. The four-sided self-supporting south tower currently has approximately six whip antennas (approximately 2-, 3-, 8-, or 10-foot height) and approximately five dish antennas (approximately 6- or 8-foot diameter) positioned on the upper portions of the tower, from approximately 36 feet to approximately 88 feet. Refer to Figure 3.3-5. Approximately two new 6-foot dish antennas will be installed at approximately 50 feet and approximately 80 feet on the northeast leg of the existing tower (right leg as viewed on figure). New waveguide cable will connect the new antennas along the tower leg and existing cable paths to the PG&E existing communication shelter within the repeater station. This new digital microwave path will deliver redundant communication into the new PG&E Thurman Switching Station in support of PG&E's system protection scheme. The addition of approximately two new antennas to an existing microwave tower with approximately 11 existing attachments is a minor modification to the appearance of the communication tower.

3.3.4 Proposed Facilities

The proposed project will include construction of the extension of the existing PG&E Brighton-Bellota 230 kV Line to create the new PG&E Brighton-Lockeford Line and PG&E Lockeford-Bellota No. 2 230 kV Line; the new PG&E 230 kV DCTLs, PG&E Lockeford-Thurman No. 1 Line and PG&E Lockeford-Thurman No. 2 Line; the new PG&E 230 kV Thurman Switching Station; the new PG&E Thurman-Guild No. 1 230 kV Line and PG&E Thurman-Guild No. 2 230 kV Line; the new LEU 230/60 kV Guild Substation; and the new LEU Guild-Thurman No. 1 60 kV Line and LEU Guild-Thurman No. 2 60 kV Line, as summarized in Table 3.3-10. Refer to Figure 3.1-1, Figure 3.3-1b, and Figure 3.3-2b. Refer to Figure 3.5-1 for additional individual line structure detail. The 230 kV facilities described are PG&E facilities with the exception of the new LEU Guild Substation and the LEU portion of the new Thurman-Guild Line (No. 1 and No. 2) from PG&E Thurman Switching Station.

Table 3.3-10. Types of Proposed Facilities to be Installed

Proposed Facilities	Description
PG&E Brighton-Lockeford Line and Lockeford-Bellota No. 2 Line	New PG&E double-circuit 230 kV extension of approximately 3.8 miles of PG&E Brighton-Bellota 230 kV Line with 23 new TSPs and conductor into PG&E Lockeford Substation.
PG&E Lockeford-Thurman No. 1 and PG&E Lockeford-Thurman No. 2 230 kV Transmission Lines	New PG&E double-circuit 230 kV line between PG&E Lockeford Substation and PG&E Thurman Switching Station by installing 49 new TSPs and conductor for approximately 6.8 miles.
PG&E Thurman Switching Station (230 kV)	New PG&E switching station on 5.75 acres to connect new 230 kV feed at Thurman Switching Station to the new LEU 230/60 kV Guild Substation and switch power from PG&E to LEU.
PG&E Thurman-Guild No. 1 and PG&E Thurman-Guild No. 2 230 kV Transmission Lines	New PG&E and LEU 230 kV lines between PG&E Thurman Switching Station and LEU Guild Substation, single span between 230 kV terminals, approximately 135 feet.
LEU Guild Substation (230/60 kV)	New LEU substation on 3.25 acres to receive PG&E 230 kV feed and transform 230 kV to 60 kV.
LEU Guild-Thurman No. 1 and LEU Guild-Thurman No. 2 60 kV Power Lines	New 60 kV lines between LEU Guild and LEU Industrial substations, two spans with one pole for each circuit between 60 kV terminals, approximately 180 feet.

3.3.4.1 PG&E 230 kV Transmission Lines, Transmission Line Extensions, and Structure Replacement

The proposed 230 kV transmission lines, PG&E Brighton-Bellota extension or loop (the new PG&E Brighton-Lockeford and PG&E Lockeford-Bellota No. 2), replaced structure on existing PG&E Rio Oso-Lockeford/ Lockeford-Bellota, new PG&E Lockeford-Thurman (No. 1 and No. 2), and new PG&E and LEU Thurman-Guild (No. 1 and No. 2), are expected to have several similarities and are described together with anticipated variations between lines identified.

The proposed project will include construction of new overhead double-circuit 230 kV transmission line segments measuring approximately 3.8 miles between the intersection point on PG&E Brighton-Bellota Line and PG&E Lockeford Substation, and approximately 6.8 miles between PG&E Lockeford Substation and PG&E Thurman Switching Station. PG&E and LEU Thurman-Guild Line will be two single spans between adjacent named station end points.

The extension of PG&E Brighton-Bellota Line originates approximately 0.5 mile northeast of the intersection of East Kettleman Lane and Atkins Road in unincorporated San Joaquin County. The new transmission line length will connect into the northeast corner of PG&E Lockeford Substation. The proposed new transmission line segment would be north of and generally parallel to an existing ROW of

the existing colocated PG&E Rio Oso-Lockeford/Lockeford-Bellota 230 kV Transmission Lines. PG&E Rio Oso-Lockeford/PG&E Lockeford-Bellota 230 kV Transmission Line's final structure (RO1) at PG&E Lockeford Substation will be relocated approximately 85 feet north of the current location on substation property. Refer to Figure 3.5-1 and Figure 3.3-1b.

The new PG&E Lockeford-Thurman Line route will exit PG&E Lockeford Substation on the northwest side of the substation. After proceeding west for approximately 0.24 mile, the route turns south and then southwest for approximately 0.87 mile, staying west of the channelized Bear Creek. The line would turn west for approximately 4.10 miles with two jogs to the northwest/north before turning north for approximately 1.21 miles. The line turns west and enters the City of Lodi after approximately 0.13 mile, continuing for another 0.34 mile to its termination within PG&E Thurman Switching Station. The single spans of PG&E and LEU Thurman-Guild 230 kV Lines, approximately 135 feet, will connect 230 kV terminals within the adjacent named end point stations within LEU Guild Substation. PG&E and LEU Thurman-Guild lines are expected to have the same conductor type as the other new 230 kV lines. Refer to Figure 3.5-1, Figure 3.3-1b, and Figure 3.3-2b.

Transmission line segments are expected to be constructed with self-supporting TSP monopole structures. TSPs typically are constructed using galvanized steel. Refer to Figure 3.3-6a for photographs of existing example TSP monopole structures.

PG&E Brighton-Bellota Line extension is expected to have an average span length of approximately 880 feet with approximately 23 structures. Two 230 kV circuits will be installed on the transmission line and will operate as PG&E Brighton-Lockeford Line and PG&E Lockeford-Bellota No. 2 Line, respectively. The new PG&E Lockeford-Thurman Line will be a double-circuit 230 kV line of approximately 6.8 miles in length and be supported by approximately 49 structures based on an anticipated average span length of approximately 720 feet. Longer or shorter spans may be required in certain locations to increase compatibility with existing land uses and/or to achieve required clearances at crossings as discussed in context with Table 3.3-12. Typical structure heights generally will range from approximately 110 to 170 feet (above the ground) to meet CPUC's General Order 95 (GO 95) clearance requirements and have a width at the base and at the top of approximately 3 to 7 feet and approximately 1 to 3 feet, respectively. The new structures will meet current raptor safety requirements. Exact heights will depend on span lengths and ground clearance requirements, which change with land uses (such as orchards, croplands, roadways, highways, and river crossings), topography, electrical clearances, and other design considerations.

Each monopole foundation will be a single drilled-shaft reinforced-concrete caisson. Typical excavations for structure foundations will range from approximately 6 to 9 feet in diameter and approximately 18 to 30 feet in depth; some foundations could be larger depending on site-specific geotechnical conditions. Final design may change the structure type, typical span length(s), and/or total number of structures.

Two circuits (each circuit consists of three conductors or wires) will be installed on each side of each structure. An all-aluminum conductor (ACC) with non-specular finish will be arranged vertically in three phases on each side of the transmission structures. Insulators will be hung in an "I" configuration. The design for each structure will adhere to CPUC's GO 95 and PG&E's *Overhead Transmission Line Design Criteria* (Document 068177, revision 14), as well as the design criteria developed for the project.

Structure types are expected to include dead-end and tangent structures with anticipated approximate dimensions detailed in Table 3.3-11. Figure 3.3-6b and Figure 3.3-6c illustrate typical dead-end and tangent TSP structures. Dead-end (or angle) structures are expected to have longer crossarm sets that may range between approximately 14 feet to approximately 18 feet 3 inches in length from the pole. Tangent (or in-line) structures typically will have three sets of crossarms that measure approximately 14 feet to approximately 14 feet 6 inches in length from the pole.

Table 3.3-11. Proposed 230 kV Structure Types with Approximate Anticipated Dimensions

Structure Type[a]	Average Height (ft)[b]	Range of Height (ft)[b]	Potential Maximum Height (ft) at 12 kV, 60 kV or 115 kV Crossings	Diameter (ft) at Pole Top, Base, and Excavation	Range of Excavation Depth (ft)
PG&E Brighton-Bellota Extension (Brighton-Lockeford and Lockeford-Bellota No. 2)					
Dead-End Monopole	131	120-140	145 (12 kV)	1-3, 3-7, 6-9	20-38
Tangent Monopole	137	120-155	165 (115 kV)	1-3, 3-7, 6-9	20-38
PG&E Rio Oso-Lockeford and Lockeford-Bellota (to be renamed to Lockeford-Bellota No. 1)					
Dead-End Monopole	105	n/a	n/a	1-3, 3-7, 6-9	20-38
PG&E Lockeford-Thurman No. 1 and No. 2 Double-Circuit Line					
Dead-End Monopole	129	120-135	165 (60 kV)	1-3, 3-7, 6-9	20-38
Tangent Monopole	130	120-155	150 (60 kV) 170 (substation)	1-3, 3-7, 6-9	20-38
PGE& and LEU Thurman-Guild No. 1 and No. 2 Double-Circuit Line					
Substation bay	Refer to PG&E Thurman Switching Station and LEU Guild Substation descriptions				

Notes:

[a] Exact structure type, configuration, and dimensions will be determined by CPUC or City of Lodi requirements, final engineering, and other factors and are likely to change.

[b] Average and range exclude taller structure heights required when adjacent to PG&E Lockeford Substation (substation) or for clearance over PG&E 115 kV, 60 kV, and 12 kV lines. Refer to Potential Maximum Height column for anticipated adjacent structure height at line crossings and exiting the substation.

Ft = foot/feet; n/a = not applicable

The minimum ground conductor clearance (MGCC) will be designed in accordance with PG&E's *Overhead Transmission Line Design Criteria* (Document 068177, revision 14); the applicable criterion specifies an MGCC of 29 feet when the wire is at emergency conditions (185 degrees Fahrenheit [°F]) and 32 feet at normal conditions (60°F). The PG&E design standard for MGCC includes 27 feet, as specified in GO 95, and a 2-foot vertical buffer. In some conditions, the designed conductor ground clearance will exceed the minimum to provide safe clearances over existing orchards, crops, levees, rivers, railways, interstates, utility lines, or other similar site-specific considerations.

PG&E Thurman–Lockeford structures also will support two optical fiber ground wires (OPGW) in the two top cable positions above the phase conductors. The OPGW will serve as a communication system between PG&E Lockeford Substation and PG&E Thurman Switching Station. For PG&E Brighton-Bellota extension, two Alumoweld shieldwires (7 No. 8 type) will be used. The single set of crossarms for the communication wires are expected to be approximately 7 feet in length from the pole.

The project is designed to consider other utilities, including electric power, distribution (also service or feeder) lines; and existing infrastructure, including railroads, canals, and irrigation systems. In locations where the new 230 kV line will cross over existing PG&E power lines, including outside PG&E Lockeford Substation, the structures will be at the upper end of the approximate height and pole widths listed previously. New underbuild on existing or new lines is not anticipated.

Existing infrastructure that may be susceptible to induced current is metallic in nature and as part of final design of the CPUC-approved transmission line route, PG&E will review parallel metal infrastructure such as pipeline and railroads. Typical design considerations include arranging the conductor phasing to minimize induction from a three-phase transmission line or adding a grounded conductor (a fourth wire on a short arm) under the three conductor phases along the side of the parallel metal infrastructure while

maintaining all required code or specified clearances. Induced current on this grounded conductor generates a counter-electromotive force opposing the original field, thereby offsetting the net effect of induced voltage on the parallel metal infrastructure. Although not expected, a buried conductor can be used if the aerial solutions are not feasible or additional offsetting is needed. This buried conductor creates the same offsetting force as the aerial conductor but can be positioned even closer to the metal infrastructure, thereby being even more effective in reducing induced voltages. One advantage of the buried option is that it doesn't have the same aboveground clearance requirements and is often installed approximately 5 to 10 feet away from the edge of ballast, for example.

A final determination on the need to relocate utilities to accommodate the new PG&E 230 kV lines will be made during final engineering. Localized underground utilities will be identified during final design and will be either avoided or relocated in coordination with the facility owner. To maintain compatibility with existing utilities and infrastructure, the following approaches will be incorporated into the final project design:

- The new PG&E transmission line will be designed to cross over existing power lines (12 kV [distribution], 60 kV, and 115 kV lines) that have lower operating voltages and meet the GO 95 clearance requirements. The preliminary line design incorporates structure heights necessary to meet required electrical clearances. The known overhead PG&E 12 kV, 60 kV, and 115 kV crossings for the PG&E transmission proposed route are listed in Table 3.3-12.
- The modification of the western portion of PG&E Lockeford-Lodi 60 kV Line (and its joint pole use of LEU 12 kV feeder lines and Comcast telecommunication underbuild) to accommodate the new 230 kV transmission line is discussed in Section 3.3.3.5, Section 3.3.3.7, and Section 3.3.9. The new 230 kV will not cross the PG&E 60 kV line between W43-W44 because the 60 kV line will be removed as part of construction. Similarly, the new 230 kV line will not cross the existing LEU 12 kV line between W47-W48 because that span is not in service and will be removed as part of LEU's portion of the project. The existing LEU 12 kV underbuild on PG&E Lockeford-Lodi 60 kV Line will be relocated to an underground alignment that is parallel to new 230 kV line (south of W45-W46-W47). Otherwise, the project does not propose to modify any of the existing power or distribution lines crossed by the new 230 kV line segments. Approximately 24 overhead distribution lines will be crossed by the new PG&E 230 kV line outside of the City of Lodi; no aboveground distribution lines are expected to be crossed within the City of Lodi. PG&E's 230 kV line will cross the proposed PG&E underground distribution line extension to PG&E Thurman Switching Station in South Guild Avenue.
- Where the PG&E transmission line would have an aerial crossing of SR 88 (W11-W12), PG&E will request an encroachment permit from Caltrans. The line is designed to have a minimum of 27 feet of ground clearance over SR 88. Structure W11 is more than approximately 52 feet from the fog line. Structure W12 is located outside of the Caltrans right of way; however, it is within approximately 52 feet of the fog line, at approximately 35 feet from the fog line. As such, Caltrans may request PG&E to complete a Design Standard Decision Document to review alignment with the Caltrans policy as part of the encroachment permit application.
- Where the PG&E transmission line crosses over railroads, the crossings will be designed to meet the GO 95 clearance requirement of 34 feet. A new PG&E Thurman-Lockeford Line (W43-W44) span will cross two railroad tracks and associated railroad ROW near and within the City of Lodi.
- Where the PG&E transmission line crosses over non-navigable canals or waterways, the PG&E 230 kV crossings will be designed to meet the GO 95 vertical clearance requirement of 28 feet. PG&E Brighton-Bellota Line extension (E17-E18) will cross over the channelized Paddy Creek and PG&E Thurman-Lockeford Line (W10-W11) will cross over the channelized Bear Creek. These two creeks are CVFPB regulated streams and federal levees. The planned vertical clearance exceeds the Title 23 (23 CCR Section 120 and Section 123) vertical clearance requirement of 25 feet for aerial levee crossings of power lines that are more than 75 kV. Additionally, the PG&E 230 kV structures and temporary work areas are all designed to be more than approximately 25 feet from

the landward side of the landside levee toe to each side of the channelized non-navigable canals, which exceeds the Title 23 distance of 10 feet.

- Agricultural wells are common in the project area. The transmission line route avoids most of the known well locations. Two wells are identified within the proposed transmission line ROW (near E9 and E12) and appropriate vertical and horizontal clearances have been accounted for in the transmission line design to provide adequate clearance for well maintenance equipment at these known well locations. With project approval and final design, well information will be updated in coordination with landowners and, if necessary, the line design will be adjusted to accommodate new wells. It is anticipated that no wells will need to be relocated as part of the proposed project.

Table 3.3-12. Line Crossing Summary

New PG&E 230 kV Crossing Location (Line and structures)	Existing Line Count and Voltage	Existing Line Description	Estimated New Structure Height per GO 95 (ft)a
Brighton-Bellota extension (E3-E4)	1 - 12 kV	Single-circuit Wood Pole	150-140
Brighton-Bellota extension (E5-E6)	1 - 12 kV	Single-circuit Wood Pole	145-140
Brighton-Bellota extension (E9-E10)	1 - 12 kV	Single-circuit Wood Pole	135
Brighton-Bellota extension (E10-E11)	1 - 12 kV	Single-circuit Wood Pole	135
Brighton-Bellota extension (E13-E14)	1 - 12 kV	Single-circuit Wood Pole	150
Brighton-Bellota extension (E14-E15)	2 - 115 kV	Lattice Steel Tower	150-165
Brighton-Bellota extension (E16-E17)	1 - 12 kV	Single-circuit Wood Pole	120-130
Brighton-Bellota extension (E18-E19)	1 - 12 kV	Single-circuit Wood Pole	130-120
Brighton-Bellota extension (E22-E23)	1 - 12 kV	Single-circuit Wood Pole	130-120
Lockeford-Thurman (W1-W2)	2 - 60 kV	Single-circuit Wood Pole	165 – 170
Lockeford-Thurman (W3-W4)	1 - 60 kV with 1 -12 kV	Single-circuit Wood Pole with 12 kV underbuild	120 – 145
Lockeford-Thurman (W3-W4)	1 – communication	Communication Wood Pole	120 – 145
Lockeford-Thurman (W11-W12)	1 - 12 kV	Single-circuit Wood Pole	120 - 125
Lockeford-Thurman (W12-W13)	1 - 12 kV	Single-circuit Wood Pole	125
Lockeford-Thurman (W16-W17)	1 - 12 kV	Single-circuit Wood Pole	120
Lockeford-Thurman (W19-W20)	1 – 12 kV	Single-circuit Wood Pole	120 - 130
Lockeford-Thurman (W24-W25)	1 - 60 kV	Single-circuit Wood Pole with 12 kV underbuild	130
Lockeford-Thurman (W30-W31)	1 – 12 kV	Single-circuit Wood Pole	130 - 150
Lockeford-Thurman (W33-W34)	1 – 12 kV	Single-circuit Wood Pole	135 - 150
Lockeford-Thurman (W35-W36)	1 – 12 kV	Single-circuit Wood Pole	145 - 150

[a] Exact structure type, configuration, and dimensions will be determined by CPUC requirements, final engineering, and other factors and are likely to change. All lines are PG&E lines.

3.3.4.2 PG&E Thurman Switching Station

The proposed PG&E Thurman Switching Station will be a 230 kV switching station with an approximate footprint of 5.75 acres (on a portion of parcel 04931009) to the northwest of the intersection of South Guild Avenue and East Thurman Road within the City of Lodi (refer to Figure 3.3-2a and Figure 3.3-2b). The switching station will switch the PG&E Lockeford-Thurman No. 1 and No. 2 230 kV lines to PG&E and

LEU Thurman-Guild No. 1 and No. 2 Lines. The station footprint acreage includes the permanent fenced area and paved driveways from South Guild Avenue.

Electric equipment at PG&E Thurman Switching Station will include 230 kV disconnect switches, instrument transformers, protective relaying, metering and control equipment, remote SCADA equipment, telemetering equipment, an auxiliary AC/DC power system, an electric grounding system, and underground conduits or trench systems. PG&E Thurman Switching Station will be unmanned and have automated features and remote-control capabilities. An approximately 10-foot-tall security fence consisting of 3/8-inch wire mesh with an approximately 1 foot of V-shaped barbed wire at the top will be installed to enclose approximately 5.71 acres of the PG&E property. The chain-link fence system will have isolated fence grounding and be installed per NERC and PG&E security standards and requirements. During operation, the switching station facility will be within a permanently fenced area and use new access from the adjacent city streets.

The new 230 kV aboveground bus support and dead-end steel structures will range in height from approximately 16 feet to approximately 55 feet, with concrete foundations as deep as approximately 28 feet. Each adjacent bay is approximately 53 feet by 400 feet with vehicle access of approximately 16 feet around the new 230 kV bays. An underground conduit system is expected to be buried from approximately 3 to 5 feet deep. An underground grounding system, typically placed in an approximately 10-foot by 10-foot grid of copper wire, will be buried at a minimum of approximately 18 inches within the switching station property. Up to approximately 4 grounding wells are expected to be installed up to approximately 100 feet in depth. Grounding rods typically have a diameter of approximately 1 inch to approximately 1.5 inches and a drill rig would be used to excavate a narrow shaft to install the rod within the well. Refer to Figure 3.3-7a for the proposed profile view looking north. Refer to Figure 3.3-7b for the proposed profile view looking west. Refer to Table 3.3-13 for approximate preliminary metrics of proposed PG&E Thurman Switching Station components.

The components of the switching station include:

Bay X. A new 230 kV BAAH bay, with three 230 kV circuit breakers, will be installed for the new 230 kV lines. The circuit breakers will be mounted to new concrete pads and connected to Bus 1 and Bus 2 using conductor and tubing.

- Install twelve single-phase 230 kV line coupling CCVTs on single-phase steel support structures and associated foundations. Three CCVTs will be on each line position, including LEU transformer positions for line voltage automatics and relaying. Line traps may be required for protection as determined during final design.
- Install two single-phase (C-phase only) 230 kV bus CCVTs on single-phase steel support structures and associated foundations. These CCVTs will be located, one each, on both 230 kV Bus 1 and Bus 2.
- Use aluminum tubular conductor to install 230 kV main Bus 1 and Bus 2. The conductor will be 5-inch aluminum tubing, schedule 40 for the main buses; 4-inch aluminum tubing and bundled 1,113 kcmil aluminum will be used for the BAAH bays with associated bus/cable connectors and bus vibration dampening.

New 230 kV Circuit Breaker and Disconnect Switch. A new 230 kV circuit breaker will be installed for the new transmission line. The circuit breaker will be mounted to a new concrete pad and connected to the existing bay using conductor and tubing. New disconnect switches will allow for electrical isolation for operating and maintenance purposes.

- Install six 230 kV power circuit breakers and associated foundations, SF_6 gas type, rated 230 kV, 2000 A continuous, and 40 kAIC, with two sets of current transformers per bushing.
- Install twelve 230 kV, 2000 A, air disconnect switches and associated foundations for circuit breaker isolation, center side break, manually operated.

- Install four 230 kV, 2000 A, air disconnect switches and associated foundations for line and LEU transformer disconnects, vertical break, manually operated.

Take-Off Structure. A new H-frame take-off structure will terminate each new line at the east end of Bay X inside the switching station.

- Install two double-bay 230 kV switch and dead-end/pull-off H-frame structures and associated foundations to interface with incoming PG&E transmission lines and LEU transformer bank connections.
- Install one double-bay 230 kV dead-end/pull-off H-frame structure and associated foundations to connect the BAAH bays to the line terminal dead-end structures.

Switching Station Permanent Electrical Service. Station service will be provided by a station service voltage transformer (SSVT) with an extended distribution circuit installed for backup service.

- Install one single-phase (A-phase only) 208 kV/120-208 V, 100 kilovolt-ampere (kVA) pole-mounted SSVT on a single support structure and associated foundation. The SSVT will be connected to the 230 kV Bus 1.
- Extend an existing PG&E distribution wood pole circuit in kind for approximately 500 feet south within South Guild Avenue entering the northeast corner of PG&E Thurman Switching Station just south of the railroad tracks. The distribution circuit will provide permanent backup service for PG&E Thurman Switching Station during operation.
- Install one outdoor 120/208 V AC circuit breaker panelboard and associated foundation to power the switching station equipment. This AC panel also will house a manual transfer switch to select the source of station service power.

Lighting. New lighting that is consistent with standard station lighting will be installed at Bay X. All necessary yard lighting standards and lighting fixtures and associated foundations will be installed, along with station receptacle fixtures, providing 120/208 V AC power and connected to an outdoor lighting panel.

Table 3.3-13. Approximate Preliminary Metrics of Proposed PG&E Thurman Switching Station Components

Components[a]	Quantity	Approximate Preliminary Metrics
230 kV CCVT	14	12′ H
230 kV CCVT Structure	14	9′ H
230 kV Bus Support Structure	6	20′ H
230 kV Bus Support Pole	24	9′ H
230 kV Circuit Breaker	6	16′ H x 12′ L x 5′ W
230 kV Disconnect Switch	16	Mounted on structures
230 kV Disconnect Switch Structure	16	7′-6″ H
H-Frame Take-Off Structure (2-bay)	2	55′ H x 53′ W
H-Frame Take-Off Structure (2-bay)	1	45′ H x 53′ W
230 kV SSVT	1	12′ H
230 kV SSVT Structure	1	9′ H
Outdoor AC Panel (for lighting)	1	6′ H x 5′ W x 20″ D
Control Building	1	64′ L x 15′-4″ W x 12′ H
Battery Building	1	34′ L x 15′-4″ W x 12′ H
Microwave Tower	1	150′ H x 23′ W

Components[a]	Quantity	Approximate Preliminary Metrics
Concrete Foundations	70	719 yd^3

Notes:

[a] Exact structure type, configuration, and dimensions will be determined by CPUC requirements, final engineering, and other factors and are likely to change.
' = foot (feet), " = inch(es), D = depth, H = height, L = length, W = width, yd^3 = cubic yard(s)

Fiber Optic Cable. The new fiber optic cable, which will be installed in the top conductor position of the new transmission line, will be routed into the substation using a new underground conduit. On the last transmission line structure (W49) adjacent to the switching station's eastern fence line, the fiber optic cable will be installed down the structure, connecting to an underground conduit and into the switching station to the control enclosure.

Control and Telecommunication Equipment. Switching station and transmission line protection, control, and telecommunication equipment—including AC/DC panels, lighting, and climate/ventilation controls—will be mounted in new equipment racks installed in a new control enclosure. A control enclosure (approximately 79 feet by 16 feet by 12 feet) will be constructed on a concrete foundation pad, covered in steel sheeting, and have a sloped roof. A dedicated battery enclosure (approximately 34 feet by 16 feet by 12 feet) will be constructed on a concrete foundation pad and covered in steel sheeting with a sloped roof. Along the north side of the station to the west of the enclosures, a microwave tower with three or four legs is expected to be installed to an approximate height of 125 feet, with a concrete slab foundation of approximately 25 square feet. Refer to Figure 3.3-7c for an example photograph of an approximately 150-foot-tall microwave tower. The microwave tower will create a new digital microwave path to PG&E Clayton Hill Repeater Station to deliver the redundant communication into PG&E Thurman Switching Station in support of PG&E's System Protection Scheme. The tower height and foundation details will be refined during design based on geotechnical soil conditions, changes in the vicinity, and other site structure layout. Approximately two new 6-foot antennas are expected to be installed on the southwest leg of the new tower at approximately 115 feet and approximately 125 feet.

Site development work will include site grubbing, excavation, and backfilling to install roads, final grade, and final crushed stone surface for the crushed-rock surface and asphalt access road inside of the perimeter security fencing. Secondary containment for oil spill control will be local to applicable equipment. The preliminary design has the stormwater retention basin located at the southern side of the station. All steel structures supporting electrical and wire will be installed on drilled-shaft foundations, with the exception of some equipment and structures that are supported on concrete-pad foundations, including circuit breakers, control enclosure, and battery enclosure.

New steel structures, including the microwave tower, will be made from galvanized steel. Equipment typically will be ANSI 70 light gray, per PG&E and industry standards. The control enclosure, battery enclosure, and nonsteel switching station equipment will be a nonreflective neutral gray color. New fence material is expected to have a similar finish to the existing gray chain-link fence with approximately three strands of barbed wire along the top.

The new switching station will include outdoor lighting for safety and security. Design and layout for outdoor lighting will incorporate nonglare or hooded fixtures and directional lighting. The lighting will be operated only as needed to support security technology and safety during unplanned work at night.

3.3.4.3 LEU Guild Substation

The proposed LEU Guild Substation will be a 230/60 kV substation with an approximate fenced footprint of approximately 3.25 acres (on portions of parcels 04931008 and 04931009). LEU Guild Substation will have common fenced walkway areas shared with PG&E Thurman Switching Station to the east. LEU Guild Substation will share a common chain-link fence with the existing LEU Industrial Substation to the west. An approximately 10-foot-tall fence consisting of approximately 3/8-inch wire mesh with approximately 1 foot of V-shaped barbed wire at the top will be installed where fencing is planned. The tallest structures

within LEU Guild Substation will be the two 230 kV dead-end structures, at approximately 47 feet in height with approximately 16 feet underground. Refer to Figure 3.3-2a and Figure 3.3-2b, and Figure 3.3-8.

The substation will include equipment laydown and storage, fencing, access and internal vehicle circulation, spill and stormwater management, and other operational considerations. LEU Guild Substation will install two transformer banks. Each will be a three-phase 230/60 kV 200 megavolt-ampere (MVA) autotransformer. The substation will have a protection and control enclosure that will measure approximately 50 feet long, approximately 16 feet wide, and approximately 14 feet high. The protection and control enclosure will have redundant air conditioning units installed to protect electronic components. The enclosure will be wrapped in corrugated metal and painted in a neutral color that will be selected during design.

Telecommunications equipment will communicate information through fiber optic paths between the interconnected PG&E Thurman Switching Station and LEU Guild Substation, and between LEU Guild and LEU Industrial substations. Two fiber optic lines for communication services will be installed underground to provide a fiber optic link between LEU Guild Substation and PG&E Thurman Switching Station. The communication cables will transition from PG&E Thurman Switching Station's control enclosure and enter a pull box positioned at the adjoining property line. The pull box will transition the fiber optic cable to underground approximately 4-inch conduits to LEU Guild Substation's Control Enclosure. These telecommunication cable pull boxes will be approximately 3-foot by 5-foot precast polymer concrete. LEU Guild Substation also will connect to existing telecommunication circuits (telephone and T1, either copper or fiber) at LEU Industrial Substation.

SCADA/remote terminal unit equipment will be installed to provide status and control of LEU Guild Substation equipment. LEU Guild Substation will be unmanned and have automated features and remote-control capabilities.

Access to LEU Guild Substation will be from South Guild Avenue on a new permanent access road. The road will be included in the facility perimeter fence line and is included in the substation acreage total. The main access road will be crushed rock and will measure approximately 800 feet long and approximately 40 feet wide with approximately 10 feet between the road and fence on either side. Interior crushed-rock roads within the substation yard will measure approximately 875 feet long and approximately 16 feet wide in total. Areas outside of the equipment foundations will be covered with approximately 4 to 6 inches of crushed rock. The private-access driveway will occupy approximately 0.75 acre, approximately 0.33 acre of substation interior roads, and the remaining area of approximately 2.17 acres will encompass substation components.

The permanent access road will have a secure vehicle gate from South Guild Avenue that will be a minimum of 20 feet wide approximately. Additionally, LEU Guild Substation will have approximately three personnel gates (minimum 3-foot width approximately), one next to the vehicle gate, one next to the metering enclosure, and one leading into the existing LEU Industrial Substation laydown yard. All gates will be locked with keycard access only for qualified personnel. Warning signs will be posted on the perimeter chain-link fencing and gates in accordance with the National Electric Safety Code (NESC) and the respective LEU guidelines.

LEU Guild Substation will have its own sources of station power. Power required for construction and operation of LEU Guild Substation will be supplied by tapping into the existing LEU 12kV power lines adjacent to the substation site. LEU will provide electric service drops from two existing 12 kV distribution lines south of LEU Industrial Substation, adjacent to LEU Guild Substation. A permanent approximately 100 kilowatt (kW) generator will be installed onsite that can provide power if local primary and secondary service drop sources are unavailable.

Electricity will be used for construction (to power construction trailers, lighting, and small hand-held machinery or tools) and for operation of primary and backup station service power. The electric power will be brought to the LEU Guild Substation on either overhead distribution poles or underground conduits. If overhead, up to six approximately 40-foot-tall wood distribution poles may be constructed between the

existing distribution pole and LEU Guild Substation. The poles will be direct embedded up to approximately 6 feet deep. Pole location will be within the proposed LEU Guild Substation fence. If underground, the backup power and communications will be brought into LEU Guild Substation using up to three underground conduits from the existing distribution poles on the south side of the substation.

Table 3.3-14 presents the equipment that will be permanently located within the fenced area of LEU Guild Substation in the proposed configuration.

Table 3.3-14. Approximate Preliminary Metrics of Proposed LEU Guild Substation Components

Component[a]	Quantity	Approximate Preliminary Metrics
230 kV three-phase cable bus supports	2	18′ H Foundation - 2.5' dia. x 13' Pier
Three-phase 230/60 kV 200 MVA Autotransformers	2	28' L x 18' W x 3' D - Pad
230 kV Capacitive Voltage Transformers	6	
230 kV Combo Current/Potential Voltage Transformers	6	7.5′ H x 2.5' dia. x 12' Pier
60 kV Potential Transformers	6	7.5′ H x 2.5' dia. x 12' Pier
230 kV Three-Phase Group-Operated Air Break Switches	4	13′ H X 2′ dia. x 8′ Pier
60 kV Three-Phase Group-Operated Air Break Switches	2	
230 kV Sulfur Hexafluoride (SF_6) Insulated Circuit Breakers	2	Foundation - 16.5' L x 9.33' W x 2.5' D Pad
230 kV Dead-End Steel Structures	2	45′ H, 15′ L, 1,500 lbs line tension Foundation - 3.5′ dia. x 16' Pier
60 kV Dead-End Steel Structures	2	45′ H, 15′ W, 1500 lbs line tension Foundation - 3.5′ dia. x 16' Pier
230 kV Lightning Surge Arresters	6	
60 kV Lightning Surge Arresters	6	
100 kVA Station Service Transformers	2	7.5′ H Foundation - 2.5' dia. x 12' Pier
Emergency 100 kW Generator	1	
Protection and Control Enclosure (with redundant air-conditioning units installed to protect electronic components)	1	50′ L x 16′ W x 2′ D
Metering Enclosure to provide PG&E Access to the Used Power Data (will have redundant air-conditioning units installed to protect electronic components)	1	21′ L x 15′ W x 14′ H
Retention Basin	1	190′ x 60′ x 4′ depth 231,500 gallons
Lighting	#	minimum of 22 lux or 2 foot-candles.
Telecommunications		
60 kV Bus Conductor		
Secondary Containment for Transformer Oil Spill Control on Applicable Equipment		
Copper Ground System		
One Spare SF_6 Filler Tank	1	186 lbs capacity of SF_6
Crushed Rock Internal Access Road		

Component[a]	Quantity	Approximate Preliminary Metrics
Perimeter Security Fencing	275 Posts	2' dia. x 6' Pier

Notes:

[a] Exact structure type, configuration, and dimensions will be determined by City of Lodi requirements, final engineering, and other factors and are likely to change.

‘ = foot (feet), “ = inch(es), D = depth, dia. = diameter, H = height, L = length, lbs = pounds, unit of weight, W = width, yd^3 = cubic yard(s)

An approximately 6- to 8-foot-tall chain-link fence with up to approximately 2 additional feet of barbed wire, for a total potential height of approximately 10 feet, will be installed around the perimeter of the substation.

Lighting will be installed at LEU Guild Substation and will conform to NESC requirements. NESC recommends, as good practice, illuminating substation facilities to a minimum of approximately 22 lux or approximately 2 foot-candles. Lighting will be sodium vapor or light-emitting diode fixtures and will be installed inside the facility and at the entry/exit gates to allow for safe access to the facility and its equipment. Lights will be controlled by a photocell that automatically turns the lights on in low-light conditions. Lights will be turned off when conditions are brighter than the set foot-candles. All onsite lighting will be oriented downward to minimize glare into surrounding property. Additional manually controlled lighting also will be provided to create safe working conditions at LEU Guild Substation when required. The fixtures will be mounted on legs of dead-end structures, switch support structures, or the control enclosure. The exact number of fixtures and their output and location will be determined during final facility design.

3.3.5 Other Potentially Required Facilities

The project will require the permanent relocation of the Comcast telecommunication line on PG&E Lockeford-Industrial pole 4. The Comcast telecommunication line includes a span to either side of the pole that connected to non-PG&E facilities. PG&E has informed Comcast of the project and the expected need to relocate this line from the PG&E pole as part of construction. Otherwise, the project does not anticipate the need to relocate (temporary or permanent), modify, or replace unconnected utilities or other types of infrastructure by PG&E or any other entity.

PG&E has completed notification of the Federal Aviation Administration (FAA) concerning the expected heights of its new 230 kV structures. No lighting or marking is required by FAA. Refer to Appendix G3.

The project does not expect to require additional civil engineering requirements to address site conditions or slope stabilization issues, such as pads and retaining walls.

3.3.6 Future Expansions and Equipment Life Spans

The substation and switching station facility life spans are indefinite. Station and line structures and their foundations have a typical life span of approximately 75 years. Major power components within a station typically have a life span of approximately 20 years. Transmission, power, and distribution line conductors and cables typically have a life span of approximately 50 years.

Future expansions are not planned or reasonably foreseeable at this time. While PG&E Thurman Switching Station and LEU Guild and LEU Industrial substations would appear to have sufficient adjacent or onsite space to accommodate a new 230 kV single-circuit feed, no such line is planned or reasonably foreseeable.

3.3.7 Underground Conductor/Cable Installations

Electric equipment at PG&E Lockeford Substation, LEU Industrial Substation, PG&E Thurman Switching Station, and LEU Guild Substation will include an underground polyvinyl chloride (PVC) conduit system or a prefabricated concrete trench system at ground level, as described in Section 3.3.3.1, Section 3.3.3.4, Section 3.3.4.2, and Section 3.3.4.3. Power and control cable installed for system protection will be cross-linked polyethylene-insulated solid-dielectric copper conductor cables of various sizes and multiplicity. All trench systems will be HS-20 truck loading rated and any conduit crossings under a roadway will have a concrete cover. The new fiber optic cable underground conduit connects into the control enclosure at each station from the last transmission structure. The fiber optic cable between PG&E Thurman Switching Station and LEU Guild Substation, and between LEU Guild and LEU Industrial substations, will be within an underground conduit between the respective stations. Grounding conductor installed for safety and protection will be multiple stranded, medium-hard drawn, positive proof bare copper of various sizes that will be direct buried.

As described in Section 3.3.3.5, the relocated LEU 12 kV feeder line will be 100 kcmil 600 V cross-linked polyethylene. The cable will be enclosed within one approximately 6-inch conduit. The feeder line pull boxes will be approximately 3 feet wide by 5 feet long by 3.5 feet deep.

The extended PG&E 12 kV secondary station service line will be 1/0A ethylene propylene rubber cable. The cable will be enclosed in an approximately 4-inch underground conduit. The service line pull box will be approximately 3 feet wide by 5 feet long by 3.5 feet deep.

3.3.8 Electric Substations and Switching Station

Construction of the new LEU Guild Substation will include two transformer banks and each will be a three-phase 230/60 kV 200 MVA Autotransformer. Each transformer bank will have one circuit breaker that is insulated with SF_6 gas. LEU Guild Substation also will have a spare SF_6 filler tank for its circuit breakers. LEU or PG&E may use a different technology for the SF_6 breakers within substations if, during final design, available technology would allow a reduction in additional SF_6 use. The potential change in technology is expected to have the approximate physical dimensions of the current circuit breaker technology. The potential new technology is expected be able to be installed within the station fence lines and have negligible operational differences from the current circuit breaker technology, other than the potential reduction in SF_6 use.

New circuit breakers, also insulated with SF_6 gas, will be installed at PG&E Lockeford Substation and PG&E Thurman Switching Station as detailed in Table 3.3-15.

Table 3.3-15. Approximate Preliminary Metrics of Gas-Insulated Circuit Breakers

Project Component	Circuit Breaker Quantity	SF_6 Capacity per Breaker (lbs)	SF_6 Capacity (lbs) Total by Station
PG&E Lockeford Substation	8	155	1,240
PG&E Thurman Switching Station	6	155	930
LEU Guild Substation	3a	186	558

[a] LEU Guild Substation will have two new circuit breakers with SF_6 and one spare SF_6 filler tank.

Operation and maintenance facilities, telecommunications equipment, and SCADA equipment for existing and proposed stations are described in Sections 3.3.3.1, 3.3.3.4, 3.3.4.2 and 3.3.4.3. System protection scheme equipment at remote-end substations will be upgraded as described in Section 3.3.3.11.

3.3.9 Telecommunication Lines

Telecommunication lines (aboveground and underground lengths) within stations and between adjacent stations are described in sections discussing the stations. Existing AT&T fiber line located at PG&E

Lockeford, PG&E Rio Oso, PG&E Bellota, and PG&E Brighton substations will be extended on existing structures at the street, or will be extended from within the substation and to the control enclosure. The fiber line extensions will occur using existing aboveground structures and will have a similar appearance to existing fiber lines within and outside the substations. No modification to existing pole structures within the substations is expected. If additional pole structures are required for the fiber line extensions, the new structures will be similar in appearance and size to existing pole structures. The telecommunication lines associated with the new or modified project components are listed in Table 3.3-16.

Table 3.3-16. Telecommunication Cable Type and Approximate Length by Segment

Segment	Quantity, Cable Type[a]	Approximate Cable Length[b]
PG&E Thurman–Lockeford 230 kV Line	2, OPGW	6.8 miles
PG&E Bellota-Brighton 230 kV extension	2, Alumoweld shieldwires 7 No. 8	3.8 miles
PG&E Lockeford Substation	fiber optic cable	1,000 feet
PG&E Thurman Switching Station	fiber optic cable	1,200 feet
LEU Guild and Industrial Substations	fiber optic cable	1,000 feet
PG&E Lockeford Substation	AT&T fiber line	1,000 feet
PG&E Bellota Substation	AT&T fiber line	1,200 feet
PG&E Brighton Substation	AT&T fiber line	600 feet
PG&E Rio Oso Substation	AT&T fiber line	600 feet

[a] Exact structure type, configuration, and dimensions will be determined by CPUC or City of Lodi requirements, final engineering, and other factors and are likely to change.

[b] Linear length estimate.

Approximately two new 6-foot antennas are expected to be installed on a leg of an existing microwave tower within PG&E Clayton Hill Repeater Station and on a leg of the new microwave tower within PG&E Thurman Switching Station.

3.4 Land Ownership, Rights-of-Way, and Easements

Project components include existing facilities with existing PG&E or LEU land ownership, ROW, and easements, some of which may be modified to accommodate new project components. New project components will include land acquisition, new ROW, and permanent and temporary construction easements.

The existing PG&E Brighton-Bellota 230 kV Transmission Line crosses northeastern San Joaquin County at a northwestern/southeastern angle. The line crosses SR 88/SR 12 between the communities of Lockeford and Clements. Approximately 4 miles southeast of where the line crosses SR 88/SR 12 and north of the line's intersection with East Bay Municipal Utility District's Mokelumne Aqueduct, the Brighton-Bellota 230 kV Transmission Line will be extended westward for approximately 3.8 miles to PG&E Lockeford Substation. The line extension will parallel an existing transmission line ROW (colocated PG&E Rio Oso-Lockeford 230 kV and PG&E Lockeford-Bellota 230 kV Transmission Lines) to consolidate resources with the existing transmission ROW and reduce potential visual and land use impacts. The existing transmission ROW is joined by two 115 kV power lines west of North Tully Road to PG&E Lockeford Substation. The land use surrounding the existing transmission and power ROW is General Agriculture, predominantly vineyards, with associated residences.

PG&E Lockeford Substation is located on East Kettleman Lane, approximately 1 mile east of SR 88 and approximately 3 miles south of the community of Lockeford. PG&E Lockeford Substation has been used for power since 1948, with a major land expansion that started in approximately 1977. The substation has been expanded and modified on the PG&E property during approximately the past 20 years. The proposed

double-circuit PG&E Lockeford-Thurman 230 kV Transmission Line will be located west of PG&E Lockeford Substation. PG&E Lockeford-Thurman Line will start at PG&E Lockeford Substation and extend west/northwest for approximately 6.8 miles to the new PG&E Thurman Switching Station. PG&E Thurman Switching Station will be located at LEU Industrial Substation in the City of Lodi at the intersection of East Thurman Road and South Guild Avenue, approximately 0.25 mile east of SR 99. The new 230/60 kV LEU Guild Substation will be between PG&E Thurman Switching Station to the east and LEU Industrial Substation to the west.

PG&E 60 kV lines that will be reconfigured as part of the project are located in easements or franchise or have railroad, county or city encroachment permits.

The extension of the existing PG&E 12 kV line will occur in franchise on South Guild Avenue for approximately 550 feet and will connect to PG&E Thurman Switching Station on property purchased by PG&E from the City of Lodi.

LEU 12 kV work will occur on existing LEU structures or on City of Lodi property. The relocation of the 12 kV feeder line to an underground configuration will occur on the property of the LEU customer. LEU and the LEU customer have an existing agreement to locate facilities for service and no modification will be required.

PG&E's remote-end substations (Bellota, Brighton, Lodi, and Rio Oso) and PG&E Clayton Hill Repeater Station are located on PG&E property and project activities will occur within the fenced PG&E property during work at these facilities.

3.4.1 Land Ownership

Project work at PG&E Lockeford, Rio Oso, Bellota, Brighton, and Lodi substations, PG&E Clayton Hill Repeater Station, and the terminal structure of PG&E Rio Oso-Lockeford/Lockeford-Bellota 230 kV Transmission Lines will occur within the existing station properties, which are owned in fee by PG&E. Work at LEU Industrial and Guild substations will occur on City of Lodi properties (Assessor Parcel Map Numbers [APNs] 04931008 and 04931009). The new LEU Guild Substation will be located immediately adjacent to and east of the existing LEU Industrial Substation. The new LEU Guild Substation will occupy approximately 3.25 acres on portions of APNs 04931008 and 04931009. The LEU Guild-Industrial 60 kV Line will be on APN 04931008. The new PG&E and LEU Thurman-Guild 230 kV Transmission Lines will be on APN 04931009 with either end within property owned in fee by PG&E or the City of Lodi, respectively.

The construction of the new PG&E Thurman Switching Station will require fee acquisition by PG&E of approximately 6.00 acres (APN 04931009) from the City of Lodi.

3.4.2 Existing ROWs or Easements

PG&E's and LEU's existing electric lines described in Section 3.3.3 have existing utility easements or are in franchise when not connecting to stations on property owned in fee. PG&E's three 60 kV lines currently connecting into LEU Industrial Substation are located within franchise or existing utility easements.

LEU Industrial Substation's existing 12 kV feeder line will use an existing land rights agreement between LEU and its customer when the line is relocated to an underground configuration on its customer's property. Table 3.4-1 shows existing ROWs and easements for the project.

Table 3.4-1. Existing ROWs and Easements for Project Components

Location | Project Component	APN	Approximate Easement Dimensions	Project Action
PG&E facility in County franchise PG&E Lockeford-Industrial pole 10	franchise	25-foot width	Replace in franchise

Location | Project Component	APN	Approximate Easement Dimensions	Project Action
PG&E railroad encroachment permit PG&E Lockeford-Industrial pole 9 and spans between pole 10, pole 9, and pole 8	04931043	40-foot width	Remove PG&E 60 kV pole and spans; obtain new/modified permit for PG&E 230 kV line in 60 kV ROW
PG&E easements and railroad encroachment permit PG&E Lockeford-Industrial 60 kV Line pole 8, pole 7, pole 6, pole 5, pole 4 and adjacent spans	04931003 04931004 04931011	40-foot width	Remove PG&E 60 kV poles and spans; modify as needed for new PG&E 230 kV line in 60 kV ROW
PG&E railroad encroachment permit PG&E Lodi-Industrial (pole 1 to pole 2) and PG&E Industrial Tap (pole1 to pole 2)	04931003	40-foot width	Remove PG&E poles and spans into LEU Industrial Substation. Railroad crossing permit no longer needed.
PG&E facilities in City franchise PG&E Lodi-Industrial (pole 2 to stub pole), PG&E Industrial Tap (pole 2 to stub pole) and stub pole on East Lodi Avenue	franchise	25-foot width	Remove PG&E spans and guy stub on north side of East Lodi Avenue
PG&E facilities in City franchise PG&E Lockeford-Lodi No. 1 60 kV Line – new span, west	franchise	25-foot width	Install new span between PG&E Lodi-Industrial pole 2 and PG&E Industrial Tap pole 2
PG&E railroad encroachment permit PG&E Industrial Tap 60 kV Line – north-south alignment	04912309 04909021	35-foot	New railroad encroachment permit to allow upgrades and work on railroad property.
PG&E Caltrans encroachment permit PG&E Industrial Tap 60 kV Line crossing of SR 12 / East Victor Road between pole 22 and pole 21	Caltrans	25-foot width	Existing Caltrans permit for SR Hwy 12 crossing – new Caltrans permit expected for new horizontal guy and down guys on existing poles.
PG&E railroad encroachment permit PG&E distribution pole immediately south of SR 12 / East Victor Road	04932016	35-foot	New railroad encroachment permit to allow upgrades to distribution pole and new down guy and work on railroad property.
Joint pole agreement use on PG&E poles LEU 12 kV feeder line	04931003 04931004 04931011	n/a	Existing LEU line underbuild will be removed from PG&E Lockeford-Industrial poles.

The LEU 12 kV service drop underbuild on PG&E Lockeford-Industrial 60 kV Line will be relocated into an adjacent LEU underground utility easement on APN 04931004. The Comcast telecommunication line will be relocated by Comcast before construction on PG&E Lockeford-Industrial pole 4.

Nine poles (pole 1 through pole 9) and 10 spans of the existing PG&E Lockeford-Industrial currently within existing easements or railroad encroachment permits on APNs 04931043, 04931011, and 04931004 will be removed as part of the project. PG&E Lockeford-Industrial Pole 10 will be replaced within County franchise along the north side of East Sargent Road.

When the PG&E 60 kV connections into LEU Industrial Substation are removed, the railroad encroachment permit on APN 04931003 for PG&E Lodi-Industrial and PG&E Industrial Tap Lines will no longer be needed where pole 1 to pole 2 spans for each line cross the railroad. The project activities to reconfigure the three PG&E 60 kV lines disconnected from LEU Industrial Substation will occur within City franchise other than the parcels identified with railroad encroachment permit or easement. The existing horizontal guy wires between poles 2 and a steel stub pole in City franchise on the north side of East Lodi Avenue will

be removed along with the steel pole. Reconfiguration (reframing and new span) of the two PG&E 60 kV lines along the south side of East Lodi Avenue will occur within existing City franchise rights for the line of poles.

The existing utility easement on APN 04909013 associated with PG&E Industrial Tap Line poles 12 and 13 will not need to be modified with the planned reframing. Where PG&E Industrial Tap runs north-south with PG&E 12 kV underbuild, PG&E has an existing 35-foot easement with California Central Traction Company for the operation of overhead power lines and appurtenances. PG&E will request a new railroad encroachment permit to allow upgrades and work on railroad property.

3.4.3 New or Modified ROWs or Easements

The project requires an estimated approximately 10.6 miles of new ROW for construction, maintenance, and operation of the new PG&E transmission line segments outside of stations or existing ROW. Refer to Figure 3.5-1. The 230 kV ROW for the new PG&E Brighton-Lockeford and Lockeford-Bellota No. 2 Lines (Brighton-Bellota extension) is expected to be approximately 110 feet wide. The 230 kV ROW for the new PG&E Lockeford-Thurman No. 1 and No. 2 Lines is expected to be approximately 115 feet wide. An approximately 110-foot-wide ROW will be required by PG&E where the new transmission line segments cross over 115 kV lines or where the new transmission line requires longer-than-normal span lengths. A wider width is not needed where the line crosses 60 kV or distribution lines. At public roadway crossings, the new transmission line will use PG&E franchise agreements with the appropriate local jurisdiction. PG&E will obtain a Caltrans encroachment permit for the transmission line where it crosses SR 88. PG&E's existing Caltrans encroachment permit for PG&E Industrial Tap Line across SR 12/East Victor Road will be modified with the power line span removal and the installation of an aboveground guy wire span. PG&E will obtain encroachment permits for the transmission line where it crosses CVFPB regulated streams and federal levees.

PG&E will modify or obtain new CCT Company/UPRR encroachment permits associated with APN 04931043 and APN 04931004 for the new PG&E Lockeford-Thurman Line. A railroad encroachment permit will be obtained at the western end of East Sargent Road where the new PG&E 60 kV span between PG&E Lockeford-Industrial Line and PG&E Industrial Tap Line (part of the PG&E Lockeford-Lodi No. 1 Line) will cross the railroad tracks aboveground. PG&E will extend an existing 12 kV line underground to the new PG&E Thurman Switching Station to provide secondary permanent service. The line is in franchise now along South Guild Avenue and the extension will occur within franchise to PG&E Thurman Switching Station. A new or modified city encroachment permit will be obtained by PG&E. A railroad encroachment permit will be obtained from CCT Company/UPRR where the PG&E service line is expected to be extended using a trenchless method within South Guild Avenue where it bisects APN 04931004 (railroad parcel).

The City of Lodi will grant easement to PG&E for access to LEU Guild Substation's metering enclosure inside the LEU Guild Substation yard via the substation's main access road off South Guild Avenue. This LEU access road is approximately 60 feet wide by approximately 800 feet long. Figure 3.3-2b shows the access road.

PG&E's existing utility easements for the PG&E Rio Oso-Lockeford/Lockeford-Bellota Transmission Line may be modified to accommodate the new PG&E Brighton-Bellota Loop where feasible. If existing easements cannot be modified to include the new line, new utility easements will be obtained. Table 3.4-2 shows the new or modified ROWs and easements for the project.

Table 3.4-2. New or Modified ROWs and Easements for Project Components

Project Component	APN	Approximate Easement Dimensions	Project Action
New PG&E railroad encroachment permit PG&E Lockeford-Lodi No. 1 60 kV Line – new span, east	04909021	40-feet potentially	Connect PG&E Lockeford-Industrial pole 10 and PG&E Industrial Tap pole 13 at the west end of East Sargent Rd
New PG&E railroad encroachment permit PG&E Thurman Switching Station 12 kV secondary service – South Guild Ave	04931004	25-feet potentially	Extend PG&E 12 kV existing line within South Guild Ave franchise and cross under railroad tracks to PG&E Thurman Switching Station
PG&E Rio Oso-Lockeford/Lockeford-Bellota (No.1) Transmission Line	TBD and 05126011 05126013 05126032	Potentially up to 110 feet by 3.8 miles	Modify existing easement for westernmost structure relocation and also where new and existing transmission lines are located on common parcel
PG&E Brighton-Bellota Loop (Brighton-Lockeford and Lockeford-Bellota No. 2 Lines)	TBD	110 feet by parcel length	New easement for new 230 kV transmission line
PG&E Thurman-Lockeford Line	TBD	115 feet by parcel length	New easement for new 230 kV transmission line
PG&E 12 kV service line extension to PG&E Thurman Switching Station	n/a	25-foot	Use franchise rights in South Guild Avenue (city encroachment) to extend line

TBD = to be determined

No relocation or demolition of commercial or residential property/structures is anticipated.

3.4.4 Temporary ROWs or Easements

Up to approximately three temporary staging areas may be used near the project. Staging area sizes will vary, depending on negotiations with landowners to establish the temporary construction easements. Each staging area is expected to have a footprint of approximately 1 to 6 acres. Refer to Figure 3.5-1 for potential temporary staging areas that may be used by the project.

Other temporary staging for the project is expected to be within existing or new PG&E or LEU station or yard facilities. For example, temporary staging areas are expected to be established at property owned by PG&E or LEU, including PG&E Bellota, PG&E Brighton, PG&E Lockeford, PG&E Lodi, and PG&E Rio Oso substations, PG&E Clayton Hill Repeater Station, PG&E Thurman Switching Station, LEU Guild and LEU Industrial substations. PG&E's Victor Yard along East Victor Road/SR 12 also may be used for project-related activities.

3.5 Construction Activities

A description of the project's construction activities concerning access, staging areas, work areas, site preparation, work activities at project components, management of materials and waste, and related construction methods are provided in the following sections.

3.5.1 Construction Access

The project will primarily use the existing network of public and private roads to access stations, structure work areas, pull-and-tension sites, and staging areas. Refer to Figure 3.5-1. Other access will be overland, which may present some lengths that require preparation such as surface blading or temporary crushed rock for traction. Overland access that may require limited preparation before use is described as new temporary access. No new permanent access roads are expected to be installed for transmission or power line access. New or improved permanent access from a paved road to a station vehicle gate and within a station fence line is included in the respective station discussion. Table 3.5-1 summarizes the types and area of project access roads, routes, and overland access. In addition to the roads listed in Table 3.5-1, existing public paved roads throughout the area will be used to access the project site.

Table 3.5-1. Access Roads, Routes, and Overland Access and Approximate Area

Road Type	Description	Area (Acres)
Existing Dirt Road	Typically, agricultural road or double track. May have been graded previously. No other preparation required, although a few sections may need to be regraded and crushed rock may need to be applied in very limited areas for traction.	21.30
New Temporary Access Routes	Would be approximately 16 feet wide, bladed. No other preparation required, although crushed rock may need to be applied in very limited areas for traction.	2.63
Overland Access	No preparation required. Typically, grassy or field areas that are relatively flat. No restoration would be necessary.	1.21

3.5.1.1 Existing Access Roads

All stations will be accessible from existing paved or all-weather roads. The new PG&E Thurman Switching Station and the new LEU Guild Substation will have paved driveway access from South Guild Avenue connecting to interior station access roads. Within the existing fenced west yard of PG&E Lockeford Substation, an all-weather road will be installed to connect to a new interior vehicle gate. No permanent access roads will be installed. Permanent interior station vehicle access roads are not counted as permanent access roads because they are counted with the station impact. Most structure work areas will be parallel to or adjacent to agricultural, city, or county roads. As such, most work areas will be accessed directly from adjacent roads. Most of the existing paved and unpaved roads in the project area are used currently for large agricultural vehicle and equipment movement during field preparation, planting, maintenance, and harvesting. Within the City of Lodi, existing paved roads that will be used to access project work areas are used frequently by large vehicles accessing existing utility, industrial, and commercial properties. The area of existing dirt road is estimated to be approximately 21.30 acres assuming a conservative width of approximately 16 feet.

Figure 3.5-1 identifies the network of existing roads that are expected to be used during construction, along with expected access modifications or stabilization anticipated. Modification of existing roads is anticipated to occur on some unpaved agricultural roads, at certain intersections, and during the winter months. Minimal surface contouring may be required to level existing access roads. The following modifications are anticipated:

- Some of the agricultural roads to be used as temporary access will require widening up to approximately 16 feet, from an average existing approximately 12 feet, to accommodate construction equipment that may be larger than the typical agricultural vehicle. For purposes of environmental impact analysis, it was assumed that these agricultural roads are currently approximately 12 feet wide and require widening to approximately 16 feet.
- Where roads intersect at angles that cannot accommodate the turn radius of construction equipment (such as tractor-trailers hauling monopole sections), curve improvements at existing

road intersections will be necessary. The estimated area of disturbance resulting from curve improvements are included approximate area in Table 3.5-1.

- Unpaved roads may need to be winterized to accommodate heavy loads in winter. Based on final design and construction scheduling, winterizing of the existing roads may include blading, compaction, rocking, culvert installation, and aggregate placement.

Following construction, existing roads will be returned to conditions as close to before the project as reasonably feasible or as stipulated by landowner agreement. Any aggregate added to existing roads will be left in place, unless otherwise specified in landowner agreements.

3.5.1.2 New Temporary Access Roads

While most of the temporary access will be overland access or agricultural road access from existing roads to project work areas, some access will require temporary stabilization or other actions for safe construction activities as shown on Figure 3.5-1.

Access roads are proposed and total approximately 2.63 acres, based a width of approximately 16 feet. The access roads are intended to minimally impact the existing land use while allowing for safe construction access. During temporary construction easement and permanent ROW and easement discussions, the exact access alignment and specifications will be coordinated with the impacted property owners. The access roads were developed by reviewing aerial imagery and using information gathered during field review from public areas. Within the terms of easement agreements, mapped access roads are expected to continue to be refined during preconstruction staking, considering current agricultural operations and irrigation infrastructure.

At road intersections, access roads being used for construction may need to be widened to accommodate the turn radius of tractor-trailers hauling monopole sections. Earthen ramps may be required when crossing existing berms and embankments, as well as for placement of temporary culverts when crossing irrigation ditches. A temporary culvert typically would include placing engineering fabric in the ditch, installing pipe with capacity that allows flow and supports the weight of construction vehicles or equipment, and covering with rock aggregate. The rock, pipe, and fabric would be removed when the construction is complete, as determined during coordination with the property owner. Ramps will be constructed using excess clean fill generated during construction and removed when construction is complete. Where roads must cross over irrigation lines, the lines will be protected with steel plates or rerouted to maintain irrigation operations. If required, access roads will be cleared of crops or mowed, and vegetation will be trimmed/removed, as necessary for safe equipment operation. Adjacent orchard trees may be trimmed to avoid damage from construction vehicles and maintain safe lines of sight. Minimal surface contouring may be required to level the access road following vegetation, orchard, or crop removal or trimming. If the access road is used in the wet season, construction matting or aggregate base may be laid down over geotextile fabric as needed and these materials would be removed after construction.

Within row crop, orchard, and vineyard settings, temporary access roads and overland access are identified to minimize disruptions to irrigation infrastructure (including irrigation lines, wells, pumps, ditches, and drains). To the greatest extent feasible within orchards and vineyards, temporary access routes will be aligned with the planting layout to minimize the disruption to agricultural operations (for example, access will follow a single row of trees or two rows of vines instead of crossing multiple rows of trees and vines).

Where existing fencing needs to be removed for access, a temporary gate will be installed in coordination with the landowner. Temporary gates would be removed and removed fencing replaced in-kind when construction is complete. No new permanent gates are anticipated for project operation and maintenance outside of stations.

3.5.1.3 Overland Access Routes

Most of the temporary access will be short overland access spurs, typically at least approximately 16 feet in width, from existing roads to project work areas as shown on Figure 3.5-1. At the intersection with existing roads, temporary access routes may be wider to accommodate the turn radius of tractor-trailers hauling monopole sections. Adjacent orchard trees may be trimmed to avoid damage from construction vehicles and maintain safe lines of sight. Where routes must cross over irrigation lines, the lines will be protected with steel plates or rerouted to maintain irrigation operations. Where existing fencing needs to be removed for access, a temporary gate will be installed in coordination with the landowner. If the access route is used in the wet season, construction matting or aggregate base may be laid down over geotextile fabric as needed and these materials would be removed after construction.

The estimated approximate area needed for overland access routes, approximately 1.21 acre, is based on an approximate 16-foot width as summarized in Table 3.5-1.

3.5.1.4 Watercourse Crossings

The new 230 kV transmission line will span irrigation ditches and non-navigable canals or waterways such as Bear Creek and Paddy Creek; however, no watercourse crossing will be required. Temporary culverts may be placed where construction access crosses existing irrigation ditches as described previously. No bridge or culvert replacements are expected on the project. The access route to the work area at structure E18 from North Jack Tone Road and the access route to the staging area at PG&E Lockeford Substation from East Kettleman Lane will use established overland routes, such as driveways, that will avoid drainage ditches and constructed watercourses culverted beneath the access routes.

An irrigation ditch runs parallel to the access route and partially intersects the project footprint at structure W9. Based on historic aerial imagery and multiple field reviews of the area, this ditch appears to be excavated on a seasonal basis to water adjacent crops, then filled after the growing season is completed. It has no ordinary high water mark, and is devoid of vegetation, and as such is presumed to be non-jurisdictional under the CWA and California Fish and Game Code. While this ditch is presumed to be non-jurisdictional, if it is present during construction, it will be avoided. Placement of this structure will be coordinated with the landowner during final design and construction planning to ensure impacts to this ditch are avoided.

3.5.1.5 Helicopter Access

A light-duty helicopter (Hughes MD 500 or equivalent) is expected to be used as part of the conductor stringing operation; use of helicopters to lift and transport structure components and poles is not anticipated. The helicopter type will depend on availability at the time of construction.

Helicopter landing zones are expected to be colocated with three staging areas, as shown on Figure 3.5-1, or helicopters will use existing nearby airstrips and commercial airports. In each temporary landing zone or staging area, there will be a designated area for helicopter take-off and landing. Dust suppressants or water will be applied as needed to control dust at the landing zone.

Helicopters generally will be staged and fueled at existing local airports, such as Lodi Airport, Lodi Airpark, or Kingdon Airpark. The helicopter is anticipated to refuel primarily at nearby commercial airports; however, a fuel truck may be available at project staging areas to support refueling if needed. Spill prevention measures will be in place for any onsite helicopter refueling in keeping with the project Stormwater Pollution Prevention Plan (SWPPP).

PG&E estimates that a helicopter will be used on the project for approximately 50, likely nonconsecutive, days (for an average of approximately 5 flight hours per day) during construction, primarily supporting the activities described previously. Conductor stringing typically proceeds in reel-length segments of the transmission line. To assist with conductor stringing, a helicopter will fly a lightweight sock line and thread

it through traveler pulleys affixed to structure arms, which typically requires approximately 10 to 15 minutes of hover time at each structure.

A light-duty helicopter (Hughes MD 500 or equivalent) has a load capacity of approximately 1,200 pounds. Within 500 feet of residences, helicopter operations will be limited to daylight hours. The helicopter flight path generally will follow the proposed transmission line alignment, which will avoid flying directly over residences.

Because helicopters are not proposed for lifting structure components, it is not anticipated that residents would temporarily be required to vacate their residences. However, in the unlikely event that final construction plans require otherwise, all FAA requirements would be met and PG&E would coordinate with potentially affected residents (providing a minimum of 30 days of advance notice).

3.5.2 Staging Areas

Approximately three staging areas outside of stations, totaling approximately 10 to 15 acres, will be identified for use when PG&E construction crews are assigned or a construction contractor is selected. It is anticipated that most of the staging areas will be located within approximately 5 miles of the work areas; however, existing PG&E or LEU facilities or other locations currently used for staging or storage may be used as well. Staging areas may include portions of the existing and proposed stations, PG&E's Victor Yard, warehouses; ruderal, paved, or graveled sites; or other existing commercially available offsite office, warehouse, or yard space. Potential staging areas have been identified; however, specific staging area locations will be determined based on staging areas that are available at the time of construction. Staging areas typically are used for office trailers, crew and equipment assembly areas, safety and tailgate training areas, equipment and materials storage, and vehicle parking. Potential staging areas not currently within a station fence line are shown on Figure 3.5-1.

3.5.2.1 Staging Area Locations

Staging areas may be relocated or adjusted as necessary at the time of construction based on land use changes, unanticipated impacts, and other factors. Staging will occur within existing station yards for station-related work and nearby line work.

The new LEU Guild Substation site (near potential Staging Area 3) will include one distinct staging area during construction that will be used for receiving, staging, laydown area, and construction worker parking inside of the proposed fenced area (approximately 3.25 acres).

Existing commercially available office and yard space may be used by contractors or agencies. Depending on the staging area, perimeter fencing may be used if none is currently in place. Substation and switching station construction activities will use the existing substation and switching station yards and utility-owned lands for staging. Precise locations will be determined at the time of construction. Refer to Table 3.5-2 for details on potential staging sites that may be used during construction.

Table 3.5-2. Potential Staging Areas – Approximate Area

Potential Staging Area[a] (with Landing Zone, LZ)	Staging Area Use	Total Area Evaluated (acres)[b]	Existing Land Cover
Staging Area 1 (LZ1) North of E Kettleman Ln PG&E Lockeford Substation	Receiving, staging, laydown area, construction worker parking, and helicopter landing/pick up materials	4.30*	Barren/Ruderal
Staging Area 2 (LZ2) East of N Locust Tree Rd	Helicopter landing/pick up materials	0.17	Barren/Ruderal

Potential Staging Area[a] (with Landing Zone, LZ)	Staging Area Use	Total Area Evaluated (acres)[b]	Existing Land Cover
Staging Area 3 (LZ3) North of E Thurman Rd PG&E Thurman Switching Station	Receiving, staging, laydown area, construction worker parking, and helicopter landing/pick up materials	1.71*	Barren/Ruderal
Staging Area 4 West of Jack Tone Road	Receiving, staging, laydown area, construction worker parking	5.54	Barren/Ruderal
Staging Area 5 LEU Industrial Substation Yard	Staging and laydown area	0.49	Gravel
Staging Area 6 (East of North Jory Road)	Receiving, staging, laydown area, construction worker parking	6.25	Barren/Ruderal
Staging Area 7 North of E Kettleman Ln	Receiving, staging, laydown area, construction worker parking	6.25*	Barren/Ruderal
Staging Area 8 North of E Harney Ln	Receiving, staging, laydown area, construction worker parking	6.25	Abandoned vineyard
Staging Area 9 North of E Kettleman Ln	Receiving, staging, laydown area, construction worker parking	6.25	Barren/Ruderal

[a] Potential staging areas outside of station fence lines representative of approximately 10 to 15 acres that may be used.

[b] Includes total area evaluated for potential use; actual staging area footprint will be refined following discussions with landowners. Land cover is based on the National Agriculture Imagery Program, 2019. Acreage with * indicates potential selection of areas totaling between approximately 10 to 15 acres.

Staging area sizes will vary depending on negotiations with landowners to establish the temporary construction easements.

3.5.2.2 Staging Area Preparation

Prior to use, sites without a paved or stabilized surface will require minor site preparation such as placement of aggregate base. If the area is used in the wet season, construction matting or up to approximately 6 inches of aggregate base may be laid down over geotextile fabric, as needed, and removed after construction. If the area was previously disturbed or graveled, newly installed gravel may be left permanently in place with landowner approval. Some areas may require vegetation removal. If site conditions are uneven, minor grading could be required to establish a suitable surface for equipment operation and material laydown. For areas without existing fencing, a temporary chain-link fence with secured gates will be installed.

Power will be provided to staging areas through a temporary overhead service drop if existing distribution facilities allow. If grid power is not available, portable generators may be used to provide power (typically approximately 2,000 watts or less). Following their use, equipment, materials, matting, and supplies will be removed from staging areas, and the area will be returned to conditions that allow for pre-project land uses. All site improvements will be subject to conditions stipulated in easements obtained from landowners.

If nighttime work is necessary in the work areas, temporary flood lighting will be situated and directed away from any adjacent properties. Nighttime work may be required when electrical clearances are available or for safe completion of a construction procedure.

3.5.3 Construction Work Areas

Figure 3.5-1 includes preliminary project maps showing the proposed transmission line segments, substation and switching station, preliminary structure work areas, preliminary pull-and-tension sites, potential staging areas, and access roads and routes.

3.5.3.1 Construction Work Areas

Construction work areas in PG&E Bellota, PG&E Brighton, PG&E Lockeford, and PG&E Rio Oso substations, PG&E Clayton Hill Repeater Station, and PG&E Thurman Switching Station, and LEU Guild and LEU Industrial substations will be used for:

- Vehicle and equipment parking
- Material delivery and staging
- Limited equipment and vehicle maintenance and fueling
- Equipment operation
- Structure foundation excavation, drilling, construction, or removal
- Equipment assembly and installation
- Any structure-specific activities associated with pull-and-tension sites/stringing

Work at PG&E Lodi Substation is expected to be limited to within the control enclosure to update the system protection scheme.

Construction work areas outside of stations are expected to be within new transmission line segment ROW, existing adjacent transmission line ROW, and/or existing power line ROW or franchise.

Transmission line structure and pull-and-tension site work areas may be used for:

- Vehicle and equipment parking
- Material delivery and staging
- Limited equipment and vehicle maintenance and fueling
- Equipment operation
- Structure foundation excavation or drilling and construction
- Monopole assembly and installation
- Structure-specific activities associated with pull-and-tension sites/stringing

Pull-and-tension equipment and reel staging, temporary pole anchor installation, and pulling and tensioning of the conductor will occur within pull-and-tension work areas.

Power line structure work areas may be used for:

- Vehicle and equipment parking
- Material delivery and staging
- Limited equipment and vehicle maintenance and fueling
- Equipment operation
- Structure-specific activities, including reconfiguring the 60 kV lines, replacing or reframing existing wood poles, removing spans, connecting adjacent lines, and topping wood poles.

Service and feeder line work areas are expected to include work areas at structures to transition between overhead and underground segments and to remove the existing distribution underbuild; pull-back areas for HDD; vault and trenching excavations, installation, and backfill; and cable reel staging and cable pulling.

Telecommunication activities by Comcast are expected to occur at the PG&E pole and at adjacent joint utility poles.

Temporary guard structures may be installed over roads, waterways, or other features during pull-and-tension activities.

3.5.3.2 Work Area Disturbance

Work area disturbance is expected for line and station work. The expected maximum area of disturbance by project component is discussed in this section.

Approximately 12.04 acres of temporary ground disturbance and 11.32 acres of permanent ground disturbance will occur at LEU Guild Substation, PG&E Lockeford Substation, and PG&E Thurman Switching Station to construct and expand station areas, as detailed in Table 3.5-3. Temporary work area disturbance within LEU Industrial Substation, PG&E Bellota Substation, PG&E Brighton Substation, and PG&E Rio Oso Substation will occur within the existing fence line and will not add to the existing permanent facility disturbance. LEU Industrial Substation modification will be within the existing fence line on approximately 0.70 acre in the eastern portion of the facility. LEU Industrial Substation's construction activities, deliveries, and parking are planned to occur within this area. Work area disturbance is not expected for PG&E Lodi Substation or PG&E Clayton Hill Repeater Station.

For new tangent structures located in areas without orchards and vineyards, work sites of approximately 80 feet by 80 feet typically will accommodate framing the new monopole structure on the ground and setting the structure with one crane pick, which reduces the duration of the structure's construction. For each angle or dead-end structure, a larger work area that spans the project ROW, approximately 8,000 to approximately 12,000 square feet (0.2 to 0.3 acre), will be required to assemble and install these larger structures. Tangent structures are expected to be installed for approximately 70% of the lines. A smaller in-line structure work site footprint, including the 60 kV work areas, is estimated to be approximately 50 feet by 50 feet (approximately 2,500 square feet or 0.07 acre). Work area length and width will be adjusted to minimize agricultural impact and avoid unnecessary road or rail encroachment.

Pull-and-tension sites typically will be at angle towers, certain dead-end structures, and at intervals of approximately 1 mile to approximately 2.5 miles along straight segments of the transmission line; each site will require approximately 0.11 to approximately 0.21 acre, as shown on Figure 3.5-1.

The work site required for guard structure installation and removal, when netting is needed, will be approximately 100 square feet per pole, assuming four poles, guard structure work areas are estimated at approximately 4,500 square feet. A summary of the anticipated approximate temporary work areas needed for project construction is included in Table 3.5-3. Anticipated approximate totals use the larger value when a range of area or length is shown.

Table 3.5-3. Work Areas Estimated Footprint

Project Component	Anticipated Approximate Metrics
Pole Diameter:	
• Wood (guard structure or construction power)	24 to 36 inches
• Light-duty steel (60 kV line)	22 inches
• 60 kV Monopole in LEU Industrial Substation	4 feet
• Tubular steel (230 kV line)	3 to 7 feet

Project Component	Anticipated Approximate Metrics
Auger Hole Depth: • Wood (guard structure or construction power) • Light-duty steel (60 kV line) • 60 kV Monopole in LEU Industrial Substation • Tubular steel (230 kV line)	 up to 7 feet 13.5 feet 20 feet 20 to 38 feet
Permanent Footprint per Pole: • Light-duty steel (60 kV line) • 60 kV Monopole in LEU Industrial Substation • Tubular steel (230 kV line)	 2.6 sq. feet 12.6 sq. feet 7.1 to 38.5 sq. feet
Number of Poles: • Wood (guard structure) outside of other work areas • Wood pole replaced with light-duty steel (60 kV line) • Removed or modified (top cut off) existing 60 kV wood pole • 60 kV Monopole in LEU Industrial Substation • Tubular Steel (230 kV lines and RO1 replacement)	 20 1 27 2 73
Average Work Area around Poles: • Power line work areas • Guard structure wood pole work areas • Tangent transmission structure work areas • Angle/dead-end transmission structure work areas • Pull-and-tension work areas (approximately 20)	 2,500 sq. feet 4,500 sq. feet 6,400 sq. feet 8,000-12,000 sq. feet 5,000-9,000 sq. feet
Total Temporary Pole Work Areas (outside of stations)	20.92 acres
Total Permanent Footprint for Poles (outside of stations) *New permanent poles are 230 kV tubular steel poles (73). Existing 60 kV poles are removed, topped, or replaced in-kind.*	0.06 acre
Underground (12 kV) service or feeder line components: • Underground PG&E secondary station service line, pull box • Underground LEU customer feeder line, pull box • Permanent footprint per pull box	 1 line, 2 boxes 1 line, 1 box 15 sq. feet
Average Work Area for each end of underground lines: • PG&E service line extension – HDD work area • PG&E service line extension – trench work area • PG&E service line extension – trench excavation area • PG&E service line extension – splice box excavation area • LEU feeder line relocation – HDD work area • PG&E service line extension – splice box excavation area	 900 sq. feet 3,800 to 6,160 sq. feet 245 to 300 sq. feet 900 sq. feet 24 sq. feet 35 sq. feet
Total Temporary Service or Feeder Line Work Areas (outside of stations)	7,419 sq. feet
Total Permanent Footprint for Pull Boxes (within station or paved areas)	45 sq. feet
Construction Staging Areas outside of Station Fencelines	10 to 15 acres

Project Component	Anticipated Approximate Metrics
Station Work Area Disturbance: • PG&E Lockeford Substation (temporary – grading or blading) • PG&E Lockeford Substation (permanent – expanded fenced area, extended drainage ditch) • PG&E Thurman Switching Station (temporary – grading, and permanent – fenced area, and driveways) • LEU Guild Substation (temporary – grading, and permanent – fenced area and driveway) • LEU Industrial Substation (temporary–- grounding grid expansion) • PG&E Bellota, Brighton, and Rio Oso substations (temporary[a])	 3.00 acres 2.32 acres 5.75 acres 3.25 acres 1,600 sq. feet 54 sq. feet each
Total Temporary Footprint for Stations	Approximately 12.04 acres
Total Permanent Footprint (new and expanded) for Stations	Approximately 11.32 acres
Total Temporary Footprint for All Work Areas	Approximately 48.15 acres
Total Permanent Footprint for (new and expanded) Stations, Poles, and Pull Boxes	Approximately 11.39 acres

[a] Disturbance will not occur if line tuner/wave trap is retired in place.

3.5.3.3 Temporary Power

PG&E Bellota, PG&E Brighton, PG&E Lockeford, PG&E Lodi, and PG&E Rio Oso substations, PG&E Clayton Hill Repeater Station, and LEU Industrial Substation have existing station power that will be used for construction. PG&E does not expect to use generators. Power outside of stations will be obtained by PG&E from batteries or other on-equipment and vehicle power sources. Temporary power required for construction of LEU Guild Substation will be supplied by tapping into existing LEU 12 kV power lines at LEU Industrial Substation along the south side of East Thurman Road or the south side of East Lodi Avenue, which are the adjacent roads to the south and north of the substation site. Any poles will be within the area or included as substation work area disturbance. During construction at LEU Industrial and LEU Guild substations, up to two approximately 100 kW diesel generators each may be used to supply temporary power.

3.5.4 Site Preparation

The initial surveying and staking provide the site preparation activities to perform utility identification and relocation, work area access and structure location staking, vegetation clearing, tree trimming or removal, work area stabilization, and grading.

3.5.4.1 Surveying and Staking

Surveying locates and rough grade staking installs horizonal and vertical stakes to outline the work area, access, or structure location for utility identification and construction work area definition. Typical surveying and staking techniques and hand equipment would be used.

3.5.4.2 Utilities

PG&E's engineering team and LEU's engineering team have taken into consideration the location of other known underground and overhead utilities in designing the project. PG&E and LEU have conducted field reconnaissance surveys for existing utilities as part of preliminary project engineering. Based on these surveys and review of the current utility records, the preliminary designs have no permanent impact on power, natural gas, communications systems, or any other utilities that are specifically documented.

Additional utility identification will occur in the final design stages. Prior to beginning any ground-disturbing work, PG&E and LEU will each contact Underground Service Alert (USA) at 8-1-1 to notify utility companies to mark and locate existing underground structures within the staked area. In addition, PG&E and LEU will probe and expose existing utilities, in accordance with state law, before using power equipment. A determination on the need to relocate utilities will be made during final engineering. PG&E and LEU also will review their current utility records for any changes to their utilities identified during the preliminary project design and will address those changes and other utilities to their final design. Localized underground utilities will be identified during final design and will be either avoided or relocated in coordination with the facility owner. Relocation of existing overhead or underground utilities that are not directly connected to the project is not anticipated at this time. PG&E and LEU will obtain emergency contact information for utilities that may be in close proximity or require monitoring during construction of the project. Construction methods may be adjusted by PG&E and/or LEU as necessary to assure that the integrity of existing utility lines is not compromised. In case of accidental service interruption to another utility, the affected utility will be immediately contacted by PG&E or LEU as appropriate to coordinate actions to restore service in a safe and timely manner.

In the event of a known conflict, PG&E or LEU will move the new structure or facility (12 kV line underground) to avoid the conflict by realigning the areas of subsurface excavation. PG&E or LEU may relocate the conflicting utility in agreement with the utility owner. PG&E or LEU may install a grounding rod system or use another method that would be equally effective to provide adequate operational and safety buffering.

Comcast will be contacted prior to the start of work on PG&E Lockeford-Industrial Line to coordinate the timing of removal of its telecommunication line on pole 4. Also, during the detailed design phase, PG&E and LEU will assess whether the temporary interruption of other utilities will be necessary. If deemed necessary, PG&E or LEU will obtain timely approval from other utilities and closely coordinate with them until those utilities are returned to service. Prior to construction, PG&E or LEU will obtain emergency contact information for utilities that may be in close proximity or require monitoring during construction of the project. In case of accidental service interruption to another utility, PG&E or LEU will immediately contact the affected utility to coordinate actions to restore service in a safe and timely manner.

3.5.4.3 Vegetation Clearing

No sensitive vegetation communities identified in local plans, policies, or regulations, or as designated by resource agencies, are present within the areas of expected vegetation removal. Sensitive vegetation communities and habitats defined by the CPUC, including wetlands and riparian habitat, are present. Table 3.5-4 summarizes the estimated temporary and permanent disturbance of the vegetation communities and include the anticipated areas of vegetation removal. Temporary disturbance includes construction all work areas and access outside of existing station facilities, and new and expanded station areas. Permanent disturbance includes pole footprints and new and expanded station footprints.

Table 3.5-4. Estimated Disturbance Within Vegetation Communities

Vegetation Community Type	Temporary Disturbance (approximate acreage[a])	Permanent Disturbance (approximate acreage[a])
Agriculture	48.83	0.73
Developed/Disturbed/Rural Residential Land Use	3.52	0.16
Grassland	25.86	10.23
Tree Cover	0.25	0.07

[a] Some project components overlap in GIS and the totals in this table were adjusted to avoid double counting approximate acreage.

Trees, ornamental landscaping, and agricultural crops, such as orchards, row crops, and vines, and grasses or other organic matter may be trimmed or removed for facility installation, construction access, and/or clearance requirements for operations or maintenance access needs. PG&E will coordinate with landowners when planning tree, ornamental landscape, agricultural, or other vegetation trimming or

removal on private property. LEU vegetation clearing is limited to clearing ruderal vegetation where LEU Guild Substation will be constructed and no notification will be required for the City of Lodi. Vegetation trimming and removal will be kept to the minimum necessary for structure placement, transmission line operation, and access. A certified arborist will be engaged by PG&E to review potential tree trimming and removal identified and conduct or direct tree trimming and removal prior to construction activities at a work location.

Table 3.5-5 summarizes the estimated agricultural crop removal needed to establish temporary work areas and permanent facility footprints and to maintain GO 95 conductor clearance. Permanent removal of vines and vegetation associated with structure footprint is estimated for the transmission line segments. Estimated agricultural crop removed to establish work areas and access is expected to be replaced in-kind after construction. Estimated agricultural crop removed for structure placement or GO 95 conductor clearance would not be replaced.

Table 3.5-5. Estimated Agricultural Crop Removal

Tree Type[a]	Approximate Count Removed to Establish Temporary Construction Work Areas and Access[b]	Approximate Count Permanently Removed for Structure Placement or Conductor Clearance
Orchard – Almond	28 trees	7 trees
Orchard – Walnut	17 trees	42 trees
Orchard – Cherry	73 trees	37 trees
Orchard – Apple	154 trees	97 trees
Orchard – Olive	80 trees	108 trees
Vineyards – Grape vines	4,089 vines	2,695 vines

[a] Tree identification and count estimates provided by PG&E arborist as of December 2022.

[b] New trees are expected to be planted where removed for construction work areas and access as mutually decided in a temporary construction easement agreement between the property owner and PG&E.

PG&E will coordinate with landowners when planning tree trimming or removal on private property. Tree and agricultural crop trimming and removal will be kept to the minimum necessary for structure placement and access for construction.

Site preparation of work areas will begin with confirming the estimated areas of vegetation to be removed either temporarily or permanently. Preconstruction bird nesting surveys and other preconstruction actions such as coordinating with the property owner would occur before vegetation removal would occur. Vegetation removal areas would be surveyed and marked for clearing and grubbing and be scheduled to occur before construction activities at the location.

A site preparation crew will remove vegetation along with other site preparation activities such as tree trimming, stabilizing access roads and routes, and installing stormwater erosion and sediment control measures. Following coordination with landowners and any preconstruction resource surveys, vegetation will be trimmed or removed with appropriate equipment, typically including manual clippers, chain saws, and forestry mulcher or flail mower (front loader attachment). During clearing activities for temporary disturbance areas, vegetation will be mowed or grubbed, leaving root systems intact wherever possible to encourage resprouting and to minimize erosion. However, some stumps may need to be removed to provide access or a level work area. Mowers, crawler backhoes, front-end loaders, and bulldozers are expected to be used to remove woody vegetation.

Generally, removed vegetation will be mulched or mowed in place and spread nearby or hauled offsite to either a commercial recycling/composting facility or landfill for proper disposal. Vegetation material may be stockpiled within the footprint of a substation or switching station and contained onsite until its removal for appropriate disposal.

3.5.4.4 Tree Trimming and Tree Removal

To ensure safe transmission line operation, the CPUC has issued GO 95, which specifies the required minimum distance between ground and conductors that must be maintained for a variety of land uses beneath transmission lines. FERC and NERC standards also are followed, as discussed previously. Safety conflicts can arise when agricultural practices (including harvesting, spraying, and pruning) encroach into the required safety buffer. Conflicts also arise when trees grow into these established clear zones. Efforts will be made to accommodate existing agricultural operations, such as increasing the required MGCC of 27 feet to maintain the necessary safety buffer zone for poles placed in cropland, vineyards, and orchards. These design guidelines will accommodate existing crops as much as practical while ensuring safe operation of the new line. The guidelines include:

- Use of monopoles in place of steel lattice towers in cropland, vineyards, and orchards to minimize the area of disruption.
- Selection of pole heights in existing cropland, vineyards, and orchards to accommodate the following concerns:
    - Vineyard and cropland: The structure heights will allow conductor compatibility with field crops, row crops, and vines. No annual crop removal or pruning is anticipated. The typical MGCC of 27 feet is compatible with this land use type to avoid permanent crop removal.
    - Orchards: Where feasible, the height of the monopoles will be increased to provide an MGCC of up to approximately 45 feet to accommodate orchards planted with mechanically harvested nut trees, such as almonds and pistachios, as long as the CPUC's GO 95 conductor safety buffer can be maintained without requiring pruning. There may be instances when the MGCC cannot be sufficiently increased to provide the GO 95 conductor safety buffer, in which case the trees would be removed. These determinations will be made on a case-by-case basis. Manually harvested fruit trees, such as citrus and persimmon, typically are maintained at an approximate 15-foot maximum production height, which is compatible with the MGCC of approximately 27 feet. Any tree that encroaches on the GO 95 conductor safety buffer zone will be removed.
    - Incompatible orchard trees: An incompatible orchard tree is defined as any tree that has the genetic makeup to grow tall enough to encroach upon the GO 95 conductor safety buffer without pruning. Walnuts, almonds, or any mechanically harvested tree that has the potential to grow taller than 10 feet will be permanently removed from the transmission line ROW.

Removal or substantial trimming of orchard, landscape, or nonorchard trees is expected within electric line ROWs for GO 95 conductor clearance or facilities footprints tabulated in Table 3.5-5 (refer to Figure 5.2-1 for an overview of existing agricultural use) and Table 3.5-6 (refer to Potential Landscape Tree Trimming or Removal Required points on Figure 3.5-1). One large Eucalyptus near the west end of East Sargent Lane and three large Eucalyptus adjacent to the span between W43 and W45 are expected to be heavily trimmed or removed and not replaced for CPUC GO 95 conductor clearance for the PG&E Lockeford-Lodi No. 1 60 kV Line (preliminary name) and the PG&E Lockeford-Thurman 230 kV Line, respectively. On the PG&E Lockeford Substation parcel where the substation fence and replaced drainage ditch will be located, an estimated 15-18 Black walnut trees are expected to be removed and not replaced.

Based on current conditions, potential trimming of landscape trees or nonorchard trees along access roads is expected to occur to create sufficient clearance for typical construction vehicle and equipment movement and turning (refer to Potential Landscape Tree Trimming or Removal Required points on Figure 3.5-1 and Table 3.5-6). Landscape tree removal along access roads is not anticipated; however, conditions at the time of construction may require some tree removal for safe access. Native oak trees protected by San Joaquin County may be trimmed or removed as necessary to protect electric lines and facilities and are exempt from this county natural resource regulations under Section 9-1505-8 General Exemptions (MuniCode 2023).

Table 3.5-6. Potential Landscape Tree Trimming or Removal

Page[a]	Tree Location Description	Tree Type and Size	Qty[b]
	Potential Trimming Expected		
5	Between E10 and E11 in new 230 kV ROW	Oak (*Quercus sp.*), large	1
5	Along access to E11 off Smith Road	Weeping willow (*Salix babylonica*), large	1
5	East of E11 in new 230 kV ROW	Oak, large	1
7	Along access to E16 off East Kettleman Lane	Ornamental tree, large	1
8	Along access to E17 off East Kettleman Lane	Landscaped/row trees, small-medium	20
8	Along access to E18 off North Jack Tone Road	Shrub, small	1
9	Along access to E21 off East Kettleman Lane	Row trees, Eucalyptus, large	2
9	Along access to E21 off East Kettleman Lane	Row trees, ornamental, small	4
9	Along access to E23 off East Kettleman Lane	Row trees, walnut (*Juglans sp.*), other, small	5
12	Along access to W9 off East Harney Lane	Mexican palm (*Washingtonia robusta*), large	2
12	Along access to W9 off East Harney Lane	Ornamental tree, medium	1
13	Along access to W13 off Route 88	Ornamental tree, medium	2
15	Along access to W18 off North Locust Tree Road	Oak, large	2
19	Along access to W29 off East Kettleman Lane	Sycamore (*Platanus sp.*), large	1
19	Along access to W31 off North Vintage Road	Pine (*Pinus sp.*), large	2
20	Along access to W32 off East Kettleman Lane	Ornamental trees, medium-large	5
	Potential Removal Expected		
9	PG&E Lockeford Substation property	Black walnut, medium and large	18
23	South of new 60 kV span near East Sargent Road	Eucalyptus, large	1
23	Between W45 and W44 near 230 kV ROW	Eucalyptus, large	3

[a] Refer to referenced page of Figure 3.5-1 for potential landscaping points.

[b] Qty = Quantity, estimated quantity where trees are close together.

Following coordination with landowners and any preconstruction resource surveys, trees will be trimmed or removed with appropriate equipment, typically including manual clippers, chain saws, and forestry mulcher or flail mower (front loader attachments). During clearing activities for temporary disturbance areas, vegetation will be mowed or grubbed, leaving root systems intact wherever possible to encourage resprouting and to minimize erosion. However, some stumps may need to be removed to provide access or level work areas. Mowers, crawler backhoes, front-end loaders, and bulldozers are expected to be used to remove some trees.

3.5.4.5 Work Area Stabilization

If a work area or access is used in the wet season, construction matting or up to approximately 6 inches of aggregate base may be laid down over geotextile fabric, as needed, and removed after construction. Unpaved roads may need to be winterized to accommodate heavy loads. Based on final design and construction scheduling, winterizing of the existing roads may include blading, compaction, rocking, culvert installation, and aggregate placement as described previously. For example, approximately 4 to 6 inches of surface gravel will be imported and installed within the LEU Guild Substation footprint and along the new internal all-weather access road. Gravel placed in construction staging areas within LEU Guild Substation will remain.

3.5.4.6 Grading

Earth moving or substantial grading (below an approximate 6-inch depth) is not expected to be necessary to establish the transmission line structure work or pull-and-tension areas. The expected limited surface blading, grading, and filling to create a stable and level work area—for instance, to create a stable crane platform—may occur on an as-needed basis as part of site preparation. At slope transitions, native fill, steel plates, construction mats, or earthen ramps will be placed to cross over uneven terrain or abrupt changes in topography. A conservative estimate assumes that approximately 5,605 cubic yards (yd^3) will be offloaded for transmission line work, with approximately 22.5 acres to be graded, to create a level work area around each pole for safety. No grading is expected for 60 kV, service, or feeder line work areas.

At LEU Guild Substation, PG&E Lockeford Substation, and PG&E Thurman Switching Station, grading will occur to level each site and create or modify the facility's water retention pond and any associated stormwater drainage. No grading is planned at PG&E Bellota, PG&E Brighton, PG&E Lodi, or PG&E Rio Oso substations or at PG&E Clayton Hill Repeater Station, nor at LEU Industrial Substation.

To the greatest extent possible, all cut materials from the substations and switching station will be reused as fill following suitability testing. Representative samples of excess soil will be collected, analyzed, and profiled for disposal in accordance with all federal, state, and local regulations. Engineered fill material or clean fill will be imported as needed to accomplish the necessary compaction and final grade.

Based on preliminary grading design, earthwork activities for LEU Guild Substation are anticipated to result in approximately 6,100 yd^3 of cut and fill, balanced onsite. An expected approximately 3,550 yd^3 will be cut from the substation site, with approximately 1,200 yd^3 from the approximately 190 foot by 60 foot by 4 foot retention basin. Approximately 1,000 yd^3 of the total cut material is planned to be reused, and the remaining approximately 2,550 yd^3 will be hauled offsite to North County Recycling Center and Sanitary Landfill in Lodi, or other appropriate facility described in Section 3.5.12.1. Approximately 1,500 yd^3 of clean fill is expected to be hauled to the project site.

For site grading activities at PG&E Lockeford Substation, the estimated cut and clean fill volume for site grading is expected to be approximately 873 yd^3 and 1,777 yd^3, respectively, resulting in the total net clean fill volume of approximately 904 yd^3 to be imported to the site. The anticipated maximum cut and fill height in the general grading area is approximately 0.75 feet and approximately 1.2 feet, respectively. The maximum cut height of the retention pond expansion and drainage ditch modification is approximately 2.3 feet with the total cut volume of approximately 570 yd^3, which already has been included in the total cut volume mentioned previously.

At PG&E Thurman Switching Station, the estimated total cut and clean fill volumes are expected to be approximately 4,890 yd^3 and approximately 1,684 yd^3, respectively, with the net cut volume of approximately 3,206 yd^3 to be hauled offsite, expected to be North County Recycling Center and Sanitary Landfill in Lodi or other appropriate facility described in Section 3.5.12.1.

With no contaminated soils expected on the project site, clean spoils excavated for the project will be used onsite to balance cut and fill calculations, as feasible.

3.5.5 Transmission Line Construction (Aboveground)

3.5.5.1 Poles/Towers

LEU Training Poles

The LEU wood training poles, which are not treated with creosote, will be removed using bulldozer and excavator during substation site preparation. Poles may be cut into sections onsite for removal on a truck to an appropriately licensed landfill. The pole holes will be filled with compacted soil reused from substation site preparation grading cut. The existing footprint of these training poles is within the substation site and the small existing footprint is not totaled separately.

PG&E and LEU Power Poles

Replacement, modification, or removal of PG&E 60 kV power line wood poles will use ground-based construction. Pole modification is expected to include replacing existing framing, or topping an existing wood pole after removing the existing 60 kV conductor and framing. New LEU power pole installation is described similarly to the pole replacement description without the later step of moving the old conductor and removing the old pole.

Pole replacement consists of six basic steps that are coordinated with line clearance(s):

1. Deliver new pole at pole site.
2. Auger new hole using line truck attachment.
3. Install bottom section by line truck.
4. Install top section by line truck.
5. Install new, or move old, conductors to the new poles with a line truck or by hand with ropes.
6. Remove old poles by line truck and fill hole.

A line truck with trailer and a potential second truck (crew cab truck and/or half-ton pickup) will be used to access the majority of the pole sites for pole installation and removal, or structure arm replacement on existing wood poles. A maximum of approximately four or five truck trips are anticipated to each pole site. The truck trips to the site are to deliver the pole, auger the hole, set the new bottom section, set the new top section, and remove the old pole.

Each pole site is expected to be accessed approximately one or two days during construction. Pole sections will be delivered in matched pairs to each new pole site. A line truck and trailer can transport between approximately two and three poles. When delivering and removing poles, the line truck will be expected to access approximately two or three sites per trip per day as schedule and conditions permit. Additionally, pole delivery, augering, and setting the bottom pole may occur in one day during a single trip.

New poles will be placed in holes made with a line truck auger attachment (highway digger with approximate 15- to 18-foot depth capacity); no separate foundations will be used. New poles typically are expected to be within approximately 5 feet from existing poles and in line with the existing power line alignment. The new pole holes typically will be approximately 5 to 6 feet deeper than the existing pole depths. A water truck may be used during augering to keep the soil firm. Augered pole holes will be covered with a steel plate until the new pole is installed.

The two new 60 kV poles within LEU Industrial Substation will have approximate 4-foot-diameter by 20-foot-deep drilled pier foundations. A hole digger will be used to excavate the foundation.

To assemble the light-duty steel poles, a line truck with a boom attachment will be positioned at the pole site to land the top section on the bottom section. A truck with a worker lift attachment will be positioned to allow a worker to guide the top section into place and to secure the two sections. Top sections will be installed when a line clearance can be scheduled. Clearances will be issued day to day during daylight hours and are not typically issued overnight during the summer or during peak load conditions. Setting the pole top sections may be performed on separate days to accommodate line clearance schedules and environmental seasonal work restrictions. If installed at separate times, the top section would remain at the pole site until assembled to the bottom section. Frame replacement on existing wood poles would use a line truck with a boom and an aerial lift. Old crossarms would be removed from the site by line truck and taken to the PG&E Victor Service Yard for processing, or to an appropriate landfill.

A hydraulic jack mounted on a line truck is expected to be used to loosen old poles as needed. A line truck will be used to access and remove PG&E Lockeford-Industrial pole 13 and the eight pole tops on PG&E Industrial Tap. The pole will be secured by the line truck, and a chainsaw will be used to remove the top portion of the pole after the 60 kV conductors and framing are removed. When entire poles are removed, they may be cut into sections onsite for removal on a line truck potentially with a trailer. Wood poles and sawdust generated by removing existing PG&E 60 kV wood poles will be considered treated wood waste.

The process for identifying and managing treated wood waste is discussed in Section 3.5.12.1. When old poles are removed, the soil removed while augering the replacement pole hole will be used to backfill the old pole hole; any unused soil will be feathered in around the replacement pole site.

PG&E Transmission Line Tubular Steel Poles

Foundations. Monopole foundation types will be adjusted to address subsurface geotechnical conditions or to manage other constraints. Generally, it is expected that a monopole foundation will be either directly embedded, with aggregate or slurry backfill, or will be a single drilled-shaft reinforced-concrete caisson. Drill rigs will be used for the expected type of monopole foundation excavation needed. Steel casings may be used to stabilize subsurface soils; these will be advanced by the drill rig or a vibratory hammer attached to a crane or a combination of these methods. The spoils created by the foundation excavation will be handled in a manner that will minimize impacts to crop productivity through soil profile management, as appropriate. The surface and subsurface layers will be stockpiled separately and returned to their approximate locations in the soil profile, or will be disposed of offsite at an approved disposal location.

Typical excavations for structure foundations will range from approximately 6 to 9 feet in diameter and approximately 18 to 30 feet in depth; some foundations could be larger depending on site-specific geotechnical conditions. A conservative estimate of up to approximately 848 yd^3 per foundation will be assumed. Foundation excavation spoils will be used for fill at station construction as feasible, will be spread onsite, or will be disposed of appropriately and handled in a manner that minimizes impacts to agricultural productivity and water quality. Where excavated soils cannot be spread onsite, they will be stockpiled and given to a nearby landowner or properly disposed of in keeping with applicant-proposed measures in Section 5.9, Hazards and Hazardous Materials. A temporary stockpile of excavated soil may be located near an excavation.

For anchor-bolted caisson foundations, crews will place the cage support and formwork into the excavation; the steel reinforcement cage will be installed by crane. The cage may include full-length anchor bolts and ties (or shorter-length anchor bolts along with full-length steel reinforcement bars), as well as spacers to provide minimum concrete cover, as required by code at all faces of the completed foundation. The cage may be assembled onsite or offsite at a project staging area. A typical monopole caisson foundation will require approximately 21 to 75 yd^3 of concrete depending on the pole. Concrete from a commercial concrete supplier will be delivered by truck directly to structure work sites. After the concrete has reached an acceptable strength, typically between approximately 7 and 28 days, the cage supports can be removed and the pole sections may be installed.

Alternative foundation types may be considered where required by subsurface geotechnical conditions, project schedule, or other constraints. These could include screw piles and micropiles, rock anchors, pad and pedestal or shallow foundations, and grillages. If micropiles are required at a foundation location (approximately 4 to 16 or more per location is typical), these generally will extend deeper than piers. Additionally, a concrete or steel cap is sometimes required to transfer the structure loads to the foundation elements. Shallow foundations may be used in areas where hard rock occurs, or where conditions are difficult for excavation. Track-mounted shovels would be used for this type of excavation for shallow foundations. Based on preliminary geotechnical borings, blasting is not anticipated for foundation construction. Embedded steel foundation types will be designed with consideration of corrosion potential over the design life of the structure.

Delivery and Assembly. Flatbed trucks will deliver materials to the site. Monopoles will be delivered to the work site in sections by tractor-trailer or by specialized delivery equipment in areas of constrained access.

Monopole structures are expected to be installed through a “two-pick” process also called “stick framing.” Stick framing requires that each section be installed in place: the first section is lifted onto the foundation or directly embedded base section; then subsequent sections and arms are set in place, one at a time, requiring multiple crane picks.

The most efficient way to install a pole structure is to lay the top pole section on the ground, then frame may be installed on the top section on the ground before lifting the pole top with frame structure in a single crane operation or pick. As an alternative, the contractor may choose to use existing disturbed areas, such as access roads, to frame structures on the ground. A longer work area could be used to accommodate framing the entire pole structure on the ground and setting with one crane pick.

Following successful completion of the excavation for direct-embedded foundations, crews will stage equipment for setting the pole base section. Approximately 1.5 feet of crushed stone backfill will be placed at the bottom of the excavation. The pole base section will be lowered into the excavation, set on the crushed stone backfill, and oriented such that the structure arms will be perpendicular to the ROW alignment. The pole base section will be secured after orientation, and either slurry backfill or aggregate (crushed rock) backfill will be placed in the void between the pole base and the excavation walls. If aggregate backfill is used, the backfill will be compacted to achieve required lateral capacity as per design. Salvaged soil will be replaced around the base of the structure to create positive drainage away from the structure foundation. After the aggregate backfill has been adequately compacted and placed, the base section supports can be removed and the top section(s) of the structure may be installed.

Structure installation will be conducted with typical ground equipment, such as cranes, flatbed trucks, crawler tractors, and line trucks. Structure arm assembly will be conducted within the structure work sites. The sections typically will be framed at ground level, using the crane and cribbing to keep the assembly off the ground. These assemblies typically include the arms, insulators, and hardware necessary to support the conductors. The base section will be lifted using the crane and then attached to the foundation anchor bolts or the bottom section of direct-embedded structures. Subsequently, framed sections will be lifted into place by the crane. Structure arms will be tied down or weighted to prevent damage from vibration caused by wind prior to the conductors being installed. Traveler pulleys will be hung in preparation for conductor installation. OPGW and conductor installation will connect the poles to the system.

PG&E Transmission Tower

The existing terminal lattice steel tower (RO1) of PG&E Rio Oso-Lockeford and PG&E Lockeford-Bellota Transmission Line at PG&E Lockeford Substation will be replaced with a new TSP using the process and equipment described for the construction of the other new 230 kV TSPs.

When the existing conductors for both circuits are transferred to the new structure during associated line clearances, crews can begin disassembling and removing the existing lattice steel tower. Tower removal may occur in two phases: the top section will be removed by crane, and the lower section will be removed by a boom truck. To remove the top section, a crane will be rigged to the top of the tower and sections will be unbolted or cuts will be made at the desired removal point. The structure will be lifted and lowered to the ground, where it will be cut into smaller sections and either transported to a laydown area or directly to a recycling facility. To remove the lower section, the legs will be cut off just above the foundations and a boom truck will remove the remaining sections. Existing foundations will be removed, including all concrete and steel, unless cutting them off below the ground surface will reduce environmental impacts. The excavation resulting from tower foundation removal will be filled in with soils excavated from the new TSP foundations.

PG&E Microwave Towers

A new microwave tower will be installed within PG&E Thurman Switching Station to establish a digital microwave path to PG&E Clayton Hill Repeater Station. The new microwave tower's slab foundation (approximately 25 feet by 25 feet by 5 feet) will be excavated with a front loader. The amount of excavated soil, approximately 116 yd^3, will be managed with the cut and fill on the PG&E Thurman Switching Station site. Approximately 160 yd^3 of concrete is expected to be used for the tower foundation. The foundation details will be refined during design based on geotechnical soil conditions and other site structure layout. The steel for the tower will be transported onsite by flatbed trucks and tower sections will be assembled onsite. The tower would be assembled with ground-based equipment, including aerial lifts

and a crane to lift tower sections into place. The installation will include attaching approximately two new approximately 6-foot-diameter antennas and waveguide cable using aerial lifts or boom trucks as needed.

Approximately two new approximately 6-foot-diameter antennas and waveguide cable will be installed on the northeast leg of the existing south tower within PG&E Clayton Hill Repeater Station to complete the new redundant communication path with PG&E Thurman Switching Station. A flatbed truck will transport the antennas and cable to the station. A boom truck or aerial lift will be used to lift the new antennas into place. The new waveguide cable will be installed along the tower leg and along the aboveground cable path into the control enclosure. No ground disturbance is planned.

3.5.5.2 Aboveground and Underground Conductor/Cable

The project will include removal and installation of aboveground conductors and wires, and installation of underground electrical and fiber cables. To remove in-service line sections, all colocated power or feeder lines and any third-party telecommunication lines that cross or are colocated will be taken out of service as part of the line clearances. Use of guard structures is discussed at the end of this section. Public safety and traffic control is discussed in Section 3.5.8.

Relocation of Overhead LEU Feeder Lines

The existing conductors and crossarms will be removed by constructions using a boom on the line truck and a line truck with a worker lift. Removed conductor and crossarms will be loaded onto a truck for transportation to an appropriate landfill facility. The underground portion of the LEU 12 kV feeder line between PG&E Lockeford-Industrial pole 2 and LEU Industrial Substation will be retired in place.

Installation and Removal of Aboveground LEU and PG&E Power Line Segments

During conductor installation or removal, the existing PG&E power line and any PG&E or LEU distribution or telecommunication lines that cross or are colocated on the line will be taken out of service as needed. For aboveground conductors that cross a UPRR track or are located within a railroad encroachment permit, construction activities will be coordinated with the railroad to avoid rail service interruption. Before conductor activities begin, in addition to any railroad coordination, any road crossings and other locations within the section of installation will be briefly closed or a rolling stop will be arranged. Any road closures that must occur on city and county roads are not expected to exceed approximately 5 minutes in duration. Any necessary permits will be obtained from the affected agencies.

New conductor lengths will be brought to the pole work area (or substation terminal structure) by line truck. The new conductors will be lifted to the new poles (or terminal structure) during any required clearance using the boom on the line truck and a line truck with a worker lift. The new spans of LEU Guild-Industrial 60 kV Line will be connected into respective terminal equipment. A compression splice will be used to connect the new conductor to the adjacent spans. The workers and compression equipment will be lifted to the conductor level at each pole to perform the splice. After the new conductors are in place, wire or conductor sags will be adjusted to a precalculated level at each pole. The conductors then will be clamped to the end of each insulator. The final step of the conductor installation will be to install vibration dampers and other accessories. Any temporarily closed road or railroad will be reopened at this time.

Conductors and framing will be removed from the western end of PG&E Lockeford-Industrial Line and select poles on PG&E Lodi-Industrial Line and PG&E Industrial Tap Line when each is de-energized. The boom on the line truck and a line truck with a worker lift are expected to be able to lift workers at each pole to cut the conductor, remove the framing, and top the pole as needed. The conductor will be secured with a rope before being cut to allow the conductor to be lowered safely to the ground. The conductor lengths will be removed by truck and trailer depending on the amount and taken to an appropriate landfill.

Relocation and Installation of Aboveground PG&E Transmission Lines

The conductor between PG&E RO1 and PG&E Lockeford Substation will be replaced when the new structure is relocated and the back span will be retensioned. At the eastern end of the new 230 kV line, the PG&E Brighton-Bellota Line span will be cut and spliced with the new conductor at E1. The process and equipment described for installation of a new conductor will be used for the relocated structure and the PG&E Brighton-Bellota Line take-off span, with the exception of using the existing conductor. Conductor and OPGW stringing will occur at each new transmission line structure as the conductors and wires are installed between structures. Transmission line work areas and pull-and-tension sites along the length of line being strung will be the primary work areas in use during installation activities. To haul the conductor to the pull-and-tension sites, reel trailers with reel stands will be mounted on line trucks or semi-truck trailers. When conductors are strung between structures, equipment at pull-and-tension sites is used to raise the conductors to the proper ground clearance height and to create proper line tension. The conductor stringing effort requires multiple reels of conductor to be installed from designated pull-and-tension sites.

Conductor stringing will proceed in discreet segments; the process will begin with pulling a sock line through the traveler pulleys installed during structure installation. A sock line (lightweight rope) typically is pulled by a light-duty helicopter (Hughes MD 500 or equivalent) and threaded through traveler pulleys affixed to structure arms while the helicopter hovers for approximately 10 to 15 minutes at the structure. One or more construction worker(s) may be lifted onto the structure or may work from the helicopter to facilitate conductor stringing.

When the sock line is laced through the travelers for the length of the pull, the sock line will be connected to a hard line (steel cable). The hard line will be on a reel that will be on a puller. Typically, the reel(s) and puller will be located on a line truck or semi-truck trailer. The sock line will be pulled back, with a helicopter pulling the hard line into place. The sock line will be removed from its connection to the hard line.

The conductor then is attached to the hard line and pulled through the travelers under its specified tension. A puller on a semi-truck trailer or a trailer-mounted puller then will pull the hard line, pulling the conductor in the reverse direction. The hard line will be removed from its connection to the conductor. After the conductor is pulled into place, the sags between the structures are adjusted to the design-specified ground clearance; minimum ground clearance will meet GO 95 specifications. The existing conductor is expected to be pulled into place by a person without using a sock line or hard line. The OPGW is strung in a similar manner as the conductor, with the helicopter stringing a sock line and a hard line that then pull the OPGW into position for tensioning.

When sagged, the conductor or wire can be dead-ended and clipped to the insulators or the structure, during which time the travelers are removed. The travelers will be removed by using the line truck with a bucket or a person may climb the structure. Refer to Figure 3.5-2.

When multiple reels of conductor are pulled for a line segment, conductor splices are required to join the two ends of conductor together. There are two types of conductor splicing methods proposed: (1) compression splicing, and (2) implosive splicing. Compression splices will be performed at structure work areas. At these locations, crews and equipment will be lifted to the conductor level to perform the splice. Compression splices generally are not pulled through conductor stringing blocks. Where splicing can occur at existing work areas, roads, and other disturbed areas, compression splicing likely will be used. Compression splicing will be used when in close proximity to sensitive receptors, such as residences.

When using the implosive splicing method, an aluminum sleeve with a layer of engineered explosive is placed over the conductor ends and designed to compress the sleeve on implosion. The implosive splices usually are completed at pulling sites and then pulled through the conductor stringing blocks. The number of reels that can be spliced and pulled in this manner usually is two or three because of limitations on the weight of and tension on the conductor during pulling. Implosive splicing will be completed by an individual who is licensed to perform those procedures according to all applicable laws and codes.

Implosive splicing will be used to avoid mid-span splicing work areas, particularly within orchards and vineyards.

3.5.5.3 Telecommunications

The new fiber optic cable, or OPGW, which will be installed in the top conductor position of the new transmission line, will be routed into the substation and switching station using a new underground conduit. On the last transmission line structure just outside the substation or switching station, the fiber optic cable will be installed down the structure connecting to the underground conduit and into the substation. Underground communication fiber cables are further described with the substation activities.

Secondary communication from PG&E Lockeford Substation to support PG&E's system protection scheme will occur using existing internal AT&T fiber lines connected with existing fiber lines adjacent to the substation.

3.5.5.4 Guard Structures

Temporary guard structures will be installed prior to conductor installation to protect vehicle and pedestrian crossings, railroads, waterways, irrigation ditches, and existing utilities should the conductor fall from the structures during construction. Where necessary, traffic control will be provided during installation and removal of these temporary guard structures, and as specified in City of Lodi, San Joaquin County, CVFPB, and Caltrans encroachment permits. In place of using guard structures over distribution lines, some existing distribution lines may be taken out of service when such outages are not in conflict with customer needs. If such outages are necessary, line outages will be coordinated in advance with each customer. Refer to Figure 3.5-1 for potential guard structure locations. Potential guard locations within other construction work areas are not marked.

Guard structures will be positioned and configured to catch and support the weight of the conductor if it unexpectedly drops or sags excessively during the installation or tensioning process. Guard structures may be created with line trucks or wood poles with crossbeams depending on the construction method chosen by the construction crew or required by a third-party facility (railroad, state route, or levee). Where wood poles are used, an auger will excavate holes where the wood poles will be embedded. A crane or line truck will place the wood pole in the hole. The excavated soil will be used to fill around and support the pole. Any excess excavated soil will be placed around the base of the structure to create positive drainage away from the pole. Two vertical poles will be connected by a horizontal pole used as a beam to provide the protection. During installation, equipment generally will be staged from existing roadways or disturbed areas. In instances where netting is required, crews will install temporary anchors and guy wires to support the H-frame structures. Refer to Figure 3.5-3. Guard structures may be in place for up to approximately one year to support the 230 kV overhead installation. When guard structures can be removed, either the line trucks will be removed from their guard position or the wood pole guard structure will be disassembled. Line trucks and wood pole guard structures will be reused and may be taken to staging areas or moved to the next guard structure position.

Temporary guard structures would be installed where the new lines cross existing infrastructure such as roads (approximately 35 structures) or other electrical lines (approximately 22 lines). They would require excavation of shafts from approximately 2 to 3 feet in diameter and up to approximately 7 feet in depth.

3.5.6 Underground Line Construction

The LEU 12 kV feeder line conversion, as described in Section 3.3.3.5, will have a total run below grade of approximately 750 feet and will include two new pull boxes. Refer to Figure 3.3-2b. The PG&E 12 kV line extension is expected to have an underground length of approximately 550 feet, depending on the location in franchise within South Guild Avenue, and one pull box as described in Section 3.3.3.6. Refer to Figure 3.3-2b. Both underground lines are planned to be installed via HDD with a portion of PG&E's 12 kV extension installed using an open trench process where the line will cross South Guild Avenue. The open

trench process and equipment are described in the following subsections, including the HDD and pull-box process and equipment. Refer to Figure 3-5.1 for construction work areas.

PG&E's conduit will be installed at least 3 feet away from the outside surface of any "wet" utility pipe when parallel to the pipe, and 6 inches from "wet" utilities when crossing over/under the pipe or if crossing a non-PG&E electric utility.

3.5.6.1 Trenching

After PG&E's 12 kV extension route is marked for construction, the pavement within the trench line will be removed by saw cutting (where applicable), followed by excavating the trench using a backhoe. Depending on the location, the length is expected to be between approximately 70 and100 feet across South Guild Avenue. The open trench depth would be an approximate minimum 42 inches to obtain an approximate minimum of 36 inches of cover, with an approximately 12-inch excavation width. The estimated cut and fill trench volume is approximately 12.75 yd^3. The actual depth and width of the open trench will vary depending on field conditions and conflicts with existing utilities. Where the electrical duct bank crosses or runs parallel to other substructures that have operating temperatures at earth temperature, a minimum radial clearance of 12 inches is required depending on the existing utilities within the route.

Up to approximately 13 yd^3 may to be excavated from an open trench. The soil, expected to be precharacterized during preconstruction potholing, will be either reused or placed directly into a truck and disposed of offsite at an appropriate landfill. Dewatering is not anticipated. If known or suspected hazardous waste is encountered during excavation or dewatering is required, the measures described in Section 3.5.10.2 and Section 3.5.12 will be implemented.

An approximate 4-inch cable conduit will be placed in the trench followed by backfill, which will be compacted. Restoration is based on matching the roadway's existing subbase and surface (asphalt, concrete, or a combination of both). A road base backfill or slurry concrete cap will be installed, and the road surface will be restored in compliance with the locally issued permits.

3.5.6.2 Trenchless Techniques (Horizontal Directional Drilling)

HDD is the expected trenchless technique to be used to install underground conduits for LEU's relocated 12 kV line and PG&E's extended 12 kV line. The HDD technology uses a hydraulically powered horizontal drilling rig supported by a drilling mud tank and a power unit for the hydraulic pumps and mud pumps. A variable-angle drilling unit will initially be adjusted to the proper design angle for the particular drill.

The first step will be to drill a fluid-filled pilot bore. The first and smallest of the cutting heads will begin the pilot hole at the surveyed entry point in the entry pit. An entry pit and an exit pit are required for each HDD to contain the drilling mud. In general, the work area required on both the entry and exit sites will be approximately 30 by 30 feet. The pavement for the pits and pull-box excavations will be removed by saw cutting. The entry and exit pits will be located where the planned pull boxes will be used for each 12 kV line. The excavation for a typical pull box is approximately 5 feet by 7 feet and 5 feet deep. The pit excavations are expected to be approximately 5 feet by 7 feet and 8 feet deep. Up to approximately 8 yd^3 will be removed per pit, with approximate 4 yd^3 expected to be reused for back fill. The pit walls will be shored with either a trencher's box or bracing.

The first section of the drill stem has an articulating joint near the drill-cutting head that the HDD operator can control. Successive drill stem sections will be added as the drill head bores along the specified route. The drill head then will be articulated slightly by the operator to follow a designed path under the crossing and climb upward toward the exit point. When the pilot hole is completed, a succession of larger cutting heads and reamers will be pushed and pulled through the borehole until it is the appropriate size for the approximate 4-inch or approximate 6-inch conduit for PG&E and LEU, respectively. Using this method, the relocated LEU 12 kV conduit will be installed between approximately 4 feet and 10 feet under the existing grade. The PG&E 12 kV extension is expected to be installed a minimum of approximately 3 feet below

grade but will be up to at least 15 feet underground when crossing under and within 30 feet of the railroad tracks.

A nontoxic, water-based lubricant containing water and bentonite clay, referred to as drilling mud, will be used to aid the drilling, coat the walls of the borehole, and maintain the opening. During the bore, drilling mud will be pumped under high pressure through the drill stem to rotate the cutting head and return the soil cuttings to a pit at the surface entry point. No additives considered hazardous according to federal and state laws will be used during the HDD process.

The drilling mud will be received in an approximately 6-foot by 6-foot pit. The drilling mud returned back through the bore-drilled hole will be pumped from the entry and exit pits to a processing/shaker unit where the soil cuttings are removed, allowing the drilling mud to be reused. It is anticipated that the majority of the drilling mud will be recycled by the drilling contractors and used on subsequent projects. Any excess clean drilling mud will be disposed of at an appropriate waste facility.

When the borehole reaches the correct diameter, the conduit will be pulled through the borehole until it surfaces on the other side. The installed conduit then will be connected to adjacent splice boxes and/or other sections of conduit, and the entry and exit pits will be backfilled. As part of the drilling design process, a geotechnical survey of subsurface conditions was conducted to determine the underlying geologic strata along the bore path. Infrequently, the geologic strata above the bore may be weaker than anticipated and/or unconsolidated. As the HDD passes under these locations, the high pressure of the drilling mud may result in a fracture of these strata, allowing drilling mud to rise to the surface. This situation is termed a "frac-out" and usually is resolved by reducing the mud system pressure or increasing the mud viscosity. If a frac-out occurs, the boring operation will be stopped immediately, and the following plan of action will be implemented:

- Isolate the area with straw bales, sandbags, or silt fencing to surround and contain the drilling mud.
- Remove the drilling mud using one of the two following methods based on the location and volume of mud leaching from the frac-out hole:
    - A mobile vacuum truck will be used to pump the drilling mud from the contained area. If the vacuum truck does not have a hose of the appropriate length, a series of one or more gasoline- or diesel-powered pumps may be connected to the vacuum truck to extend its reach. Each pump will be placed in a plastic tub or other form of containment.
    - The drilling mud will be removed with hand tools if the frac-out is small.

To facilitate the pulling and splicing of the cables for LEU's relocated 12 kV line, two underground pull/splice boxes (vaults) will be installed at the base of an existing LEU wood pole structure. One pull box will be installed at the southern end of the PG&E 12 kV extension. The pull boxes used for the project will be precast polymer concrete and traffic-rated boxes. The LEU pull boxes will be approximately 3 feet by 5 feet, and the PG&E pull box is expected to be approximately 3 feet by 5 feet with an approximate 42-inch depth. These splice boxes will provide access during operations to the underground cables for maintenance, inspection, and repair by the respective utility. A trencher will be used to excavate an approximate 4-foot by 6-foot excavation to an approximate 5-foot depth for the two LEU 12 kV pull boxes. Approximately 8.8 yd^3 are expected to be removed from the two LEU pull-box excavations. A backhoe is expected to create an excavation of approximately 5 feet by 7 feet to an approximate 5-foot depth for the PG&E pull box, removing approximately 6.5 yd^3. The pull boxes then will be connected to the underground conduits before being covered with at least approximately 2.5 feet of compacted fill. The area around each pull box will be backfilled with soil saved from the initial excavation. Restoration is based on matching the roadway's existing subbase and surface (asphalt, concrete, or a combination of both). A road base backfill or slurry concrete cap will be installed, and the road surface will be restored in compliance with the locally issued permits or agreement with the property owner.

After installation of the conduit, the cable will be pulled into the conduit, spliced at the pull boxes, and terminated at the transition where the lines convert to overhead. To pull the cable through the conduit, a

cable reel will be placed at one end of the section and a pulling rig will be placed at the other end. A large rope then will be pulled into the conduit using a fish line and attached to the cable-pulling eyes. The cable-pulling eyes will be attached to the cable and the cable will be pulled through the conduit. A lubricant will be applied to the cable as it enters the conduit to decrease friction during pulling.

Dewatering is not anticipated. Precharacterization of soil and any groundwater is expected to occur during preconstruction potholing activities. If known or suspected hazardous waste is encountered during excavation, dewatering is required, or drilling mud requires management beyond what is described, the measures described in Sections 3.5.10.2, Section 3.5.12.2, and/or Section 3.5.12.3 will be implemented. Excavated soil is expected to be used for backfill unless the soil is unsuitable compaction or contains potential or known hazardous material. Engineered fill is not expected to be used as backfill.

3.5.7 Substations and Switching Station

The information that follows describes each substation and the switching station and details the process and equipment for removing, installing, or modifying these facilities.

3.5.7.1 Installation or Facility Modification

PG&E Lockeford Substation Modification

An existing drainage V-ditch will be expanded along the eastern side of the expanded substation area to route expected stormwater into an expanded retention pond with riprap slope stabilization. The expansion of the retention pond will sufficiently accommodate the expanded area for the substation. There is no slope stabilization or retaining wall needed for the project. Select non-orchard tree removal and tree trimming, and grapevine encroachment removal is expected to occur in the area on PG&E property where the substation fence and drainage ditch is expanded. A PG&E arborist will review the fence staking and coordinate with crews conducting tree trimming and removal prior to minimize or avoid tree trimming and removal where possible.

Following the station, drainage ditch, and retention pond expansion, the existing substation fence line will be replaced in kind and expanded on the northern and eastern sides of the property. Next, construction activities include excavation and installation of the subsurface ground grid and conduit chases, installation of the paved interior roads, and excavation and forming and pouring of concrete footings and foundations for all the aboveground structures. The additional excavated material of approximately 719 yd^3 for foundation installations will be hauled offsite.

After the concrete has cured, the aboveground steel structures, circuit breakers, buses, dead-ends, and other electrical equipment, including associated control system hardware, will be installed. Equipment to be placed on slabs or footings will either be bolted or welded securely to meet the appropriate seismic requirements. All metallic structures within the substation will be connected to the station grounding grid. A final dressing of aggregate totaling approximately 1,280 yd^3 will be spread on all unpaved areas in the substation to provide an all-weather stable surface for operations and maintenance (O&M) activities while limiting the amount of impervious surface created to minimize site runoff.

To the greatest extent possible, all cut materials from the substations and switching station will be reused as fill following suitability testing. Representative samples of excess soil will be collected, analyzed, and profiled for disposal in accordance with all federal, state, and local regulations. Engineered fill material will be imported as needed to accomplish the necessary compaction and final grade.

Precharacterization of soil and any groundwater is expected to occur during preconstruction potholing activities.

The general sequence will be as follows:

- Expand and grade the substation to the north of existing 230 kV Bays 1 and 2; this will allow for construction of new Bays 3 and 4.
- Install the new modular protection, automation, and control enclosure and full BAAH bays at Bays 3 and 4.
- Clear PG&E Rio Oso-Lockeford 230 kV Line in Bay 2. Install new middle 230 kV circuit breaker in Bay 2 and install new double-bay dead-end on the east side of 230 kV Bus 2.
- Clear 230/60 kV Transformer 2 and 230 kV Bus 1. Reconnect Transformer 2 to the position between the new middle and left circuit breakers, using the tall dead-end structure. Remove the Bay 2 portion of the low dead-end structure between the middle and left circuit breakers. Connect existing 230 kV Bus 1 to the expansion portion of Bus 1.
- Connect the looped-in PG&E Brighton-Bellota Line into Bays 3 and 4, creating PG&E Lockeford-Bellota No. 2 and PG&E Brighton-Lockeford 230 kV lines.
- Clear 230/60 kV Transformer 3 and PG&E Lockeford-Bellota No. 1 230 kV Line. Install new circuit breaker in the right position of the BAAH bay of Bay 1. Remove the Bay 1 portion of the low dead-end structure between the middle and left circuit breakers. Reconnect PG&E Lockeford-Bellota No. 1 230 kV Line between the middle and right circuit breakers, using the new structure constructed in Step 3. Reconnect Transformer 3 between the middle and left circuit breakers. Connect the existing 230 kV Bus 2 to the expanded portion of Bus 2.
- Connect the new double-circuit PG&E Lockeford-Thurman 230 kV Lines No. 1 and No. 2 into the west positions of Bays 3 and 4.

After obstructions are removed from the area between Bays 1 and 2, Bay X will be installed. Concrete foundations will be installed to support the three new 230 kV circuit breakers, take-off structure, and air disconnect switches. Trenches will be dug between the new circuit breakers and the existing control enclosure. New conduits, and power and control wiring will be installed in the trenches, and the trenches will be backfilled. Three circuit breakers will be installed on the new foundations and power and control wiring will be connected. New conductors will be installed from the take-off structures to the buses and to the circuit breakers and air disconnect switches will be installed to provide electrical clearance points. Inside the control enclosure, protective relays, meters, and controls will be installed as required to protect the system. Refer to Figure 3.3-1b, Figure 3.3-1c, Figure 3.3-1d, and Table 3.3-3.

PG&E Thurman Switching Station

Site-grading activities at PG&E Thurman Switching Station will total approximately 5.50acres of disturbed area. The estimated cut and clean fill volumes for site grading are approximately 4,890 yd^3 and approximately 1,684 yd^3, respectively, resulting in the total net cut volume of approximately 3,206 yd^3 to be hauled offsite. The anticipated maximum cut and fill heights in the general grading area are approximately 1.1 feet and approximately 1 foot, respectively. The maximum cut height of the retention expansion is approximately 5.9 feet with the total cut volume of approximately 2,880 yd^3, which has been included already in the total cut volume mentioned previously.

The site generally is flat and will be graded with an approximate 1% slope for stormwater runoff to drain from the north to the south into the retention pond with riprap slope stabilization. No special slope stabilization or retaining wall is needed for the project.

Grading will be followed by: (1) installation of an approximately 10-foot-tall security fence with approximately 1 foot of "V" shaped barbed wire at the top, (2) excavation and installation of the subsurface ground grid and conduit chases, (3) installation of the paved interior roads, and (4) excavation and forming and pouring of concrete footings and foundations for all the aboveground structures. The additional excavated material of approximately 736 yd^3 for foundation installations will be hauled offsite.

After the concrete has cured, the aboveground steel structures, circuit breakers, switchgear, buses, dead-ends, and other electrical equipment, including associated control system hardware, will be installed. Equipment to be placed on slabs or footings will either be bolted or welded securely to meet the appropriate seismic requirements. All metallic structures within the switching station will be connected to the station grounding grid. A final dressing of aggregate totaling approximately 2,700 yd^3 will be spread on all unpaved areas in the switching station to provide an all-weather stable surface for O&M activities while limiting the amount of impervious surface created to minimize site runoff.

To the greatest extent possible, all cut materials from the switching station will be reused as fill following suitability testing. Representative samples of excess soil will be collected, analyzed, and profiled for disposal in accordance with all federal, state, and local regulations. Engineered fill material will be imported as needed to accomplish the necessary compaction and final grade. Refer to Figure 3.3-2b.

LEU Industrial and LEU Guild Substations

The LEU 12 kV feeder work is expected to start with LEU survey activities prior to the start of construction for LEU Guild Substation or modification for LEU Industrial Substation. The LEU 12 kV pull boxes and underground cable will be installed before the existing overhead LEU 12 kV feeder line portion will be removed.

When the LEU 12 kV feeder work is completed, site grubbing and grading will be completed for LEU Guild Substation, including removal of the existing wood poles onsite used for LEU utility worker training. Foundations, grounding, and conduits will be laid, then the monopole foundations at LEU Industrial Substation will be installed. Steel, bus, and enclosures will be placed at LEU Guild Substation, with the monopole steel being erected in parallel with LEU Industrial Substation. Installation of electrical equipment will follow, with wiring and testing likely done in parallel with the new PG&E Thurman Switching Station.

When PG&E Thurman Switching Station and LEU Guild Substation are complete, the overhead 230 kV lines connecting the substations will be installed. The LEU 60 kV overhead lines connecting LEU Guild Substation to LEU Industrial Substation will be installed on the new monopoles. The new LEU 60 kV overhead lines will be installed to the existing steel at LEU Industrial Substation. And PG&E will remove the existing 60 kV taps at LEU Industrial Substation as part of construction.

LEU Guild Substation will be constructed in one phase and will only require a bus outage at LEU Industrial Substation when complete to cut over to the new 230 kV source.

Access to LEU Guild Substation for construction and operation will be on a permanent access road installed from South Guild Avenue to the substation's yard. Access road construction will begin by excavating at the intersection with South Guild Avenue to cut the curb. The road will be graded and compacted in accordance with engineering standards and geotechnical requirements. Following compaction, road base will be imported, distributed onsite, and compacted. Finally, conventional equipment will be used to distribute the crushed-rock road material along the main access route and driveway. It is assumed that final rocking of the access road will occur after major construction at LEU Guild Substation is completed.

The LEU access road will be crushed rock and measure approximately 800 feet long and approximately 60 feet wide. The facility access road will have a gate at South Guild Avenue, a gate into the LEU Guild Substation yard, and a gate into the LEU Industrial Substation yard. All gates will be permanent. Interior roads within LEU Guild Substation will be crushed rock and measure approximately 1,250 feet long and approximately 16 feet wide in total. The layout of these roads is illustrated on Figure 3.3-2b.

Geotechnical borings were performed in the vicinity of LEU Guild Substation. It is anticipated that site materials can be excavated using conventional earth-moving equipment. While not expected, in the event there are areas where bulldozers and backhoes are not able to remove the material, scraping, ripping, drilling, hammering, and cutting may be used to break up the material into manageable pieces. Blasting is

not anticipated. Small, temporary stockpiles of excavated dirt may be located near excavations. This excavated material will be used, as appropriate, for backfilling voids left by the removal of old power line training poles. Sediment control best practices, such as the use of fiber rolls around stockpiles and excavated areas, will be implemented to manage the temporary stockpiles.

For LEU Guild Substation construction, LEU expects to mechanically process material onsite to achieve a maximum particle size and distribution suitable for conventional placement in engineered fills.

PG&E Remote-End Substations System Protection Modifications

Prior to placing the new transmission lines, modified power lines and substation, and new switching station components into service, PG&E must ensure that the components, as well as the overall system, have adequate protection from faults and other electrical abnormalities. At the new switching station, system protection equipment will be integrated into the final design and installed as part of the station construction. Also as part of the final design, the system protection equipment at PG&E Bellota, PG&E Brighton, PG&E Lockeford, PG&E Lodi, and PG&E Rio Oso substations and the grid control centers (GCCs) will be evaluated. The equipment (relays) may require adjustments to coordinate with the new equipment or may need to be upgraded or replaced.

Simple setting adjustments may be all that is necessary for protective devices of the same vintage and compatibility. Firmware upgrades may be needed if the devices are not of the same vintage and capability. Full device replacement is required if the vintage, capability, and compatibility cannot be matched with the new equipment at the switching station.

The work will occur within the control rooms of the existing facilities, and it is minor in nature. The replacement of protective relay devices is a typical operation and maintenance activity and would be performed prior to placing the new equipment into service. Depending on the scope, the duration could be approximately 1 day for setting adjustments to approximately 5 weeks for replacement of system protection devices. The trucks expected to be used for personnel and material transport are listed in Table 3.6-1.

At PG&E Rio Oso, PG&E Bellota, and PG&E Brighton substations, existing line tuner/wave trap equipment and associated structures will be removed or retired in place after new digital communication equipment for the 230 kV line protection relays are installed in the existing control facilities at the three substations.

Construction at the existing PG&E Bellota, PG&E Rio Oso, and PG&E Brighton substations will include minor modification to disconnect the existing line tuner/wave trap equipment and associated structures and remove them from service (Refer to Figure 3.3-4). The existing line tuner/wave trap equipment and associated structures can be removed from service after construction of the proposed 230 kV system is complete and the protection relays are upgraded or replaced. The equipment and structures may be retired in place when disconnected or removed as discussed.

The equipment will be electrically isolated from the in-service equipment so it can be safely retired in placed or disassembled and removed. If the out-of-service equipment is being removed, boom trucks and man lifts will be used during disassembly of the line tuner and wave trap equipment, cables, and supporting structures. The wiring to the equipment will be de-terminated and pulled back to a pull box or removed entirely. Control and protective devices will be removed or tagged as out of service.

A boom truck and crane will be used to load the equipment for transporting to a material yard for reuse or to a salvage yard for disposal. The foundations will be removed to approximately 3 feet below grade using a backhoe, jackhammer, and hand tools. Approximately eight truck trips are expected to off-haul concrete foundation material to an appropriate recycling/disposal facility. The equipment and vehicles expected to be used for personnel and material transport are listed in Table 3.6-1.

PG&E Clayton Hill Repeater Station – South Tower

Work to install two new antennas and run new cable on the existing structures and into the existing control room is expected to occur within approximately 30 days. Light-duty trucks would be used to transport the new communication material to the station. No ground-disturbing work would occur within the station.

3.5.7.2 Civil Works

Civil works expected at LEU Industrial and LEU Guild substations are described in Sections 3.3.3.4 and 3.3.4.3. PG&E civil works are described in the following sections in expected chronological order of civil work type for PG&E Lockeford Substation and PG&E Thurman Switching Station.

PG&E Lockeford Substation and PG&E Thurman Switching Station Preconstruction

Preparation of the two main PG&E station staging areas will take approximately 2 weeks to complete and will include the following actions and improvements:

- Locate access to PG&E Lockeford Substation off East Kettleman Lane.
- Locate access to PG&E Thurman Switching Station off East Thurman Road.
- Begin site leveling and grading within PG&E-owned areas.
- Install temporary in-ground fencing (if not already present), including an approximately 6- to 8-foot-tall chain-link fence with up to approximately 2 feet of barbed wire, around the perimeter of each staging area with locking gates to control access and theft.
- Install SWPPP mitigation measures.
- Place gravel or equivalent material within staging areas to control dust, sedimentation, and equipment trackout and to prevent stormwater runoff from leaving the site during rain events.
- Install temporary power from portable generators and/or taps to existing distribution lines in the area.
- Install construction office trailers, sanitary facilities, and storage buildings.

PG&E Lockeford Substation and PG&E Thurman Switching Station Grading

Substation grading and site preparation construction of the substation and switching station will follow a typical sequence beginning with survey marking staging areas and work areas, establishing the private access road, clearing vegetation, and installing the fencing. Earth-moving activities associated with the proposed substations would require limited remedial grading (removal of colluvium and alluvium) and mass grading to create the substation pad and improve the existing access road. Construction activities would include installing the retaining walls, stormwater conveyances, a containment basin, a water quality detention basin, electrical underground conduits, a perimeter screen wall, and entry gates; and paving internal and external operational and maintenance access roads. Final grading plans are pending final engineering; therefore, truck import and hauling has been assumed based on schedule duration. Site construction fencing will be installed during the site preparation stage and will require digging to a depth of approximately 4 feet to install fencing anchors. A water quality detention basin may be needed within the substation fence. The water quality basin would be designed to meet volume, area, depth, and detention time objectives of the Regional Water Quality Control Board and City or County requirements. Geotechnical soils investigation will be completed as needed, and location of the basin will be determined during the final engineering. Soil removal and reuse for compaction subject to final engineering design and importing gravel for compaction and crushed rock for finish grade will follow PG&E standards.

PG&E Lockeford Substation and PG&E Thurman Switching Station Below Grade

Following site development, below-grade work would begin. Below-grade work would include structure and equipment foundations, underground ducts, ground grid, and construction of the all-weather structure (control shelter). Concrete trucks, backhoes, and loaders would be used for foundation and below-grade work.

Forms, reinforcing steel, and concrete then will be installed, as appropriate, to build the foundations for substation equipment and the control enclosures. Structure and equipment foundations will be excavated to a depth of between approximately 10 and 25 feet. Actual depths will depend on the equipment to be installed. Concrete pouring will be required to construct the foundations. Underground bundled PVC conduit ducts will be constructed within the substation pad for the control circuits.

Final civil/structural foundation plans are pending final engineering; therefore, truck import and hauling has been assumed based on schedule duration.

PG&E Lockeford Substation and PG&E Thurman Switching Station Above Grade

When grading activities and below-grade foundation construction are complete, major equipment and structures would be installed and anchored on their respective foundations. The following steps would be associated with installing above-grade equipment:

- It is anticipated that all major electrical and substation equipment will be delivered to each substation site and placed directly on constructed concrete foundations and footings. When all footings have cured, all equipment will be anchored into final position, and wiring, controls, and protective devices will be installed. All new components will be delivered to the site using a flatbed truck and positioned using a small crane. Equipment testing will be performed for all installations.
- A controls enclosure will be installed onsite. This enclosure will house new SCADA equipment for the entire PG&E Lockeford Substation.
- A series of multiple outages will be needed to remove old control and communication cables and reroute new cables and wires to the new enclosure. Testing and commissioning of all equipment is to be done by internal PG&E crews.

3.5.8 Public Safety and Traffic Control

3.5.8.1 Public Safety

No special construction techniques are expected for the project.

Any personnel with access to energized electrical stations will be properly trained according to PG&E or LEU standard practices, respectively. Other potential construction hazards include the presence of high-voltage, open-air conductors, which can create a high-temperature electrical arc between the electrical conductor and persons or objects. PG&E's and LEU's power lines and station facilities are designed and constructed with grounding devices, and in the event of a lightning strike on a power line, this safety feature ensures that the strike is discharged to appropriate ground, and all workers will be trained in appropriate safety procedures, as described in APM HAZ-3.

To minimize potential exposure of the public to electric shock hazards, a 9-foot-tall chain-link fence topped with 1-foot of barbed wire would extend around the perimeter of the proposed PG&E Thurman Switching Station, LEU Guild Substation, and the expanded PG&E Lockeford Substation, thereby restricting site access. The pedestrian and vehicle entrance into the stations will be gated and monitored remotely; thus, access would be restricted to only authorized personnel. Warning signs would be posted around the perimeter of the stations' fence and gate to alert PG&E of potential electrical hazards. No change to the

existing perimeter fence type is expected to occur at PG&E Bellota, PG&E Brighton, PG&E Lodi, PG&E Rio Oso, or LEU Industrial substations, or PG&E Clayton Hill Repeater Station.

All work will be completed on private land or where PG&E or LEU has permanent or temporary land rights or easement and where access is limited to qualified individuals. Signage and temporary and permanent fencing will be used to inform and protect the public near the construction site. Flaggers will be used as standard safety practices for large equipment deliveries and offloads, including safe movement of traffic on highways and streets in accordance with Section 21400 of the California Vehicle Code.

Prior to stringing conductors, temporary guard structures will be installed at irrigation canals, road crossings, and other locations where the new conductors may otherwise come into contact with electrical, communication, or rail facilities, waterways, or vehicular traffic during installation. Refer to Section 3.5.5.4 for details on guard structures.

Specific project areas where public access may be restricted for safety purposes are expected to include some public roads and some sidewalks. Public road access may be temporarily disrupted as described in Section 3.5.8.2. Sidewalk access may be temporarily restricted for safety purposes for up to 5 days along the north side of East Lodi Avenue between South Cluff Avenue and Commerce Street during the reconfiguration of PG&E's 60 kV lines north of LEU Industrial Substation, including the removal of two horizontal guy wires and the PG&E stub pole near 1303 East Lodi Avenue.

South Guild Avenue would have temporary disruption of access during wire-stringing operations, which would be temporary and would be addressed by traffic control and rerouting. Specifically, the following disruptions would be expected:

- Sidewalks – temporary disruption of access during 12kV underground activities potentially lasting up to 2 months and addressed by traffic control flaggers and rerouting
- Delta Packing Company – temporary disruption of access during wire-stringing operations lasting less than 5 business days and addressed by traffic control and rerouting

3.5.8.2 Traffic Control

PG&E and LEU will follow their respective standard safety practices, including installing appropriate barriers between work zones and transportation facilities, posting adequate signs, and using proper construction techniques. PG&E and LEU will coordinate construction traffic access at and around LEU Industrial and LEU Guild substations, PG&E Thurman Switching Station, and the connecting 12 kV, 60 kV, and 230 kV lines. PG&E is a member of the California Joint Utility Traffic Control Committee, which published the *California Temporary Traffic Control Handbook* (2018). PG&E will follow the recommendations in this manual regarding basic standards for the safe movement of traffic on highways and streets in accordance with Section 21400 of the California Vehicle Code. PG&E will comply with all notification requirements as prescribed by the City of Lodi, San Joaquin County, and Caltrans encroachment permits. LEU will comply with all notification requirements as prescribed by the City of Lodi.

With the City of Lodi, several project activities are planned for the area near and within South Guild Avenue between East Thurman Road and East Lodi Avenue. Temporary parking restrictions and sidewalk closures may be required intermittently on one side of the road during activities. PG&E Thurman Switching Station and LEU Guild Substation will be constructed to the west of South Guild Avenue. Both stations will install vehicle access from South Guild Avenue west into the stations requiring cutting the curb and sidewalk to create driveways. This civil work for PG&E Thurman Switching Station is scheduled to complete before any LEU Guild Substation work begins. Each station access construction work may require that the sidewalk be temporary closed for less than 1 month. Pedestrian traffic will be routed to the existing sidewalk on the east side of South Guild Avenue.

About 2 months after PG&E completes Thurman Switching Station access from South Guild Avenue, LEU has scheduled the LEU12 kV feeder line relocation as its first project activity. The eastern end of the LEU HDD activities will occur entirely on the LEU customer property and LEU will coordinate the timing of that

work with the customer. The western end of the LEU HDD work will occur at an existing LEU pole along the eastern sidewalk of South Guild Avenue. The sidewalk may be temporarily closed for less than 1 month. Pedestrian traffic will be routed to the existing sidewalk on the west side of South Guild Avenue. When the relocated LEU 12 kV feeder line is in service, the existing aboveground LEU 12 kV lines can be removed from the underbuild location on PG&E Lockeford-Industrial Line. There is approximately 7 months until the PG&E Lockeford-Industrial Line pole 1 through pole 9 are scheduled to be removed; therefore, the LEU 12 kV line segments and Comcast communication lines removal is flexible. This will allow schedule flexibility for LEU's construction of LEU Guild Substation access to start and complete as needed to avoid potential pedestrian, bicycle, or traffic constraints with both activities occurring in the same area. Similarly, the month after LEU Guild Substation access is complete, PG&E has scheduled the underground construction of its 12 kV line within South Guild Avenue. The flexibility of removing the aboveground lines will allow for the PG&E 12 kV line work to complete as well.

Extension of the PG&E 12 kV line within South Guild Avenue will require lane closure for the two HDD work areas. Given the width of the road, PG&E anticipates that a temporary parking restriction in the vicinity of the work area will allow for one lane of traffic in each direction to be open at all times. When the 12 kV line route location is finalized, PG&E will apply for an encroachment permit from the City of Lodi and a Traffic Control Plan will provide detail on the temporary work locations and temporary road use restrictions. On Figure 3.5-1, the work area across the width of the road identifies the range of potential area needed depending on the route option selected. The work area for each HDD end would not extend curb to curb and a lane of travel in each direction is expected to be open at all times. The work area for trenching across South Guild Avenue would move across the road incrementally with plates or backfill placed allowing unrestricted travel in both directions as the trench progresses and line installation occurs.

Before PG&E 60 kV conductor, LEU 12 kV conductor, and Comcast communication line removal begins, the temporary parking restrictions and brief, temporary sidewalk rerouting within the section of line removal are expected with appropriate approval from the City of Lodi. Work near and across railroads will be coordinated with UPRR and CCT Company. PG&E's construction schedule is expected to be able to coordinate effectively to avoid rail use disruption. Span-by-span removal may be scheduled as needed. Installation of the western length of the new PG&E 230 kV line will be the final main activity near and across South Guild Avenue. With appropriate approval from the City of Lodi and UPRR, the conductor will be installed. No sidewalk, parking, or lane restrictions are anticipated beyond temporary public safety and traffic control associated with the 230 kV conductor stringing across South Guild Avenue. Project activities associated with PG&E 60 kV line reconfiguration across East Lodi Avenue and across East Pine Street will use traffic control to briefly stop traffic for less than approximately 5 minutes when existing overhead wire spanning the road are being removed. Pedestrian use will be rerouted temporarily to Beckman Avenue when the steel guy pole adjacent to the sidewalk near 1303 East Lodi Avenue is being removed.

Prior to construction, all traffic control and encroachment permits will be obtained, and traffic control will be implemented. For highway or high-traffic county roadway crossings, it may be necessary to control traffic during critical conductor stringing activities. Any road closures that must occur on private, city, or county roads are not expected to exceed approximately 5 minutes in duration. For the SR 12 and SR 88 crossings, CHP and Caltrans will be contacted to organize 5-minute rolling stops. Any necessary permits will be obtained from the affected agencies. No complete long-term road closures are expected, although one-way traffic controls and short-term road closures will be implemented to allow for certain construction activities and to maintain public safety as described in Section 5.17, Transportation.

The appropriate traffic control configuration will be set up and in place ahead of construction activities, and may include traffic control cones, candles, electronic signage boards, and temporary fixed roadway warning signs for construction personnel prior to reaching the work area in both directions and at egress/ingress to work areas, as well as appropriate barricades if a total road closure should be required. No complete long-term road closures are expected, although one-way traffic controls and short-term road closures will be implemented to allow for certain construction activities and to maintain public safety. PG&E will apply for a Special Traffic Permit from the City of Lodi. PG&E and LEU also will coordinate provisions for emergency vehicle and local access with the City, County, or other responsible entity.

3.5.8.3 Security

During the construction process, temporary and permanent fencing will be used to outline the station construction areas and staging areas. An approximately 6- to 8-foot-tall chain-link fence with up to an additional approximately 2 feet of barbed wire will be installed. Temporary lighting will be used throughout the construction length. All materials will be locked at night or when construction crews are not on the property. The project will use 24-hour surveillance by either security personnel or remote security during construction.

3.5.8.4 Livestock

Livestock fencing or guards are not anticipated to be necessary to prevent livestock from entering project areas. Project work areas or staging areas are not known to be located in areas occupied by livestock. During temporary construction easement discussions outside of the City of Lodi where land use may include livestock, PG&E would work with the landowner to discuss any livestock fencing requirements.

3.5.9 Dust, Erosion, and Runoff Controls

Construction ground-disturbing activities, including grading and vegetation clearing, have the potential to contribute to construction-related dust, erosion, and runoff. The project will obtain coverage under the State Water Resources Control Board (SWRCB) General Permit for Storm Water Discharges Associated with Construction Activity, Order No. 2009-0009-DWQ. Permit coverage will include developing and complying with a project SWPPP, prepared by each utility for its portion of the project. In conjunction with the SWPPPs, appropriate best practices will be developed for each activity that has the potential to degrade surrounding water quality through erosion, sediment runoff, and other pollutants. These best practices then will be implemented and monitored throughout construction of the project by a Qualified SWPPP Practitioner, likely for each utility.

3.5.9.1 Dust

During all phases of construction, appropriate measures will be taken to minimize the generation of fugitive dust. Water or other suitable dust suppressants will be applied to project access roads and work areas; stockpiled materials will be covered or otherwise stabilized as needed to control fugitive dust. Stockpiled soils will be compacted and sprayed daily with water to prevent dust. Water will be sprayed on an as-needed basis when noticeable dust particles are on unpaved roadways or substations yards. Use of an agriculturally compatible chemical dust suppressant will be encouraged to decrease the quantity of potable water needed for dust control.

3.5.9.2 Erosion and Runoff

A small, temporary stockpile of excavated soil may be located near a pole excavation to be used for backfill. Stockpiles will be located away or downgradient from waterways. Sediment and erosion control measures will be implemented to control erosion and minimize offsite sediment discharge.

Best practices will be used to control dust and minimize erosion potential. Best practices can include sediment controls, such as gravel bags, silt fences, and/or straw wattles. Stabilized construction access entrances will be established where necessary to minimize trackout of sediment onto paved roads in compliance with the project SWPPPs. Refer to Section 5.10, Hydrology and Water Quality.

The expanded PG&E Lockeford Substation, new PG&E Thurman Switching Station, modified LEU Industrial Substation, and new LEU Guild Substation are designed to maintain the existing drainage patterns and will include erosion control design measures for site stabilization. Drainage and erosion control design measures include erosion control blankets and riprap. Both the PG&E SWPPP and the LEU SWPPP will include measures to limit erosion and offsite transport of pollutants from construction activities. Each SWPPP will identify the measures that will be followed during construction to help stabilize disturbed

areas and reduce erosion, sedimentation, and pollutant transport. No dewatering is anticipated during construction.

The existing grade at the four station sites will maintain the existing drainage patterns during operation and include erosion control design measures for specific station site stabilization. This includes rocking and catch basins that either do not require modification to contain the site runoff (LEU Industrial Substation), will be modified to contain additional site runoff (PG&E Lockeford Substation), or are designed for the new stations (PG&E Thurman Switching Station and LEU Guild Substation).

3.5.10 Water Use and Dewatering

3.5.10.1 Water Use

Water trucks, typically with a capacity of up to approximately 3,000 gallons, will support project construction activities and dust suppression. As many as approximately three or four water trucks with an approximate 3,000-gallon capacity may be used daily for dust suppression during the peak periods of construction when ground disturbance may be occurring at 230 kV structure locations and PG&E and LEU stations. However, the total volume available within the trucks onsite is not expected to be used daily.

Water use will vary with type of activities (increased use when activity is ground disturbing) and other daily site conditions such as wind speed. Up to approximately 8,000 to 12,000 gallons of water may be needed daily for dust suppression during peak periods of construction. For example, LEU estimates that its LEU Guild Substation will require approximately 40,000 gallons of water (approximately 3 acre-feet). However, daily water use during the LEU construction period will vary based on the construction phase, but it is estimated that the average water use per day will be approximately 200 gallons over the course of the estimated total of approximately 7 months of construction with ground-disturbing activities.

Water required for construction may come from several sources, including a municipal water source, delivery by water supply vendor trucks, or Lodi Lake located on the north side of Lodi. Depending on availability and distance to active construction, supplemental project water needs may be met by using recycled water available through the City's newly upgraded wastewater treatment plant, as described in Section 5.19, Utilities and Service Systems. All the water sources described have adequate capacity to serve the project either independently or in combination.

3.5.10.2 Dewatering

Dewatering is not expected to be required. Groundwater encountered will be sampled and characterized prior to removal and discharge as described in Section 5.10, Hydrology and Water Quality; as appropriate, the water may be pumped into a containment vessel (for example, a Baker tank) and tested for parameters such as turbidity and pH or as otherwise required. As permitted, groundwater may be discharged to an upland location, or used for dust control. Otherwise, groundwater will be discharged to the appropriate City of Lodi or San Joaquin County stormwater or combined stormwater/sewer system, if approved, or trucked to an appropriate treatment and/or disposal facility (refer to Section 3.5.12.1).

3.5.11 Hazardous Materials and Management

3.5.11.1 Hazardous Materials

The project is not expected to use or store large quantities of hazardous materials, but fuel, grease, and fluids needed for equipment operation will be onsite periodically and handled in keeping with the project SWPPPs and APMs/BMPs that address the proper use, storage, and cleanup (if warranted). All hazardous materials will be used and stored as instructed by Safety Data Sheets (SDSs) that will be provided to onsite personnel in case of emergency. Hazardous waste will be transported per applicable regulations to an appropriate facility for disposal, as described in Section 5.9, Hazards and Hazardous Materials. Refer to Table 3.5-7 for estimated types, uses, and volumes of hazardous materials expected to be used by the

project equipment and vehicles during construction and operations and maintenance activities. Additionally, up to approximately 17,000 gallons of utility-grade, low-volatility mineral oil will be required for each of the two LEU Guild Substation transformers to operate.

Table 3.5-7. Types, Uses, and Approximate Volumes of Hazardous Materials

Utility	Hazardous Material	Use	Approximate Volume (gallons)
PG&E	Diesel	Engine fuel	280,915
LEU	Diesel	Engine fuel	98,640
PG&E	Gasoline	Engine fuel	22,051
LEU	Gasoline	Engine fuel	3,164
PG&E	Jet fuel	Helicopter Fuel	11,101
PG&E	Hydraulic Fluids/Lubricants	Engine and equipment lubrication and powering of hydraulic equipment	15,703
LEU	Hydraulic Fluids/Lubricants	Engine and equipment lubrication and powering of hydraulic equipment	5,090
PG&E	Other Construction Fluids (solvents)	Cleaning, lubricating hardware, etc.	785
LEU	Other Construction Fluids (solvents)	Cleaning, lubricating hardware, etc.	255

Notes:
Diesel and gasoline fuel volumes are from Appendix B1a and Appendix B1b.

Hydraulic fluids and lubricants volumes are anticipated to be 5% of total fuel volumes.

Other construction fluids volumes are anticipated to be 5% of hydraulic fluids and lubricants volumes.

3.5.11.2 Hazardous Materials Management

Based on the anticipated volume of dielectric/mineral oil in excess of 1,320 gallons to be used at LEU's Guild Substation, a Spill Prevention, Control, and Countermeasure (SPCC) Plan will be required in accordance with *Code of Federal Regulations* (CFR) Title 40, Parts 112.1 to 112.7, and it will address the project spill prevention and containment design measures and practices. LEU Guild Substation will be constructed with secondary containment design in accordance with SPCC requirements for oil containment in the event of a spill. A concrete secondary containment basin will provide mineral oil containment for the transformer and will be designed to allow sufficient freeboard to include the oil volume of the transformer plus the precipitation from a 25-year, 24-hour storm event. The secondary oil containment will be integrated in the proposed percolation-type retention basin. An oil/water separator structure will be used to separate spilled oil from the stormwater before the stormwater drains into the retention basin. The oil/water separator will be visually inspected periodically for any contamination. The oil would form a separate layer that then can be removed by skimmers, pumps, or another similar method. The effluent oil from the oil/water separator would be discharged to the sanitary sewer system.

During construction, petroleum-based products such as gasoline, diesel fuel, crankcase oil, lubricants, and cleaning solvents will be used to fuel, lubricate, and clean vehicles and equipment, and will be transported in specialty trucks or in other approved containers. When not in use, hazardous materials will be properly stored to prevent drainage or accidents.

Additionally, appropriate best practices will be implemented to minimize the effects of an accidental spill such as the presence of spill kits in active work areas to prevent materials from draining onto the ground or into drainage areas. Proper procedures describing hazardous material use, transport, storage, management, and disposal protocols will be identified and implemented in a Hazardous Materials and Waste Management Plan prior to the commencement of construction activities. An SPCC Plan will be required for LEU Guild Substation in accordance with federal regulations and will address the project spill prevention and containment design measures and practices.

3.5.12 Waste Generation and Management

3.5.12.1 Solid Waste

Construction debris will be picked up regularly from construction areas and stored in approved onsite containers; the debris will be hauled away for recycling or disposal periodically during construction. At construction staging areas, crews will gather and sort recyclable and salvageable materials into bins. When possible, various waste materials generated during construction will be recycled and salvaged. Salvageable items (such as useable conductor, steel, and hardware) will be taken to recycling facilities or sold through available markets. Some examples of items that may be recycled include damaged steel from pole assemblies, conductor segments, conductor reels, pallets, and broken hardware. The project also will generate minimal solid waste from the food, glass, paper, plastic, and packing materials consumed by the up to approximately 40 construction workers who will be onsite at peak construction periods. This general solid waste is estimated to be approximately 38 tons for PG&E's portion of the project and approximately 11 tons for LEU's portion of the project. Construction generated waste materials that cannot be reused or recycled (materials such as wood, soil, vegetation, and sanitation waste) will be taken to waste management facilities for disposal or potential composting of green waste; refer to Section 5.19, Utilities and Service Systems.

PG&E or LEU will use appropriately permitted receiving facilities, coordinate onsite management, and facilitate offsite disposal for solid waste generated by their respective portions of the project. Crews will conduct a final survey to document that cleanup activities have been successfully completed as required.

PG&E estimates that vegetation including trees removed for site preparation will generate approximately 3,550 yd^3 of agricultural and green waste. Vegetation is expected to be taken to a suitable facility such as North County Recycling Center and Sanitary Landfill (17720 East Harney Lane, Lodi, CA 95240), Foothill Sanitary Landfill (6484 North Waverly Road, Linden, CA 95236), or Lovelace Materials Recovery Facility and Transfer Station (2323 East Lovelace Road, Manteca, CA 95336).

Treated wood waste has the potential to be classified as hazardous waste if it contains elevated levels of arsenic, chromium, copper, pentachlorophenol, or creosote. Treated wood waste often can be identified visually by tags or markings on the wood, when cut staining is visible around the perimeter only, or by discoloration or odor. If encountered, such as with the removed or topped PG&E 60 kV poles, the treated wood waste will be managed in accordance with applicable California and federal regulations. PG&E will dispose of utility generated waste, including treated wood waste, under the Hazardous Waste Fee Health and Safety Code (CA HSC Chapter 6.5, Section 25143 et seq.). Under this exemption, the wood waste would be disposed of in a composite lined portion of a municipal solid waste landfill that meets requirements imposed by the state policy adopted pursuant to Section 13140 of the Water Code and regulations adopted pursuant to Sections 13172 and 13173 of the Water Code. Further, the solid waste landfill used for disposal is authorized to accept the wood waste under waste discharge requirements issued by the RWQCB pursuant to Division 7 (commencing with Section 13000) of the Water Code. PG&E expects treated wood waste will be taken to Forward Landfill (9999 South Austin Road, Manteca, CA 95336), Chemical Waste Management - Kettleman Hills (35251 Old Skyline Road, Kettleman City, CA 93239), or Buttonwillow Landfill (2500 West Lokern Road, Buttonwillow, CA 93206). Approximately 10 yd^3 of PG&E wood poles or pole tops are estimated to be removed and managed as treated wood waste.

Wood guard poles will either be reused or recycled. If a pole's condition does not allow reuse, the pole will be recycled or disposed of in an appropriate manner by PG&E. LEU's existing wood training poles on the LEU Guild Substation site are not treated wood and will not be managed as hazardous waste. Approximately 8 yd^3 of LEU wood training poles are estimated to be removed, and all are expected to be reused or recycled.

Construction debris including recyclables (metal poles, pole framing, fencing, and pavement), untreated wood, and clean soil will be taken to a licensed recycle facility such as North County Recycling Center and Sanitary Landfill, Foothill Sanitary Landfill, or Lovelace Materials Recovery Facility and Transfer Station.

LEU estimates that approximately 1,000 feet of 12 kV electrical conductor, and four sets of metal framing will be removed from the underbuild position on PG&E Lockeford-Industrial 60 kV. Approximately 1 yd^3 of pavement will be cut and removed by LEU for the HDD excavations for its feeder line relocation. The solid waste generated for disposal or recycling by LEU's relocation of its existing 12 kV feeder line is expected be approximately 1.5 yd^3. Approximately 8 yd^3 of pavement will be cut and removed by PG&E for the HDD excavations for its secondary service line extension. PG&E estimates that approximately 1 yd^3 of 60 kV conductor and guy wire will be recycled or reused by PG&E after being removed as part of the PG&E 60 kV reconfiguration. The metal framing removed from PG&E's 60 kV poles is expected to have 10% recycled (approximately 0.05 yd^3) and 90% (approximately 0.50 yd^3) disposed as construction waste. If PG&E removes the line tuners and wave trap equipment from PG&E Bellota, PG&E Brighton, and PG&E Rio Oso substations, approximately 34% (approximately 1.1 yd^3) is expected to be recycled or reused by PG&E and 66% (approximately 2.2 yd^3) disposed as construction waste.

Spoils that are not useable and/or are identified as contaminated through appearance will be tested to characterize before appropriate transportation to a licensed landfill facility. Grading is described in Section 3.5.4.6. PG&E estimates that all approximately 873 yd^3 of cut soil at PG&E Lockeford Substation will be reused onsite and none will be hauled offsite. Clean fill will be required for PG&E Thurman Switching Station and the cut volume of approximately 3,206 yd^3 hauled for disposal. LEU estimates approximately 28% will be reused onsite and approximately 2,550 yd^3 will be hauled for disposal. The approximately 400 feet of fence material (approximately 1.4 yd^3) removed from LEU Industrial Substation eastern perimeter fence will be recycled. The approximately 3,150 feet of fence material (approximately 11 yd^3) removed from PG&E Lockeford Substation perimeter fence will be recycled.

3.5.12.2 Liquid Waste

The dust control methods outlined previously will result in minor amounts of water waste that will follow existing drainage patterns. Hazardous liquid waste will be disposed of using the methods listed previously. Portable restroom facilities will generate minor amounts of liquid waste that will remain contained to the facilities until their removal during regular cleanings. It is anticipated that the majority of the drilling mud will be recycled by the drilling contractors and used on subsequent projects. Any excess clean drilling mud will be disposed of at an appropriate waste facility.

3.5.12.3 Hazardous Waste

There are no large volumes of known hazardous waste generated by or resulting from project construction. Minor volumes of hazardous waste will be disposed of using the methods described previously.

An asbestos survey will occur before the removal of the existing PG&E RO1 tower as part of the San Joaquin Valley Air Pollution Control District demolition notification. Known or assumed asbestos material will be tested and disposed as required by local regulations. Material from the tower (approximately 13 yd^3) is expected to be disposed as hazardous waste at Kettleman Hills Landfill or Buttonwillow Landfill.

If precharacterization has not occurred, the soil will be stockpiled separately onsite to be tested, managed, and transported for disposal as appropriate. If suspected hazardous substances or waste are unexpectedly encountered during trenching activities (using indicators such as sheen, odor, and/or soil discoloration), work will be stopped until the material is properly characterized and appropriate measures are taken to protect human health and the environment. Appropriate personal protective equipment will be used, and waste management will be performed in accordance with applicable regulations. If excavation of hazardous materials is required, the materials will be disposed of in accordance with applicable regulations.

3.5.13 Fire Prevention and Response

Fire prevention and response procedures during construction are expected to follow standard utility practices and no fire breaks are expected.

3.5.13.1 Fire Prevention and Response Procedures

PG&E and LEU will follow their respective construction fire prevention and response procedures during construction. Procedures are updated per regulation and best practice innovations. The procedures include fire prevention and suppression methods training and briefing for construction workers. A daily tailgate topic on fire prevention and response specific to the work area also will be presented. Procedures for minimizing potential ignition, including vegetation clearing, parking requirements/restrictions, idling restrictions, smoking restrictions, proper use of gas-powered equipment, use of spark arrestors, and hot work restrictions are included in worker training. Each utility has work restrictions during Red Flag Warnings and High to Extreme Fire Danger days as detailed in their respective wildfire mitigation plans (Refer to Section 5.20 Wildfire). During days with increased wildfire risk potential, procedures may include storage of fire suppression tools and backpack pumps with water within approximately 30 feet of work activities or larger water sources, including water storage tanks or water trucks that would be used in case of a fire. Additional procedures may include assigning personnel to conduct a “fire watch” or “fire patrol” to ensure that risk mitigation and fire preparedness measures are implemented, to report a fire immediately, and to coordinate with emergency response personnel in the event of a fire.

3.5.13.2 Fire Breaks

No fire breaks are expected to be needed. The PG&E and LEU project components within the main portion of the project, and at the four PG&E remote-end substations (Brighton, Bellota, Lodi, and Rio Oso), are not located in or near state responsibility areas (SRAs) and are not located on land classified as very high fire hazard severity zones (FHSZs). PG&E Clayton Hill Repeater Station is located within a high FHSZ and an SRA. PG&E project-related work will not be ground-disturbing within the paved and fenced facility and access to the repeater station along a paved road.

3.6 Construction Workforce, Equipment, Traffic, and Schedule

3.6.1 Construction Workforce

Overall, peak workforce is estimated to be up to approximately 66 workers per day during the peak months of construction (2027 Quarter 2), with work activities potentially occurring at PG&E Lockeford Substation, PG&E new 230 kV line structure locations, PG&E Thurman Switching Station, PG&E 12 kV service line extension, PG&E Clayton Hill Repeater Station, LEU Industrial Substation, and LEU Guild Substation. On a typical workday during 2027, as many as approximately 6 to 8 crews will be performing project activities. A typical daily workforce during the peak period of construction is expected to consist of approximately 3 to 18 workers per project activities. Approximately 22% of the workforce during the peak period is expected to be supporting LEU’s portion of the project and approximately 78% is expected to be supporting PG&E’s portion of the project. During PG&E transmission line work, crews typically will be working at adjacent or nearby poles. During PG&E transmission conductor stringing activities, approximately 18 construction crew members may be in the field, working at approximately two pull-and-tension sites, usually approximately 3.5 miles apart. On a typical peak workday with civil work complete, 4 to 10 construction crew members will be working at a station. Work at PG&E remote-end stations will have approximately two workers and, conservatively, the workers are included in the peak months total. Typically, approximately one or two truck drivers and approximately 3 to 4 inspectors and monitors are estimated as a daily average across all project components. Different phases of the construction process will require varying numbers of construction personnel.

The estimated equipment, duration of work, and personnel requirements by construction activity are presented in Table 3.6-1 and detailed in Appendix B1a and Appendix B1b. During structure installation, several crews may be working on various segments of line, and at the switching station and substations. Crews will be dispatched to PG&E 230 kV structure locations as ROWs are obtained. In keeping with landowner agreements, construction scheduling will be developed to minimize conflicts with planting, fertilizing, irrigating, and harvesting activities. Scheduling also may be affected by constraints related to bird nesting, agricultural operations, line clearances, weather, and other factors.

The approximate number of crew members for each activity (grading, equipment installation, and others) and number and types of equipment expected to be used for the activity are detailed in Table 3.6-1 with activity subheadings under each project component. In general, surveying (construction staking) is conducted typically by a crew of approximately 3 to 4 who use light trucks and survey equipment to locate and mark utilities and work area limits. Clearing, grading, access, and site preparation can be a crew of approximately 6 to 20 depending on the area and associated activities required (from potentially minimal blading and vegetation trimming to level a work area and avoid damaging landscaping trees along access roads to station grading followed by permanent paving and fence installation). With work areas and access established, crews of approximately 10 to 14 workers typically are using excavators and drill rigs to create a space to construct forms to pour concrete for foundations. After foundations are set, equipment installation usually involves a crew of approximately 6 to 10 per structure using cranes and forklifts. With equipment installed, crews then begin to install wires, which can require crews of approximately 4 to 10 on average per location. A helicopter will be used to pull a sock line at the start of conductor-stringing activity; otherwise, all work is ground based and typically involves cranes and forklifts. Work at PG&E's Clayton Hill Repeater Station will have two workers and will use a truck with a boom. When the PG&E 60 kV lines are reconfigured, a crew of approximately 9 is expected to remove, replace, or top the poles and lines mainly using line trucks with booms and drill rigs for new pole holes. Restoration and cleaning are conducted typically by a smaller crew of approximately 3 to 4 who uses trucks and potentially a blade to level or recontour surfaces. If the communication equipment is removed from PG&E remote-end substations instead of retired in place, a crew of approximately 6 workers would use cranes or manlifts and potentially a jack hammer or backhoe to remove the equipment and the top part of foundations. Otherwise system protection work at remote-end substations typically occurs in the control room and the two workers do not need construction equipment.

3.6.2 Construction Equipment

Table 3.6-1 lists the anticipated equipment and personnel to be used by construction activity. Not all equipment and personnel listed in Table 3.6-1 may be used during all portions of the activity. This is a preliminary equipment list, and other equipment may be identified when project design is finalized, or during construction if unexpected conditions require additional equipment.

Table 3.6-1. Anticipated Construction Equipment and Workforce

Equipment[4]	Approximate Estimated or Potential								
	Horsepower	Fuel Type	Quantity	Workforce	Start Date	End Date	Daily Use (Hours)	Miles/Day	Total Days
PG&E 230 kV Transmission Line									
General Construction									
Street Sweeper	NA	Diesel	1	1	Jul 2026	Dec 2027	NA	50	300
Jet A Fuel Truck	NA	Diesel	1	1	Mar 2027	Apr 2027	NA	50	50
Mobilization: Thurman and Lockeford yards				8					

Equipment[4]	Approximate Estimated or Potential								
	Horsepower	Fuel Type	Quantity	Workforce	Start Date	End Date	Daily Use (Hours)	Miles/Day	Total Days
10-Cu Dump Truck	NA	Diesel	2		Jul 2026	Jul 2026	NA	60	10
Water Truck	NA	Diesel	2		Jul 2026	Jul 2026	NA	60	10
Backhoe/Front Loader	97	Diesel	2		Jul 2026	Jul 2026	8	NA	10
Road Grader	187	Diesel	1		Jul 2026	Jul 2026	8	NA	10
Drum Type Compactor	8	Diesel	1		Jul 2026	Jul 2026	8	NA	10
10k lbs Forklift	89	Diesel	2		Jul 2026	Jul 2027	5	NA	150
30 Ton Crane	231	Diesel	2		Jul 2026	Jul 2027	5	NA	150
¾-Ton Pickup Truck, 4 × 4	NA	Diesel	2		Jul 2026	Jul 2026	NA	15	10
1-Ton Crew Cab Flatbed, 4 × 4	NA	Diesel	1		Jul 2026	Jul 2027	NA	15	300
Lowboy Truck/Trailer	NA	Diesel	1		Jul 2026	Jul 2026	NA	2	10
Worker Commutes	NA	Gas	8		Jul 2026	Jul 2027	NA	25	300
Survey (Construction Staking)				6					
Light-duty Truck	NA	Gas	2		Aug 2026	Aug 2026	NA	25	24
Worker Commutes	NA	Gas	6		Aug 2026	Aug 2026	NA	25	24
Soil Borings				3					
Light-duty Truck	300	Gas	1		Aug 2026	Aug 2026	NA	25	24
Construction Equipment	50	Diesel	1		Aug 2026	Aug 2026	8	NA	24
Worker Commutes	NA	Gas	3		Aug 2026	Aug 2026	NA	25	24
ROW Clearing				6					
10-Cu Dump Truck	NA	Diesel	1		Sep 2026	Sep 2026	NA	45	15
Backhoe/Front Loader	97	Diesel	1		Sep 2026	Sep 2026	8	NA	15
Road Grader	187	Diesel	1		Sep 2026	Sep 2026	5	NA	15
Boom Truck	231	Diesel	1		Sep 2026	Sep 2026	5	NA	15
¾-Ton Pickup Truck, 4 × 4	NA	Diesel	2		Sep 2026	Sep 2026	NA	30	15
Lowboy Truck/Trailer	NA	Diesel	1		Sep 2026	Sep 2026	NA	30	15
Worker Commutes	NA	Gas	6		Sep 2026	Sep 2026	NA	25	15
Roads and Access				6					
10-Cu Dump Truck	NA	Diesel	1		Sep 2026	Sep 2026	NA	45	15
Water Truck	NA	Diesel	1		Sep 2026	Sep 2026	NA	60	300
Backhoe/Front Loader	97	Diesel	1		Sep 2026	Sep 2026	8	NA	15
Road Grader	187	Diesel	1		Sep 2026	Sep 2026	5	NA	15
Drum Type Compactor	8	Diesel	1		Sep 2026	Sep 2026	5	NA	15
¾-Ton Pickup Truck, 4 × 4	NA	Diesel	2		Sep 2026	Sep 2026	NA	30	15
Lowboy Truck/Trailer	NA	Diesel	1		Sep 2026	Sep 2026	NA	30	15

Equipment[4]	Approximate Estimated or Potential								
	Horsepower	Fuel Type	Quantity	Workforce	Start Date	End Date	Daily Use (Hours)	Miles/Day	Total Days
Worker Commutes	NA	Gas	6		Sep 2026	Sep 2026	NA	25	15
Guard Structures (in parallel with any road improvements)				5					
Auger Truck	221		1		Sep 2026	Sep 2026	8	NA	25
Backhoe/Front Loader	97	Diesel	1		Sep 2026	Sep 2026	8	NA	25
boom truck	231	Diesel	1		Sep 2026	Sep 2026	8	NA	25
bucket truck	NA	Diesel	1		Sep 2026	Sep 2026	NA	1	25
¾-Ton Pickup Truck, 4 × 4	NA	Diesel	2		Sep 2026	Sep 2026	NA	20	25
Lowboy Truck/Trailer Pole Truck	NA	Diesel	1		Sep 2026	Sep 2026	NA	15	25
Worker Commutes	NA	Gas	5		Sep 2026	Sep 2026	NA	25	25
Foundations – Tangents (east to west)				7					
10-Cu Dump Truck	NA	Diesel	2		Oct 2026	Dec 2027	NA	50	60
Backhoe - Front Loader	97	Diesel	2		Oct 2026	Dec 2027	5	NA	60
Drill Rig/Auger Truck	221	Diesel	2		Oct 2026	Dec 2027	5	NA	60
Truck Cranes, 20 - 30 Ton	231	Diesel	2		Oct 2026	Dec 2027	5	NA	60
Truck - 40' flat trailer	NA	Diesel	2		Oct 2026	Dec 2027	NA	25	60
F250 4 x 4 Crewcab (3/4 T)	NA	Diesel	2		Oct 2026	Dec 2027	NA	25	60
10 Cu Concrete Mixer Truck	NA	Diesel	2		Oct 2026	Dec 2027	NA	25	60
¾-Ton Pickup Truck, 4 × 4	NA	Diesel	2		Oct 2026	Dec 2027	NA	25	60
Worker Commutes	NA	Gas	7		Oct 2026	Dec 2027	NA	25	60
Foundations – Dead Ends (east to west)				6					
10-Cu Dump Truck	NA	Diesel	1		Oct 2026	Dec 2027	NA	75	40
Backhoe - Front Loader	97	Diesel	2		Oct 2026	Dec 2027	5	NA	40
Drill Rig/Auger Truck	221	Diesel	2		Oct 2026	Dec 2027	5	NA	40
Truck Cranes, 20 - 30 Ton	231	Diesel	2		Oct 2026	Dec 2027	5	NA	40
Truck - 40' flat trailer	NA	Diesel	2		Oct 2026	Dec 2027	NA	25	40
F250 4 x 4 Crewcab (3/4 T)	NA	Diesel	2		Oct 2026	Dec 2027	NA	25	40
10 Cu Concrete Mixer Truck	NA	Diesel	2		Oct 2026	Dec 2027	NA	25	40
¾-Ton Pickup Truck, 4 × 4	NA	Diesel	2		Oct 2026	Dec 2027	NA	25	40
Worker Commutes	NA	Gas	6		Oct 2026	Dec 2027	NA	25	40
Structure Assembly - Tangents				7					
¾-Ton Pickup Truck, 4 × 4	NA	Diesel	2		Dec 2026	Dec 2027	NA	25	50
F250 4 x 4 Crewcab (3/4 T)	NA	Diesel	2		Dec 2026	Dec 2027	NA	25	50
Compressor Trailer	78	Diesel	2		Dec 2026	Dec 2027	5	NA	50
All Terrain Crane - 180 Ton	231	Diesel	2		Dec 2026	Dec 2027	5	NA	50

Equipment[4]	Approximate Estimated or Potential								
	Horsepower	Fuel Type	Quantity	Workforce	Start Date	End Date	Daily Use (Hours)	Miles/Day	Total Days
Truck - 40 'flat trailer	NA	Diesel	2		Dec 2026	Dec 2027	NA	25	50
Worker Commutes	NA	Gas	7		Dec 2026	Dec 2027	NA	25	50
Structure Assembly – Dead Ends				8					
¾-Ton Pickup Truck, 4 × 4	NA	Diesel	2		Dec 2026	Dec 2027	NA	25	50
F250 4 x 4 Crewcab (3/4 T)	NA	Diesel	2		Dec 2026	Dec 2027	NA	25	50
Compressor Trailer	78	Diesel	2		Dec 2026	Dec 2027	5	NA	50
All Terrain Crane - 180 Ton	231	Diesel	2		Dec 2026	Dec 2027	5	NA	50
Truck - 40 'flat trailer	NA	Diesel	2		Dec 2026	Dec 2027	NA	25	50
Worker Commutes	NA	Gas	8		Dec 2026	Dec 2027	NA	25	50
Conductor Installation, Clipping, Dead-Ending, Shield Wire & OPGW Installation, Splicing				18					
F250 4X4 Crewcab (3/4 T)	NA	Diesel	3		Mar 2027	Dec 2027	NA	25	100
reel trailer	NA	Diesel	2		Mar 2027	Dec 2027	NA	25	100
1 Ton Crew Cab Flat Bed	NA	Diesel	3		Mar 2027	Dec 2027	NA	25	100
30 Ton Manitex	231	Diesel	4		Mar 2027	Dec 2027	5	NA	100
22 Ton Manitex	231	Diesel	1		Mar 2027	Dec 2027	5	NA	100
20,000 lbs, Forklift	89	Diesel	2		Mar 2027	Dec 2027	5	NA	100
580 Case Backhoe	97	Diesel	2		Mar 2027	Dec 2027	5	NA	100
sock line puller	172	Diesel	2		Mar 2027	Dec 2027	5	NA	100
4 Drum rope Puller	172	Diesel	1		Mar 2027	Dec 2027	5	NA	100
60,000 lbs Puller	172	Diesel	2		Mar 2027	Dec 2027	5	NA	100
Sag Cat Winch	172	Jet Fuel	1		Mar 2027	Dec 2027	5	NA	100
D8 Cat	97	Diesel	1		Mar 2027	Dec 2027	5	NA	100
Hughes 500 Helicopter	Heli	Diesel	1		Mar 2027	Dec 2027	5	NA	50
Fuel Helicopter Support	NA	Diesel	1		Mar 2027	Dec 2027	NA	50	100
Low Boy Truck and Trailer	NA	Diesel	1		Mar 2027	Dec 2027	NA	25	100
Worker Commutes	NA	Gas	18		Mar 2027	Dec 2027	NA	25	100
Restoration and Removal of Guard Structures				4					
Light-duty Truck	NA	diesel	2		Aug 2027	Dec 2027	NA	25	15
Road Grader	187	diesel	1		Aug 2027	Dec 2027	6	NA	15
Backhoe and Trailer	97	diesel	1		Aug 2027	Dec 2027	6	NA	15
Inspectors (Civil, Foundation and Electrical)				3					
Material Haul Trucks (10 trucks, used first 60 days of projects)	NA	Gas	10		Jul 2026	Sep 2026	NA	75	60

Equipment[4]	Approximate Estimated or Potential								
	Horsepower	Fuel Type	Quantity	Workforce	Start Date	End Date	Daily Use (Hours)	Miles/Day	Total Days
Worker Commutes	NA	Gas	3		Jul 2027	Dec 2027	NA	75	150
PG&E Lockeford Substation									
General Construction Notice to Proceed by CPUC				10					
Water Truck	NA	Diesel	1		Aug 2026	Jul 2028	NA	50	450
Street Sweeper	NA	Diesel	1		Aug 2026	Jul 2028	NA	50	450
Phase 1a: Civil Site Preparation				10					
Pick-up Truck	NA	Diesel	3		Sep 2026	Oct 2026	NA	25	20
1-Ton Truck	NA	Diesel	2		Sep 2026	Oct 2026	NA	25	20
Office Trailer	84	Diesel	1		Sep 2026	Oct 2026	8	NA	20
Crawler Backhoe	97	Diesel	2		Sep 2026	Oct 2026	8	NA	20
Bulldozer	247	Diesel	2		Sep 2026	Oct 2026	8	NA	20
Front Loader	97	Diesel	2		Sep 2026	Oct 2026	8	NA	20
Dump Truck	NA	Diesel	6		Sep 2026	Oct 2026	NA	90	20
Compactor / Roller	80	Diesel	4		Sep 2026	Oct 2026	4	NA	20
Air Compressor	78	Diesel	2		Sep 2026	Oct 2026	4	NA	20
Flat Bed Truck	NA	Diesel	3		Sep 2026	Oct 2026	NA	150	2
Worker Commutes	NA	Gas	10		Sep 2026	Oct 2026	NA	25	20
Phase 1a: Exterior Fence, Final Grading, and Paving				10					
Concrete Truck	NA	Diesel	80		Sep 2026	Oct 2026	NA	90	20
Pick-up Truck	NA	Diesel	3		Sep 2026	Oct 2026	NA	25	20
1-Ton Truck	NA	Diesel	2		Sep 2026	Oct 2026	NA	25	20
Office Trailer	84	Diesel	1		Sep 2026	Oct 2026	8	NA	20
Crawler Backhoe	97	Diesel	2		Sep 2026	Oct 2026	8	NA	20
Bulldozer	247	Diesel	2		Sep 2026	Oct 2026	8	NA	20
Front Loader	97	Diesel	2		Sep 2026	Oct 2026	8	NA	20
Dump Truck	NA	Diesel	6		Sep 2026	Oct 2026	NA	90	20
Compactor / Roller	80	Diesel	4		Sep 2026	Oct 2026	4	NA	20
Air Compressor	78	Diesel	2		Sep 2026	Oct 2026	4	NA	2
Flat Bed Truck	NA	Diesel	3		Sep 2026	Oct 2026	NA	150	20
Grader	187	Diesel	2		Sep 2026	Oct 2026	8	NA	20
Worker Commutes	NA	Gas	10		Sep 2026	Oct 2026	NA	25	20
Phase 1b: Foundations, Excavation, and Installation				10					
Pick-up Truck	NA	Diesel	3		Oct 2026	Dec 2026	NA	25	40

Equipment[4]	Approximate Estimated or Potential								
	Horsepower	Fuel Type	Quantity	Workforce	Start Date	End Date	Daily Use (Hours)	Miles/Day	Total Days
1-Ton Truck	NA	Diesel	2		Oct 2026	Dec 2026	NA	25	40
Office Trailer	84	Diesel	1		Oct 2026	Dec 2026	8	NA	40
22 Ton Crane	231	Diesel	1		Oct 2026	Dec 2026	8	NA	40
Concrete Truck	NA	Diesel	80		Oct 2026	Dec 2026	NA	90	40
Front Loader	97	Diesel	1		Oct 2026	Dec 2026	8	NA	40
Dump Truck	NA	Diesel	1		Oct 2026	Dec 2026	NA	90	40
Compactor	8	Diesel	2		Oct 2026	Dec 2026	4	NA	40
Air Compressor	78	Diesel	2		Oct 2026	Dec 2026	4	NA	40
Forklift	89	Diesel	1		Oct 2026	Dec 2026	4	NA	40
Foundation Drill Rig	221	Diesel	1		Oct 2026	Dec 2026	8	NA	40
Flat Bed Truck	NA	Diesel	3		Oct 2026	Dec 2026	NA	150	2
Worker Commutes	NA	Gas	10		Oct 2026	Dec 2026	NA	25	40
Phase 1: Structure Delivery and Setup				12					
Flat Bed Truck	NA	Diesel	12		Sep 2026	Sep 2026	NA	150	4
Phase 2: Equipment Installation				10					
Pick-up Truck	NA	Diesel	3		Dec 2026	Mar 2027	NA	25	150
1-Ton Truck	NA	Diesel	2		Dec 2026	Mar 2027	NA	25	150
Office Trailer	84	Diesel	1		Dec 2026	Mar 2027	8	NA	150
30 Ton Crane	231	Diesel	1		Dec 2026	Mar 2027	4	NA	150
Front Loader	97	Diesel	2		Dec 2026	Mar 2027	4	NA	150
80' Aerial Lifts	63	Diesel	2		Dec 2026	Mar 2027	4	NA	150
40' Aerial Lifts	63	Diesel	2		Dec 2026	Mar 2027	4	NA	150
Dump Truck	NA	Diesel	1		Dec 2026	Mar 2027	NA	90	150
Compactor	8	Diesel	2		Dec 2026	Mar 2027	4	NA	150
Air Compressor	78	Diesel	2		Dec 2026	Mar 2027	4	NA	150
Forklift	89	Diesel	2		Dec 2026	Mar 2027	4	NA	150
Flat Bed Truck	NA	Diesel	3		Dec 2026	Mar 2027	NA	150	2
Worker Commutes	NA	Gas	10		Dec 2026	Mar 2027	NA	25	150
Phase 3: Dress/Test/Wire Equipment				10					
Rigging Truck	NA	Diesel	2		Mar 2027	Aug 2027	NA	25	40
Forklift	89	Diesel	2		Mar 2027	Aug 2027	8	NA	40
Manlift	63	Diesel	2		Mar 2027	Aug 2027	8	NA	40
Boom Truck	231	Diesel	2		Mar 2027	Aug 2027	8	NA	40
1-Ton Truck	NA	Diesel	2		Mar 2027	Aug 2027	NA	25	40

Equipment[4]	Approximate Estimated or Potential								
	Horsepower	Fuel Type	Quantity	Workforce	Start Date	End Date	Daily Use (Hours)	Miles/Day	Total Days
Pick-up Truck	NA	Diesel	3		Mar 2027	Aug 2027	NA	25	40
Office Trailer	84	Diesel	1		Mar 2027	Aug 2027	8	NA	40
Flat Bed Truck	NA	Diesel	3		Mar 2027	Aug 2027	NA	150	2
Dump Truck	NA	Diesel	1		Mar 2027	Aug 2027	NA	90	20
Air Compressor	78	Diesel	2		Mar 2027	Aug 2027	4	NA	40
Worker Commutes	NA	Gas	10		Mar 2027	Aug 2027	NA	25	40
Phase 3: Cleaning and Landscaping				4					
Flat Bed Truck	NA	Diesel	1		Sep 2027	Oct 2027	NA	150	2
Pick-up Truck	NA	Diesel	1		Sep 2027	Oct 2027	NA	25	5
1-Ton Truck	NA	Diesel	1		Sep 2027	Oct 2027	NA	25	5
Small Backhoe	97	Diesel	1		Sep 2027	Oct 2027	8	NA	5
Dump Truck	NA	Diesel	1		Sep 2027	Oct 2027	NA	90	5
Worker Commutes	NA	Gas	4		Sep 2027	Oct 2027	NA	25	5
Phase 4A-4C: Rebuild Existing Substation.				10					
Rigging Truck	NA	Diesel	2		Feb 2028	Mar 2028	NA	25	40
Forklift	89	Diesel	2		Feb 2028	Mar 2028	8	NA	40
Manlift	63	Diesel	2		Feb 2028	Mar 2028	8	NA	40
Boom Truck	231	Diesel	2		Feb 2028	Mar 2028	8	NA	40
1-Ton Truck	NA	Diesel	2		Feb 2028	Mar 2028	NA	25	40
Pick-up Truck	NA	Diesel	3		Feb 2028	Mar 2028	NA	25	40
Office Trailer	84	--	1		Feb 2028	Mar 2028	8	NA	40
Flat Bed Truck	NA	Diesel	3		Feb 2028	Mar 2028	NA	150	2
Dump Truck	NA	Diesel	1		Feb 2028	Mar 2028	NA	90	20
Air Compressor	78	Diesel	2		Feb 2028	Mar 2028	4	NA	40
Worker Commutes	NA	Gas	10		Feb 2028	Mar 2028	NA	25	40
Phase 4D - 4F: Rebuild Existing Substation				10					
Rigging Truck	NA	Diesel	2		Apr 2028	Nov 2028	NA	25	171
Manlift	63	Diesel	2		Apr 2028	Nov 2028	4	NA	171
Boom Truck	231	Diesel	2		Apr 2028	Nov 2028	4	NA	171
1-Ton Truck	NA	Diesel	2		Apr 2028	Nov 2028	NA	25	171
Pick-up Truck	NA	Diesel	3		Apr 2028	Nov 2028	NA	25	171
Office Trailer	84	Diesel	1		Apr 2028	Nov 2028	8	NA	171
Flat Bed Truck	NA	Diesel	3		Apr 2028	Nov 2028	NA	150	2
Dump Truck	NA	Diesel	1		Apr 2028	Nov 2028	NA	90	171

Equipment[4]	Approximate Estimated or Potential								
	Horsepower	Fuel Type	Quantity	Workforce	Start Date	End Date	Daily Use (Hours)	Miles/Day	Total Days
Air Compressor	78	Diesel	2		Apr 2028	Nov 2028	4	NA	171
Worker Commutes	NA	Gas	10		Apr 2028	Nov 2028	NA	25	171
Phase 5A -5C: Rebuild existing Substation				10					
Rigging Truck	NA	Diesel	2		Dec 2028	Apr 2029	NA	25	111
Forklift Manlift	63	Diesel	2		Dec 2028	Apr 2029	4	NA	111
Boom Truck	231	Diesel	2		Dec 2028	Apr 2029	4	NA	111
1-Ton Truck	NA	Diesel	2		Dec 2028	Apr 2029	4	NA	111
Pick-up Truck	NA	Diesel	3		Dec 2028	Apr 2029	NA	25	111
Office Trailer	84	Diesel	1		Dec 2028	Apr 2029	NA	25	111
Flat Bed Truck	NA	Diesel	3		Dec 2028	Apr 2029	4	NA	2
Dump Truck	NA	Diesel	1		Dec 2028	Apr 2029	NA	150	111
Air Compressor	78	Diesel	2		Dec 2028	Apr 2029	NA	90	111
Worker Commutes	NA	Gas	10		Dec 2028	Apr 2029	4	NA	111
Final Cleaning and Landscaping				4					
Flat Bed Truck	NA	Diesel	1		Apr 2029	Apr 2029	NA	150	2
Pick-up Truck	NA	Diesel	1		Apr 2029	Apr 2029	NA	25	5
1-Ton Truck	NA	Diesel	1		Apr 2029	Apr 2029	NA	25	5
Small Backhoe	97	Diesel	1		Apr 2029	Apr 2029	8	NA	5
Dump Truck	NA	Diesel	1		Apr 2029	Apr 2029	NA	90	5
Worker Commutes	NA	Gas	4		Apr 2029	Apr 2029	NA	25	5
Other				2					
Inspectors	NA	Diesel	1		Nov 2026	Apr 2029	NA	25	450
Material Haul Trucks	NA	Diesel	27		Sep 2026	Sep 2026	NA	150	2
PG&E 12 kV Service Line Extension into PG&E Thurman Switching Station									
General Construction				8					
Pick-up Truck	NA	Diesel	2		Jun 2027	Jul 2027	NA	25	20
Safety Inspection	NA	Diesel	1		Jun 2027	Jul 2027	NA	50	20
Worker Commutes	NA	Diesel	2		Jun 2027	Jul 2027	NA	25	20
Street Sweeper	NA	Diesel	1		Jun 2027	Jul 2027	NA	50	20
Mobilization to PG&E Thurman Switching Station Yard or Staging Area									
Direction Drill Machine -HDD	221	Diesel	1		Jun 2027	Jul 2027	8	NA	15
Vacuum Truck- Pump Intake	84	Diesel	1		Jun 2027	Jul 2027	8	NA	15
2 Stationary Pumps	84	Diesel	2		Jun 2027	Jul 2027	8	NA	15

Equipment[4]	Approximate Estimated or Potential								
	Horsepower	Fuel Type	Quantity	Workforce	Start Date	End Date	Daily Use (Hours)	Miles/Day	Total Days
10-Cu Asphalt/Concrete Truck	NA	Diesel	1		Jun 2027	Jul 2027	NA	60	2
10-Cu Dump Truck	NA	Diesel	1		Jun 2027	Jul 2027	NA	60	15
Water Truck	NA	Diesel	1		Jun 2027	Jul 2027	NA	60	15
Excavator/Ditch Witch	158	Diesel	1		Jun 2027	Jul 2027	8	NA	15
Backhoe/Front Loader	97	Diesel	2		Jun 2027	Jul 2027	8	NA	10
Road Grader	187	Diesel	1		Jun 2027	Jul 2027	8	NA	10
Drum Type Compactor	8	Diesel	1		Jun 2027	Jul 2027	8	NA	5
10-ton forklift	89	Diesel	1		Jun 2027	Jul 2027	5	NA	5
30 Ton Crane	231	Diesel	1		Jun 2027	Jul 2027	5	NA	5
Boom truck	231	Diesel	1		Jun 2027	Jul 2027	8	NA	5
Cable puller Truck, 4 × 4	NA	Diesel	1		Jun 2027	Jul 2027	NA	15	20
1-Ton Crew Cab Flatbed, 4 × 4	NA	Diesel	2		Jun 2027	Jul 2027	NA	15	20
Lowboy Truck/Trailer	NA	Diesel	1		Jun 2027	Jul 2027	NA	2	10
Worker Commutes	NA	Gas	8		Jun 2027	Jul 2027	NA	25	20
PG&E Remote-End Substations									
System Work at Brighton Substation				2					
Mechanics Truck	NA	Diesel	2		Oct 2027	Dec 2027	NA	25	30
Worker Commutes	NA	Diesel	2		Oct 2027	Dec 2027	NA	25	30
General Construction at Brighton Substation				2					
¾-Ton Pick-up Truck	NA	4			Aug 2028	Feb 2029	NA	20	5
1-Ton Truck	NA	1			Aug 2028	Feb 2029	NA	20	5
Manlift	63	1			Aug 2028	Feb 2029	5	NA	5
Dump Truck	NA	1			Aug 2028	Feb 2029	NA	6	5
Boom Truck	231	1			Aug 2028	Feb 2029	6	NA	5
Jack Hammer	172	1			Aug 2028	Feb 2029	6	NA	5
Small Backhoe	97	1			Aug 2028	Feb 2029	5	NA	5
Worker Commutes	NA	2			Aug 2028	Feb 2029	NA	25	30
System Work at Rio Oso Substation				2					
Mechanics Truck	NA	Diesel	2		Nov 2027	Jan 2028	NA	25	30
Worker Commutes	NA	Diesel	2		Nov 2027	Jan 2028	NA	25	30
General Construction at Rio Oso Substation				2					
¾-Ton Pick-up Truck	NA	4			Aug 2028	Feb 2029	NA	20	5
1-Ton Truck	NA	1			Aug 2028	Feb 2029	NA	20	5

Equipment[4]	Approximate Estimated or Potential								
	Horsepower	Fuel Type	Quantity	Workforce	Start Date	End Date	Daily Use (Hours)	Miles/Day	Total Days
Manlift	63	1			Aug 2028	Feb 2029	5	NA	5
Dump Truck	NA	1			Aug 2028	Feb 2029	NA	6	5
Boom Truck	231	1			Aug 2028	Feb 2029	6	NA	5
Jack Hammer	172	1			Aug 2028	Feb 2029	6	NA	5
Small Backhoe	97	1			Aug 2028	Feb 2029	5	NA	5
Worker Commutes	NA	2			Aug 2028	Feb 2029	NA	25	30
System Work at Bellota Substation				2					
Mechanics Truck	NA	Diesel	2		Nov 2027	Jan 2028	NA	25	30
Worker Commutes	NA	Diesel	2		Nov 2027	Jan 2028	NA	25	30
General Construction at Bellota Substation				6					
¾-Ton Pick-up Truck	NA	4			Aug 2028	Feb 2029	NA	20	5
1-Ton Truck	NA	1			Aug 2028	Feb 2029	NA	20	5
Manlift	63	1			Aug 2028	Feb 2029	5	NA	5
Dump Truck	NA	1			Aug 2028	Feb 2029	NA	6	5
Boom Truck	231	1			Aug 2028	Feb 2029	6	NA	5
Jack Hammer	172	1			Aug 2028	Feb 2029	6	NA	5
Small Backhoe	97	1			Aug 2028	Feb 2029	5	NA	5
Worker Commutes	NA	2			Aug 2028	Feb 2029	NA	25	30
PG&E Clayton Hill Repeater Station – South Tower									
General Construction at Clayton Hill				2					
Mechanics Truck	NA	Diesel	2		Jun 2027	Aug 2027	NA	25	30
Worker Commutes	NA	Diesel	2		Jun 2027	Aug 2027	NA	25	30
PG&E Thurman Switching Station									
General Construction									
Water Truck	NA	Diesel	1		Nov 2026	Aug 2027	NA	50	85
Street Sweeper	NA	Diesel	1		Nov 2026	Aug 2027	NA	50	50
Civil Site Preparation				10					
Pick-up Truck	NA	Diesel	3		Dec 2026	Dec 2026	NA	25	20
1-Ton Truck	NA	Diesel	2		Dec 2026	Dec 2026	NA	25	20
Office Trailer	84	Diesel	1		Dec 2026	Dec 2026	8	NA	20
Crawler Backhoe	97	Diesel	2		Dec 2026	Dec 2026	8	NA	20
Bulldozer	247	Diesel	2		Dec 2026	Dec 2026	8	NA	20
Front Loader	97	Diesel	2		Dec 2026	Dec 2026	8	NA	20

Equipment[4]	Approximate Estimated or Potential								
	Horsepower	Fuel Type	Quantity	Workforce	Start Date	End Date	Daily Use (Hours)	Miles/Day	Total Days
Dump Truck	NA	Diesel	6		Dec 2026	Dec 2026	NA	90	20
Compactor / Roller	80	Diesel	4		Dec 2026	Dec 2026	8	NA	20
Air Compressor	78	Diesel	2		Dec 2026	Dec 2026	4	NA	20
Flat Bed Truck	NA	Diesel	3		Dec 2026	Dec 2026	NA	150	2
Worker Commutes	NA	Gas	10		Dec 2026	Dec 2026	NA	25	20
Foundations, Excavation, and Installation				10					
Pick-up Truck	NA	Diesel	3		Jan 2027	Feb 2027	NA	25	40
1-Ton Truck	NA	Diesel	2		Jan 2027	Feb 2027	NA	25	40
Office Trailer	84	-	1		Jan 2027	Feb 2027	8	NA	40
22 Ton Crane	231	Diesel	1		Jan 2027	Feb 2027	8	NA	30
Concrete Truck	NA	Diesel	80		Jan 2027	Feb 2027	NA	90	30
Front Loader	97	Diesel	1		Jan 2027	Feb 2027	8	NA	40
Dump Truck	NA	Diesel	1		Jan 2027	Feb 2027	NA	90	40
Compactor	8	Diesel	2		Jan 2027	Feb 2027	8	NA	40
Air Compressor	78	Diesel	2		Jan 2027	Feb 2027	4	NA	40
Forklift	89	Diesel	1		Jan 2027	Feb 2027	8	NA	40
Foundation Drill Rig	221	Diesel	1		Jan 2027	Feb 2027	8	NA	40
Flat Bed Truck	NA	Diesel	3		Jan 2027	Feb 2027	NA	150	2
Worker Commutes	NA	Gas	10		Jan 2027	Feb 2027	NA	25	40
Structure Delivery and Setup									
Flat Bed Truck	NA	Diesel	10		Mar 2027	Mar 2027	NA	150	2
Equipment Installation				10					
Pick-up Truck	NA	Diesel	3		Apr 2027	Jun 2027	NA	25	60
1-Ton Truck	NA	Diesel	2		Apr 2027	Jun 2027	NA	25	60
Office Trailer	84	-	1		Apr 2027	Jun 2027	8	NA	60
30 Ton Crane	231	Diesel	1		Apr 2027	Jun 2027	4	NA	60
Front Loader	97	Diesel	2		Apr 2027	Jun 2027	4	NA	60
80' Aerial Lifts	63	Diesel	2		Apr 2027	Jun 2027	4	NA	60
40' Aerial Lifts	63	Diesel	2		Apr 2027	Jun 2027	4	NA	60
Dump Truck	NA	Diesel	1		Apr 2027	Jun 2027	NA	90	60
Compactor	8	Diesel	2		Apr 2027	Jun 2027	4	NA	40
Air Compressor	78	Diesel	2		Apr 2027	Jun 2027	4	NA	60
Forklift	89	Diesel	2		Apr 2027	Jun 2027	4	NA	60
Flat Bed Truck	NA	Diesel	3		Apr 2027	Jun 2027	NA	150	2

Equipment[4]	Approximate Estimated or Potential								
	Horsepower	Fuel Type	Quantity	Workforce	Start Date	End Date	Daily Use (Hours)	Miles/Day	Total Days
Worker Commutes	NA	Gas	10		Apr 2027	Jun 2027	NA	25	60
Dress/Test/Wire Equipment				10					
Rigging Truck	NA	Diesel	2		Jul 2027	Aug 2027	NA	25	10
Forklift	89	Diesel	2		Jul 2027	Aug 2027	8	NA	40
Manlift	63	Diesel	2		Jul 2027	Aug 2027	8	NA	40
Boom Truck	231	Diesel	2		Jul 2027	Aug 2027	8	NA	40
1-Ton Truck	NA	Diesel	2		Jul 2027	Aug 2027	NA	25	40
Pick-up Truck	NA	Diesel	3		Jul 2027	Aug 2027	NA	25	40
Office Trailer	84	-	1		Jul 2027	Aug 2027	8	NA	40
Dump Truck	NA	Diesel	3		Jul 2027	Aug 2027	NA	90	10
Air Compressor	78	Diesel	1		Jul 2027	Aug 2027	4	NA	20
Worker Commutes	NA	Gas	10		Jul 2027	Aug 2027	NA	25	40
Exterior Walls, Final Grading, and Paving				10					
Concrete Truck	NA	Diesel	100		Sep 2027	Sep 2027	NA	90	20
Pickup Truck	NA	Diesel	3		Sep 2027	Sep 2027	NA	25	20
1-Ton Truck	NA	Diesel	2		Sep 2027	Sep 2027	NA	25	20
Office Trailer	84	-	1		Sep 2027	Sep 2027	8	NA	20
Crawler Backhoe	247	Diesel	2		Sep 2027	Sep 2027	8	NA	20
Bulldozer	97	Diesel	2		Sep 2027	Sep 2027	8	NA	20
Front Loader	NA	Diesel	2		Sep 2027	Sep 2027	NA	90	20
Dump Truck	80	Diesel	6		Sep 2027	Sep 2027	8	NA	20
Compactor/Roller	78	Diesel	4		Sep 2027	Sep 2027	4	NA	20
Air Compressor	NA	Diesel	2		Sep 2027	Sep 2027	NA	150	20
Flat Bed Truck	187	Diesel	3		Sep 2027	Sep 2027	8	NA	2
Grader	NA	Diesel	2		Sep 2027	Sep 2027	NA	25	20
Worker Commutes	NA	Gas	10		Sep 2027	Sep 2027	NA	90	20
Cleaning and Landscaping				4					
Flat Bed Truck	NA	Diesel	3		Sep 2027	Sep 2027	NA	150	2
Pick-up Truck	NA	Diesel	1		Sep 2027	Sep 2027	NA	25	5
1-Ton Truck	NA	Diesel	1		Sep 2027	Sep 2027	NA	25	5
Small Backhoe	97	Diesel	1		Sep 2027	Sep 2027	8	NA	5
Dump Truck	NA	Diesel	1		Sep 2027	Sep 2027	NA	90	5
Worker Commutes	NA	Gas	4		Sep 2027	Sep 2027	NA	25	5
Other									

Equipment[4]	Approximate Estimated or Potential								
	Horsepower	Fuel Type	Quantity	Workforce	Start Date	End Date	Daily Use (Hours)	Miles/Day	Total Days
Material Haul Trucks	NA	Diesel	25		Sep 2027	Sep 2027	NA	150	2
Inspector Vehicles	NA	Diesel	1		Nov 2026	Sep 2027	NA	25	180
PG&E Microwave Tower Construction at PG&E Thurman Switching Station									
General Construction (includes the approximate 10 workers for Tower and Equipment Installations)									
Mechanics Truck	NA	Diesel	1		Apr 2027	July 2027	NA	25	80
Worker Commutes	NA	Gas	10		Apr 2027	July 2027	NA	25	80
Tower Foundation Installation				6					
Pick-up Truck	NA	Diesel	2		Apr 2027	Apr 2027	NA	25	20
1-Ton Truck	NA	Diesel	1		Apr 2027	Apr 2027	NA	25	20
Office Trailer	84	--	1		Apr 2027	Apr 2027	8	NA	20
22 Ton Crane	231	Diesel	1		Apr 2027	Apr 2027	8	NA	20
Concrete Truck	NA	Diesel	1		Apr 2027	Apr 2027	NA	90	20
Front Loader	97	Diesel	16		Apr 2027	Apr 2027	8	NA	20
Dump Truck	NA	Diesel	1		Apr 2027	Apr 2027	NA	90	20
Compactor	8	Diesel	1		Apr 2027	Apr 2027	8	NA	20
Air Compressor	78	Diesel	1		Apr 2027	Apr 2027	4	NA	20
Forklift	89	Diesel	1		Apr 2027	Apr 2027	8	NA	20
Foundation Drill Rig	221	Diesel	1		Apr 2027	Apr 2027	8	NA	20
Flat Bed Truck	NA	Diesel	1		Apr 2027	Apr 2027	NA	150	2
Structure Delivery and Setup									
Flat Bed Truck	NA	Diesel	4		Apr 2027	Apr 2027	NA	150	2
Tower Installation									
Pick-up Truck	NA	Diesel	3		May 2027	May 2027	NA	25	20
1-Ton Truck	NA	Diesel	2		May 2027	May 2027	NA	25	20
Office Trailer	84	-	1		May 2027	May 2027	8	NA	20
30 Ton Crane	231	Diesel	1		May 2027	May 2027	8	NA	20
Front Loader	97	Diesel	1		May 2027	May 2027	8	NA	20
120' Aerial Lifts	63	Diesel	1		May 2027	May 2027	8	NA	20
Dump Truck	NA	Diesel	1		May 2027	May 2027	NA	90	20
Air Compressor	78	Diesel	1		May 2027	May 2027	4	NA	20
Forklift	89	Diesel	2		May 2027	May 2027	8	NA	20
Flat Bed Truck	NA	Diesel	1		May 2027	May 2027	NA	150	2
Communication Equipment Installation & Testing									60

Equipment[4]	Approximate Estimated or Potential								
	Horsepower	Fuel Type	Quantity	Workforce	Start Date	End Date	Daily Use (Hours)	Miles/Day	Total Days
Rigging Truck	NA	Diesel	1		Jun 2027	Jul 2027	NA	25	40
Manlift	63	Diesel	1		Jun 2027	Jul 2027	8	NA	40
Boom Truck	231	Diesel	1		Jun 2027	Jul 2027	8	NA	40
1-Ton Truck	NA	Diesel	2		Jun 2027	Jul 2027	NA	25	40
Pick-up Truck	NA	Diesel	3		Jun 2027	Jul 2027	NA	25	40
Office Trailer	84	-	1		Jun 2027	Jul 2027	8	NA	40
Dump Truck	NA	Diesel	1		Jun 2027	Jul 2027	NA	90	2
Air Compressor	78	Diesel	1		Jun 2027	Jul 2027	8	NA	20
Cleaning and Landscaping				4					
Flat Bed Truck	NA	Diesel	1		Jul 2027	Jul 2027	NA	150	2
Pick-up Truck	NA	Diesel	1		Jul 2027	Jul 2027	NA	25	5
1-Ton Truck	NA	Diesel	1		Jul 2027	Jul 2027	NA	25	5
Small Backhoe	97	Diesel	1		Jul 2027	Jul 2027	8	NA	5
Dump Truck	NA	Diesel	1		Jul 2027	Jul 2027	NA	90	5
Worker Commutes	NA	Gas	4		Jul 2027	Jul 2027	NA	25	5
Other									
Material Haul Trucks	NA	Diesel	2		Apr 2027	Apr 2027	NA	150	2
Inspector Vehicles	NA	Diesel	2		Apr 2027	Jul 2027	NA	150	20
LEU 12 kV Feeder Line -Relocation to Underground									
12 kV Feeder Circuit Installation				6					
Pickup Truck with Trailer	275	Diesel	2		Mar 2027	Mar 2027	8	20	10
Trencher	78	Diesel	1		Mar 2027	Mar 2027	8	NA	10
Horizontal Directional Driller	221	Diesel	1		Mar 2027	Mar 2027	8	NA	10
Worker Commutes	NA	Gas	6		Mar 2027	Mar 2027	NA	11	10
LEU Guild Substation - 230/60 kV Substation and LEU Industrial Substation Modification									
Survey				4					
½-Ton Pickup Truck, 4 x 4	275	Diesel	2		Feb 2027	Feb 2027	6	NA	30
Worker Commutes	NA	Gas	4		Feb 2027	Feb 2027	NA	10.8	30
Access Roads				6					
1-Ton Crew Cab Flat Bed, 4 x 4	275	Diesel	2		Mar 2027	Mar 2027	6	NA	30
Dump Truck	275	Diesel	1		Mar 2027	Mar 2027	6	NA	30
Skip Loader	203	Diesel	2		Mar 2027	Mar 2027	6	NA	30
Water Truck	275	Diesel	1		Mar 2027	Mar 2027	6	NA	30

Equipment[4]	Approximate Estimated or Potential								
	Horsepower	Fuel Type	Quantity	Workforce	Start Date	End Date	Daily Use (Hours)	Miles/Day	Total Days
Worker Commutes	NA	Gas	6		Mar 2027	Mar 2027	NA	10.8	30
Site Work Area Preparation				6					
Water Truck	275	Diesel	2		Mar 2027	Mar 2027	6	NA	60
Bulldozer	247	Diesel	1		Mar 2027	Mar 2027	6	NA	60
Articulating Dump Truck	275	Diesel	4		Mar 2027	Mar 2027	6	NA	60
Scraper	367	Diesel	1		Mar 2027	Mar 2027	6	NA	60
Roller	80	Diesel	2		Mar 2027	Mar 2027	6	NA	60
Grader	187	Diesel	1		Mar 2027	Mar 2027	6	NA	60
Tandem Axle Dump Truck	275	Diesel	2		Mar 2027	Mar 2027	6	NA	60
Worker Commutes	NA	Gas	6		Mar 2027	Mar 2027	NA	10.8	60
Fence and Gate Installation				10					
Water Truck	275	Diesel	2		Apr 2027	May 2027	8	NA	30
½-Ton Pickup Truck, 4 x 4	275	Diesel	1		Apr 2027	May 2027	8	NA	30
1-Ton Crew Cab Flat Bed, 4 x 4	275	Diesel	1		Apr 2027	May 2027	8	NA	30
3-Ton Flat Bed Truck	275	Diesel	1		Apr 2027	May 2027	8	NA	30
Bobcat	100	Diesel	1		Apr 2027	May 2027	8	NA	30
Worker Commutes	NA	Gas	10		Apr 2027	May 2027	NA	10.8	30
Foundations				20					
Crane or Boom Truck	231	Diesel	1		May 2027	Jun 2027	8	NA	60
Hole Digger	221	Diesel	1		May 2027	Jun 2027	8	NA	60
Backhoe/Dozer/Excavator	247	Diesel	1		May 2027	Jun 2027	8	NA	60
Water Truck	275	Diesel	1		May 2027	Jun 2027	8	7.3	60
Pickup Truck	275	Diesel	1		May 2027	Jun 2027	8	NA	60
Worker Commutes	NA	Gas	20		May 2027	Jun 2027	NA	10.8	60
Ground Grid/Conduit Installation				8					
Trencher	78	Diesel	1		Jun 2027	Jul 2027	8	NA	60
Water Truck	275	Diesel	1		Jun 2027	Jul 2027	8	7.3	60
Worker Commutes	NA	Gas	8		Jun 2027	Jul 2027	NA	10.8	60
Transformer and Equipment Delivery and Installation				14					
Bucket Truck	275	Diesel	2		Jul 2027	Aug 2027	8	NA	60
2-Ton Truck	275	Diesel	1		Jul 2027	Aug 2027	8	7.3	60
Pickup Truck	275	Diesel	1		Jul 2027	Aug 2027	8	NA	60
Crane or Boom Truck	231	Diesel	1		Jul 2027	Aug 2027	8	NA	60
Tractor/Trailer	275	Diesel	1		Jul 2027	Aug 2027	8	7.3	60

Equipment[4]	Approximate Estimated or Potential								
	Horsepower	Fuel Type	Quantity	Workforce	Start Date	End Date	Daily Use (Hours)	Miles/Day	Total Days
Portable Gas/Diesel Generator(s)	34	Diesel	1		Jul 2027	Aug 2027	8	NA	60
Worker Commutes	NA	Gas	14		Jul 2027	Aug 2027	NA	10.8	60
Steel/Bus Erection				6					
Water Truck	275	Diesel	1		Jul 2027	Aug 2027	8	7.3	30
Boom Truck	275	Diesel	1		Jul 2027	Aug 2027	8	NA	30
Aerial Man Lift	64	Diesel	1		Jul 2027	Aug 2027	8	NA	30
Worker Commutes	NA	Gas	6		Jul 2027	Aug 2027	NA	10.8	30
Yard Rock Installation				5					
Water Truck	275	Diesel	1		Sep 2027	Sep 2027	8	NA	60
Dump Truck	275	Diesel	1		Sep 2027	Sep 2027	8	NA	60
Bobcat	100	Diesel	1		Sep 2027	Sep 2027	8	NA	60
Worker Commutes	NA	Gas	5		Sep 2027	Sep 2027	NA	10.8	60
Clean-up and Restoration 1				3					
Crane or Boom Truck	231	Diesel	1		Oct 2027	Oct 2027	8	NA	30
Hole Digger	221	Diesel	1		Oct 2027	Oct 2027	8	NA	30
Backhoe/Dozer/Excavator	247	Diesel	1		Oct 2027	Oct 2027	8	NA	30
Water Truck	275	Diesel	1		Oct 2027	Oct 2027	8	7.3	30
Pickup Truck	275	Diesel	1		Oct 2027	Oct 2027	8	NA	30
Worker Commutes	NA	Gas	3		Oct 2027	Oct 2027	NA	10.8	30
Deliveries, Installations, Testing & Commissioning 1				6					
Aerial Man Lift	63	Diesel	1		Oct 2027	Oct 2027	8	NA	90
Crane	231	Diesel	1		Oct 2027	Oct 2027	8	NA	90
Boom Truck	275	Diesel	1		Oct 2027	Oct 2027	8	NA	90
Pickup Truck with Trailer	275	Diesel	2		Oct 2027	Oct 2027	8	7.3	90
Worker Commutes	NA	Gas	6		Oct 2027	Oct 2027	NA	10.8	90
Clean-up and Restoration 2				3					
Crane or Boom Truck	231	Diesel	1		Feb 2028	Feb 2028	8	NA	30
Hole Digger	221	Diesel	1		Feb 2028	Feb 2028	8	NA	30
Backhoe/Dozer/Excavator	247	Diesel	1		Feb 2028	Feb 2028	8	NA	30
Water Truck	275	Diesel	1		Feb 2028	Feb 2028	8	7.3	30
Pickup Truck	275	Diesel	1		Feb 2028	Feb 2028	8	NA	30
Worker Commutes	NA	Gas	3		Feb 2028	Feb 2028	NA	10.8	30
Deliveries, Installations, Testing & Commissioning 2				6					
Aerial Man Lift	63	Diesel	1		Feb 2028	Feb 2028	8	NA	90

Equipment[4]	Approximate Estimated or Potential								
	Horsepower	Fuel Type	Quantity	Workforce	Start Date	End Date	Daily Use (Hours)	Miles/Day	Total Days
Crane	231	Diesel	1		Feb 2028	Feb 2028	8	NA	90
Boom Truck	275	Diesel	1		Feb 2028	Feb 2028	8	NA	90
Pickup Truck with Trailer	275	Diesel	2		Feb 2028	Feb 2028	8	7.3	90
Worker Commutes	NA	Gas	6		Feb 2028	Feb 2028	NA	10.8	90
PG&E 60 kV Power Lines Reconfiguration									
General Construction				15					
Pick-up Truck	NA	Diesel	15		Nov 2027	Feb 2028	NA	25	40
Worker Commutes	NA	Gas	15		Nov 2027	Feb 2028	NA	25	40
Safety Inspection	NA	Gas	1		Nov 2027	Feb 2028	NA	25	40
Water Truck	NA	Diesel	1		Nov 2027	Feb 2028	NA	50	40
Street Sweeper	NA	Diesel	1		Nov 2027	Feb 2028	NA	50	40
Removal and replacement of approx. (12) 60 kV Wood Poles - West end of Lockeford-Industrial				5					
Auger Truck	350	Diesel	221		Nov 2027	Nov 2027	8	NA	15
Backhoe/Front Loader	350	Diesel	97		Nov 2027	Nov 2027	8	NA	15
boom truck	350	Diesel	231		Nov 2027	Nov 2027	8	NA	15
bucket truck	350	Diesel	NA		Nov 2027	Nov 2027	NA	1	15
¾-Ton Pick-up Truck, 4 × 4	300	Diesel	NA		Nov 2027	Nov 2027	NA	20	15
Lowboy Truck/Trailer Pole Truck	200	Diesel	NA		Nov 2027	Nov 2027	NA	15	15
Worker Commutes	300	Diesel	5		Nov 2027	Nov 2027	NA	25	15
Restoration				3					
Light-duty Truck	NA	Diesel	2		Nov 2027	Nov 2027	NA	25	5
Road Grader	187	Diesel	2		Nov 2027	Nov 2027	6	25	5
Backhoe and Trailer	97	Diesel	1		Nov 2027	Nov 2027	6	NA	5
Worker Commutes	NA	Gas	3		Nov 2027	Nov 2027	NA	25	5
Replacement of approx. (2-4) 60 kV Wood Poles, reconfiguration outside of LEU Industrial Substation, 2 new spans, topping north end of Industrial Tap				5					
Auger Truck	221	Diesel	1		Feb 2028	Feb 2028	8	NA	15
Backhoe/Front Loader	97	Diesel	1		Feb 2028	Feb 2028	8	NA	15
boom truck	231	Diesel	1		Feb 2028	Feb 2028	8	NA	15
bucket truck	NA	Diesel	1		Feb 2028	Feb 2028	NA	1	15
¾-Ton Pickup Truck, 4 × 4	NA	Diesel	2		Feb 2028	Feb 2028	NA	20	15
Lowboy Truck/Trailer Pole Truck	NA	Diesel	1		Feb 2028	Feb 2028	NA	15	15

Equipment[4]	Approximate Estimated or Potential								
	Horsepower	Fuel Type	Quantity	Workforce	Start Date	End Date	Daily Use (Hours)	Miles/Day	Total Days
Worker Commutes	NA	Gas	5		Feb 2028	Feb 2028	NA	25	15
Restoration				4					
Light-duty Truck	NA	Diesel	2		Feb 2028	Feb 2028	NA	25	5
Road Grader	187	Diesel	2		Feb 2028	Feb 2028	6	25	5
Backhoe and Trailer	97	Diesel	1		Feb 2028	Feb 2028	6	NA	5
Worker Commutes	NA	Gas	4		Feb 2028	Feb 2028	NA	25	5
Other				10					
Material Haul Trucks	NA	Diesel	10		Nov 2027	Feb 2028	NA	75	5
PG&E Lodi and Lockeford Substations Remote End				2					
Mechanics Truck	NA	Diesel	2		Feb 2028	Feb 2028	NA	100	30
Worker Commutes	NA	Gas	2		Feb 2028	Feb 2028	NA	25	30

[a] This is a preliminary equipment list with approximate type, quantity, and use; other equipment may be identified when the project design is finalized or during construction if unexpected conditions require additional and/or different equipment. This information is summarized from Appendix B1a and Appendix B1b.

3.6.3 Construction Traffic

Construction crews (worker commutes) will be traveling to and from the proposed sites via a light-duty auto/truck as detailed in Table 3.6-1. Worker daily commute trips are estimated at approximately 10.8 miles roundtrip for LEU and estimated at approximately 25 miles roundtrip for PG&E. Equipment will be staged onsite in a work area or brought to the work area daily on work trucks or trucks with trailers. LEU estimates its construction trip types at approximately 7.3 miles as summarized in Appendix B1b. PG&E estimates its construction trip types in miles per day/vehicle by vehicle type and activity as detailed in Table 3.6-1.

Based on these assumptions, Table 3.6-2 is a summary of estimated vehicle trips and vehicle miles traveled (VMT) by trip type and project construction activity. Estimated vehicle trips are calculated with the daily trip count multiplied by days of use. Total VMT is estimated vehicle trips multiplied by miles/day/vehicle type. Approximately 95% of total VMT is associated with PG&E construction activities.

Table 3.6-2. Estimated Construction Vehicle Trips and Vehicle Miles Traveled

Project Construction Activity	Trip Type	Estimated Vehicle Trips	Total VMT by Activity Type
PG&E 230 kV Lines	Worker	6,131	153,275
PG&E 230 kV Lines	Construction	4,952	204,970
PG&E Lockeford Substation	Worker	5,750	143,750
PG&E Lockeford Substation	Construction	10,621	668,295
PG&E 12 kV Service Line Extension	Worker	200	5,000
PG&E 12 kV Service Line Extension	Construction	182	5,840
PG&E Remote-end Stations	Worker	420	10,500
PG&E Remote-end Stations	Construction	340	7,650

Project Construction Activity	Trip Type	Estimated Vehicle Trips	Total VMT by Activity Type
PG&E Thurman Switching Station	Worker	1,820	45,500
PG&E Thurman Switching Station	Construction	6,086	476,550
PG&E Thurman Microwave Tower	Worker	805	20,125
PG&E Thurman Microwave Tower	Construction	787	47,400
PG&E 60 kV Lines Reconfiguration	Worker	845	21,125
PG&E 60 kV Lines Reconfiguration	Construction	975	32,055
LEU 12 kV Underground Line	Worker	100	1,080
LEU Substation Construction	Worker	5,560	60,048
LEU Substation Construction	Construction	4,400	32,120

3.6.4 Construction Schedule

The preliminary summary proposed schedule is presented in Table 3.6-3. A detailed construction schedule is provided in Appendix B1a and Table 3.6-1 lists the potential start and end dates for each activity. However, delays to the start date are possible due to conditions outside PG&E's control, including land acquisition and materials and equipment procurement. Construction is targeted to start in approximately July 2026 with the new PG&E 230 kV line and all project-related construction is estimated to be complete in approximately April 2029. This schedule considers expected weather for a typical fall and winter, including rain and fog. LEU construction is expected to begin in approximately March 2027 and complete in approximately February 2028 or earlier depending on when the new 230 kV source is energized and the remaining two PG&E 60 kV lines are removed from LEU Industrial Substation. The final approximately 0.4 mile of the new PG&E 230 kV line (W44 to W48) will be constructed after PG&E Lockeford-Industrial 60 kV line is partially removed (pole 1 through pole 9) to allow the transmission line to reuse the power line alignment. PG&E Lockeford-Industrial Line will not be modified unless it appears there is sufficient time within the annual approximately November to March single PG&E 60 kV line outage window to remove the portion of the line and any remaining underbuild, install the 230 kV line to PG&E Thurman Switching Station, and complete testing and commissioning to place the new 230 kV source into service. Project work at PG&E Lockeford Substation, PG&E Thurman Switching Station, PG&E remote-end substations and repeater station, and LEU Industrial and LEU Guild substations also must be complete or nearing completion to support feasibility that PG&E and LEU will be able to place the new 230 kV source into service during a seasonal single PG&E 60 kV line outage. If the western end of PG&E Lockeford-Industrial Line is not removed as scheduled, the project will wait until the next outage window, likely the following November to March. Portions of existing 230 kV reconfiguration at PG&E Lockeford Substation and some site restoration at components may be able to occur while the new 230 kV work waits for the next single PG&E 60 kV line outage window.

Preconstruction bird nesting surveys will occur during the typical bird nesting season, as described in the project APM BIO-2 and BMP BIO-2. Buffers for active nests will be incorporated into the 2-week look-ahead schedule, which will be maintained during construction and adjusted as needed. Refer to Appendix C6 for a summary of PG&E Nesting Bird Management Plan for species-specific buffers.

Table 3.6-3. Preliminary Proposed Construction Schedule

Project Construction Activity	Proposed Schedule Approximate Date Ranges
PG&E 230 kV Transmission Line West end construction will complete November-March during outage window	July 2026 – December 2027
PG&E Lockeford Substation – new 230 kV 230 kV in-service will occur November-March	August 2026 – January 2028
PG&E Thurman Switching Station	November 2026 – September 2027

Project Construction Activity	Proposed Schedule Approximate Date Ranges
LEU 12 kV feeder line relocation	March 2027
PG&E Thurman Switching Station – Microwave Tower	April 2027 – July 2027
LEU Guild and Industrial Substations – prepare for 230 kV	February 2027 – February 2028
PG&E 12 kV Service Line Extension to PG&E Thurman Switching Station Duration reflects expected sequencing of in-road activities to avoid concurrent in-road activities (HDD, trenching, and road restoration)	June 2027 – July 2027
PG&E Clayton Hill Repeater Station	June 2027 – August 2027
PG&E Remote-end Substations – new 230 kV System	October 2027 – December 2028
PG&E Lockeford-Industrial 60 kV – west end removal West end of line and disconnection from LEU Industrial Substation will only occur during November-March annual and will not occur if 230 kV cannot be placed into service by March to accommodate typical LEU load increase.	November 2027
New PG&E 230 kV source is in service to LEU	December 2027 – March 2028
PG&E Lockeford Substation – complete existing 230 kV reconfiguration	February 2028 – April 2029
LEU Industrial Substation – remove PG&E Lodi-Industrial and Industrial Tap 60 kV lines	February 2028
PG&E Existing 60 kV Lines – complete reconfiguration of PG&E Lockeford-Lodi No. 1 (preliminary name)	February 2028
PG&E Remote-end Substations – existing 230 kV and reconfigured 60 kV system and communication	August 2028 – February 2029

3.6.5 Work Schedule

PG&E construction activities are anticipated to occur six days per week (Monday through Saturday) during daylight hours. LEU construction activities are anticipated to occur five days per week (Monday through Friday) during daylight hours. Work hours generally will be 10 hours per day with construction typically occurring between 7:00 a.m. and 5:30 p.m. Occasionally, work may occur during the evening hours for activities such as monitoring the foundation curing process and testing and commissioning substation components. However, such activities would not normally generate offensive or disturbing noises or lights. Night work is not planned.

Refer to Table 3.6-4 for an estimated approximate duration for construction activities at each type of work area. Activities at staging areas and stations, other than remote-end stations, is expected to occur for months. Construction activities at individual structure work areas along the power or transmission lines will be limited to a few days separated by weeks or months typically.

Table 3.6-4. Estimated Approximate Construction Duration at Work Area Types

Project Construction Activity	Estimated Duration
Staging Areas outside of stations (approximately 3 areas or 10 to 15 acres) Expected to support new transmission line and station construction	21 months
Staging Areas in existing or proposed PG&E and LEU facilities	34 months
PG&E 230 kV Transmission Line – Individual Work Areas and Access Preparation including Guard Structures	< 1 day/structure on average
PG&E 230 kV Transmission Line – Structure Foundation, generally expected to be installed east to west or as land rights are secured	1-2 days/structure
PG&E 230 kV Transmission Line – Structure Assembly and Erection	1-2 days/structure
PG&E 230 kV Transmission Line – Helicopter Use, sock line stringing	< 0.25 day/structure

Project Construction Activity	Estimated Duration
PG&E 230 kV Transmission Line – Conductor Installation	1-2 days/structure
PG&E 230 kV Transmission Line – Pull and Tension Sites	Approximately 2 weeks/site
PG&E 230 kV Transmission Line – Restoration	<1 day/structure on average
PG&E Lockeford Substation – New 230 kV, peak activity period	8 months
PG&E Lockeford Substation – Existing 230 kV reconfiguration	25 months
PG&E Thurman Switching Station	11 months
LEU 12 kV feeder line relocation	10 days
PG&E Thurman Switching Station – Microwave Tower	4 months
LEU Guild and Industrial Substations Final month will occur when 230 kV is placed into service and remaining 2 PG&E 60 kV lines are removed from LEU Substation	6 months + 1 month
PG&E 12 kV Service Line Extension to Thurman – HDD, Trenching Potential parking restrictions or single lane closure – road remains open	20 days
PG&E Clayton Hill Repeater Station	30 days
PG&E Remote-end Substations – new 230 kV	10 days/PG&E substation
PG&E Lockeford-Industrial – remove west end	1-2 days/structure
PG&E Existing 60 kV Lines – complete reconfiguration	1-2 days/structure
PG&E Remote-end Substations – existing 230 kV and 60 kV	20 days/substation

3.7 Post Construction

3.7.1 Configuring and Testing

No special process is planned for configuring and testing. The project will use the testing procedures recommended by IEEE and the equipment manufacturers. The estimated equipment, duration of work, and personnel requirements for testing are presented in Table 3.6-1.

After 230 kV equipment testing, end-to-end testing, and SCADA testing have been completed and PG&E Thurman Switching Station has been energized, LEU Guild Substation will complete a start-up process to receive the 230 kV feed. All necessary clearances will be coordinated between LEU and PG&E. All switches and breakers will be open. The first set of switches will be closed for the current transformer and potential transformers to be tested. The next set of switches and the high side breakers will be closed. The breakers will be operated to confirm that the relay settings are correct. The transformers will be allowed to soak for an approximately 24-hour period before placing load on them.

A similar process will be used for the reconfigured PG&E and LEU 60 kV and 12 kV lines before they are placed into service.

3.7.2 Landscaping

Landscaping is not anticipated as part of the project.

3.7.3 Demobilization and Site Restoration

3.7.3.1 Demobilization

Surplus material, equipment, and construction debris will be removed at the completion of construction activities. All project construction debris will be removed and recycled or disposed of at permitted landfill

sites, as appropriate. Cleared vegetation will be mulched and left onsite. Mulched vegetation will be spread out throughout the proposed fenced area before final yard rock is laid.

3.7.3.2 Site Restoration

Construction debris will be picked up regularly from construction areas and stored in approved containers onsite; the debris will be hauled away for recycling or disposal periodically during construction. At work areas, final grading will restore contours in keeping with those of the surrounding area. Each site will be returned to preproject conditions or as specified in landowner agreements. Best practices will be installed, inspected, and maintained according to the SWPPP, as necessary to stabilize disturbed soils. Crews will conduct a final survey to document that cleanup activities have been successfully completed as required.

All areas temporarily disturbed by the project will be restored to the greatest extent practicable following construction. These disturbed areas include staging areas and access roads, areas around each tower/pole, and areas used for conductor stringing and staging. Post-construction restoration activities will include returning areas to their original contours and drainage patterns in accordance with SWPPP best practices and following prearranged landowner agreements, where applicable.

All temporarily disturbed areas within and around any work area and unpaved access will be restored to the greatest extent practicable following construction. All construction waste will be disposed of in accordance with all applicable federal, state, and local laws regarding solid and hazardous waste disposal through transport to an authorized landfill.

3.8 Operation and Maintenance

Following construction of the project, operation and maintenance activities will consist of routine inspection, repair, and maintenance activities, which will be conducted as they are under existing conditions for existing facilities modified or expanded as part of this project. New facilities will be incorporated into existing operation and maintenance procedures of either PG&E or LEU depending on facility ownership. Operation and maintenance of new facilities will be implemented by existing utility workers or suppliers and contractors of PG&E and LEU, respectively.

3.8.1 Regulations and Standards

PG&E is a public utility and the operation of its project portion will be regulated by the CPUC. LEU is a municipal utility of the City of Lodi and its portion of the project will be regulated by the City of Lodi, not the CPUC.

3.8.1.1 PG&E Regulations and Standards

For the affected PG&E facilities, through the course of following detailed engineering and design, PG&E will identify and document changes:

- Operations and maintenance activities
- Assets
- Guidance documents
- Organizational structure
- Suppliers and contractors
- Tools and equipment

The following regulations and standards guide PG&E's operation and maintenance activities for electric lines, switching stations, substations, and communication systems:

- CPUC GO 95 regulates all aspects of design, construction, operation, and maintenance of electrical power lines and fire safety hazards for utilities subject to CPUC jurisdiction.
- CPUC GO 165 applies to all electric distribution and transmission facilities (excluding those facilities contained in a substation) subject to CPUC jurisdiction and orders additional inspection requirements beyond GO 95 to maintain a safe and reliable electric system.

Detailed transmission line inspections and routine patrols will be performed in accordance with PG&E's *Transmission Owner Maintenance Practices for Electrical Overhead Transmission Lines*, in the latest revision, as filed with CAISO. CPUC GO 174 also regulates substation inspection programs for utilities subject to CPUC jurisdiction to promote the safety of workers and the public and enable adequacy of service.

CAISO *Transmission Owner Maintenance Practices for Electrical Substations*, and NERC PRC-005-2, "Protection System Maintenance," supply applicable guidance for maintenance procedures. Refer to Section 3.5.13 for fire prevention and response procedures. The following regulations and standards also apply to maintenance:

- NERC Standard FAC-003-4, which establishes vegetation management standards for electric transmission lines
- California PRC Sections 4292 to 4293 and 4295.5, which address fire hazard reduction for electric lines and establish minimum clearances
- PG&E's *2022 Wildfire Mitigation Plan* (submitted to the CPUC on February 7, 2022), which presents PG&E's plan to mitigate for wildfires

Refer to Section 5.20, Wildfire, for more information about applicable PG&E wildfire prevention regulations and standards in PG&E's *2022 Wildfire Mitigation Plan*[11]. The project is not located within a high fire threat district (HFTD), other than PG&E Clayton Hill Repeater Station, where nonground-disturbing work will occur within the paved, fenced station. The project's minor modification of PG&E Clayton Hill Repeater Station will not change the existing wildfire management procedures for the PG&E facility. The project components are located outside of an HFTD and do not require any special procedures for wildfire management.

3.8.1.2 LEU Regulations and Standards

LEU is a municipal utility of the City of Lodi and is not regulated by the CPUC; LEU is regulated by the City of Lodi. LEU's substation inspection procedure was developed to be consistent with CPUC GO 174. LEU meets or exceeds the minimum inspection cycles provided in CPUC GO 165 and CPUC GO 95, Rule 18 for its electrical lines.

Refer to Section 5.20, Wildfire, for more information about applicable LEU wildfire prevention regulations and standards in LEU's *2021 Wildfire Mitigation Plan*[12]. The LEU portion of the project is located outside of an HFTD and does not require any special procedures for wildfire management.

3.8.2 System Controls and Operation Staff

PG&E Bellota, PG&E Brighton, PG&E Lockeford, PG&E Lodi, and PG&E Rio Oso substations, PG&E Clayton Hill Repeater Station, and 60 kV and 12 kV lines associated with the project are existing facilities, with operations controlled remotely from PG&E's Vacaville Control Center, near Vacaville, California. Monitoring and control functions for the new PG&E Thurman Switching Station facility will be connected to the existing PG&E transmission energy management system by telecommunication circuits. The new PG&E transmission lines, modified PG&E 60 kV lines, and extended PG&E 12 kV secondary station service

[11] https://www.pge.com/en_US/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan.page

[12] https://www.lodi.gov/949/Wildfire-Mitigation-Plan

line will be monitored and protected by sets of relays located at each end of the line. The required constant communication between protective relays at each end will be over redundant communication paths. The relays also are connected into PG&E's SCADA system. Data collection devices for the SCADA system typically include remote terminal units, microprocessor relays, data concentrators, and fault recorders. The devices will be capable of storing data for download via local and/or remote access. Any alarms resulting from relay actions will be promptly annunciated at PG&E's GCC located in Vacaville, California. In the event of an alarm, required corrective actions can be initiated quickly by operators on round-the-clock duty at the GCC. No new full-time staff will be required for operation and maintenance of the PG&E portion of the project.

Monitoring via SCADA of the LEU facilities will be performed from the remote-control room at the City of Lodi's main office located at 1331 South Ham Lane for LEU Industrial and LEU Guild substations, and the relocated LEU 12 kV feeder line. The new breakers and transformers at LEU Guild Substation will be monitored and controlled through SCADA as well. Breakers will have breaker status, low gas alarm, and open/close control. The transformers will have top oil temperature, load tap changer (LTC) position, alarms, and raise or lower LTC control. The City is properly staffed for the operation and maintenance of this additional substation; no new full-time staff will be required.

3.8.3 Inspection Programs

Regular inspection of electrical lines, stations, instrumentation and controls, and support systems is critical for safe, efficient, and economical operation. Early identification of equipment needing maintenance, repair, or replacement will assure continued safe operation of the project.

PG&E is a public utility and the inspection of its project portion will be regulated by the CPUC. LEU is a municipal utility of the City of Lodi and its portion of the project will be regulated by the City of Lodi, not the CPUC. As detailed in Section 5.20, Wildfire, the project is not located in an elevated wildfire hazard zone that would trigger enhanced inspections, and the minor modification of PG&E Clayton Hill Repeater Station will not require enhanced inspections for its location within an HFTD.

3.8.3.1 PG&E Transmission, Power, and Service Lines

Aboveground components will be inspected at least annually for corrosion, equipment misalignment, loose fittings, and other common mechanical problems. PG&E routinely inspects electrical line structures and stations to verify stability, structural integrity, and the condition of equipment (for example, fuses, breakers, relays, cutouts, switches, transformers, paint). The current PG&E electrical line inspection process involves three types of inspections: (1) ground inspections, (2) aerial inspections, and (3) climbing inspections if ground inspections indicate a need. The transmission lines will be inspected annually for Western Electricity Coordinating Council (WECC) compliance, with detailed ground and aerial inspections, or as needed when driven by an event, such as an emergency. A helicopter would be used for annual aerial inspections of the new 230 kV lines and would be completed within one workday. For ground and climbing inspections, TSPs are accessed from existing roads or may require off-road travel, either in vehicles or on foot depending on weather and soil conditions, and these inspections are assumed to occur over approximately 15 days with approximately 5 structures inspected per day. PG&E's 60 kV lines are inspected every 5 years (outside of WECC) and the review of the replaced structures and new spans of PG&E Lockeford-Lodi No.1 Line (preliminary name) would be conducted within approximately 1 day, as part of an inspection of the full line. Inspections will not require construction of new access roads.

Detailed transmission line inspections and routine patrols will be performed in accordance with PG&E's *Transmission Owner Maintenance Practices for Electrical Overhead Transmission Lines*, in the latest revision, as filed with CAISO. Typically, there are no O&M inspections conducted on a new transmission line for the first 5 years following the in-service date. After 5 years, inspections typically are performed annually by either vehicle or helicopter. Inspection crews will examine the lines to assess the condition of components, including hardware, insulators, and conductors. Insulators are not washed as part of regular maintenance unless inspections determine this is necessary.

The inspections of reconfigured existing PG&E 60 kV lines will continue per existing procedures with the existing PG&E operation and maintenance staff workforce.

The underground portion of the extended 12 kV secondary service line into PG&E Thurman Switching Station will be inspected every 3 years. The inspection includes a visual evaluation followed by an infrared inspection. The visual inspection looks at the condition of the exterior and interior of the underground equipment, cable, and any splices and elbows within the primary enclosure. The infrared assessment uses an infrared camera to gather temperature values of the cable and connections and analyze any temperature differential to inform about operation and potential maintenance of defective or damaged line components.

3.8.3.2 PG&E Substations, Switching Station, and Repeater Station

Routine inspections and preventive maintenance by substation personnel occur regularly, in accordance with PG&E's CAISO *Transmission Owner Maintenance Practices for Electrical Substations*, and NERC PRC-005-2, "Protection System Maintenance," latest revision, or as needed under emergency conditions or for corrective maintenance. In addition, PG&E manages an ongoing inventory of critical spare parts for transmission substation equipment, in case of emergencies.

PG&E substation and switching station systems have single-day monthly visual inspections and detailed annual and 5-year inspections. Station component or system inspections may be scheduled every 2 to 8 years for a given station component or system. Conservatively, yearly inspections are estimated at up to approximately 24 workdays annually to accommodate potential inspections and maintenance that may occur in a given year. Typical minor maintenance tasks at stations include repair and replacement of transformers, switches, fuses, cutouts, meters, and insulators. Work typically is confined to the substation property and uses existing access, with the worker arriving in a light-duty truck. If insulator washing is required, a pumper tanker with pressure washing equipment would be used. Current ongoing routine O&M activities are sufficient for the existing PG&E substation facilities modified or expanded by the project and the new PG&E Thurman Switching Station.

3.8.3.3 LEU Facilities

The City of Lodi's substation inspection procedure is to visually inspect each substation at least once per calendar month. The activity includes inspecting all major equipment and structures, as well as the overall condition of the yard, including perimeter fences and gates. Equipment inspections include substation batteries, fire detection and suppressions systems, structures, buses, breakers, grounding systems, voltage regulators, and transformers. Approximately 4 hours of additional truck use per month is estimated for inspection and maintenance of the LEU portion of the project. LEU Guild Substation's maintenance trip is expected to be planned in conjunction with LEU Industrial Substation's existing maintenance trip schedule. LEU meets or exceeds the minimum inspection cycles provided in CPUC GO 165 and CPUC GO 95, Rule 18. A detailed inspection will occur at least every 5 years on the underground portion of the relocated 12 kV feeder line and existing LEU utility staff will conduct the inspection as part of the review of the other portions of the feeder line.

3.8.4 Maintenance Programs

Maintenance programs will continue for existing facilities and be implemented for new facilities by PG&E and LEU using existing maintenance programs to avoid service interruptions and outages. In addition to regular maintenance, facilities sometimes are damaged by storms, floods, vandalism, or accidents; these situations require immediate repair. Emergency repair operations will involve the prompt deployment of PG&E or LEU crews and necessary equipment to repair and replace damaged facilities.

No permanent access roads (other than interior station access) will be installed as part of the project. In coordination with landowners where PG&E has permanent access rights, PG&E may perform maintenance on existing access roads to allow safe access to its facilities. Depending on the type of road maintenance

required, equipment could include a front loader, pickup trucks with trailers, a dump truck, or other similar equipment or vehicles. PG&E or LEU facilities will not be color treated and no landscaping is planned; no color maintenance or landscaping maintenance will be required.

3.8.4.1 PG&E Facilities

Routine maintenance will be performed by PG&E to correct conditions identified during inspections of new and modified transmission, power, and service lines; substations; switching station and repeater station; or other situations requiring immediate repair. If the facilities are in operation beyond the estimated 75-year life span, PG&E will comply with applicable utility procedures, standards, and regulatory requirements at that time.

Typical maintenance procedures include insulator washing and replacement, repair and replacement of substation components, outage repairs, electrical line repair, replacement and reconductoring.

Insulator Washing and Replacement

Conductive airborne particles or bird droppings that settle on ceramic insulators can provide a path across the insulators, causing contamination-induced electric faults. Insulators are washed periodically to prevent faults using a truck- or trailer-mounted spray system or a helicopter. A pumper truck (3,000-gallon volume) or a helicopter (1,500-2,000-gallon volume) would be used to clean insulators that required washing. Approximately 45,000 gallons of water would be required for the washing. Washing typically is done during energized conditions (that is, while the power lines are operating). Distilled water is used to wash the insulators; dry washing with ground corn hulls also is used.

PG&E replaces insulators when they have been damaged by gunshot, lightning, or heavy corrosion or when they no longer can be washed. Insulators can be replaced while energized or de-energized, depending on access, loading, and safety. Replacement typically takes a four- to six-person crew with a small truck for hauling crew members, tools, and materials. If access is limited, a helicopter may be used to land crew members and tools. Insulators are washed or replaced approximately every 5 years unless inspections identify washing is needed prior to that period.

Substation Maintenance

Typical minor maintenance tasks at substations include repair and replacement of transformers, switches, fuses, cutouts, meters, and insulators. Maintenance of substation systems requires this type of work approximately once per year. Monthly maintenance may occur based on monthly inspection observations. Work typically is confined to the substation property.

Outage Repairs

Activities involving outage repair are necessary to maintain reliable service and ensure public safety. Weather, equipment failure, accidents, fire, or bird electrocution are typical causes of outages. When an outage is reported, PG&E patrols the line until personnel determine the cause of the outage. Access is primarily on existing roads, although some overland access with small trucks or SUVs may be needed. Depending on the cause of the outage, repair may entail anything from reclosing a switch to replacing a transformer or pole. Crews repair and restore circuits as quickly as possible.

Line Repair, Replacement, and Reconductoring

PG&E repairs or replaces pole (for example, crossarms, insulators, pins, transformers, wires, cables, guys, anchors, switches, fuses, and paint) and underground line equipment (for example, elbows, terminations, joints, and splices) when it fails, becomes unsafe, outlasts its usefulness, or is identified for replacement. Repair and replacement of line equipment typically are performed with the pole and line in place, using a line truck for access to line components.

PG&E replaces conductors when they are outdated and less reliable or no longer capable of meeting required capacity, as is the case on this project. Because PG&E will install all new structures during the project, any future reconductoring would likely require conductor or cable replacement only at the end of its estimated 75-year asset life span.

Microwave Tower, Repeater Station/Antenna Maintenance

PG&E repairs or replaces communication structures and attachments when they fail, become unsafe, outlast their usefulness, or are identified for replacement. The drum-type antennas expected to be installed on the microwave towers for this project have a dehydrator component which has a filter that is replaced annually. Annual filter replacement would use a line truck to access the facility.

LEU Facilities

Typical LEU substation maintenance includes bushing cleaning and replacement and transformer oil testing. The substation yards and LEU Guild Substation access road will be rerocked as necessary. The City of Lodi's maintenance procedure is to replace equipment in-kind at the end of equipment life spans. All equipment will be scraped and removed at approved vendor locations. LEU maintenance of its electrical lines is consistent with CPUC GO 165.

3.8.5 Vegetation Management Program

Existing vegetation management will continue within and surrounding existing project facilities. Vegetation management will not be required or will not change for LEU 12 kV feeder line relocated underground, LEU Industrial Substation, PG&E remote-end substations, PG&E repeater station, PG&E modified 60 kV lines, PG&E underground 12 kV service line extension to PG&E Thurman Switching Station, and lines within stations. PG&E's Clayton Hill Repeater Station is the only project facility located within an HFTD. The project activities at the PG&E repeater station will occur within the existing fence line of the paved facility and will not disturb ground. No change will occur to the existing vegetation management activities at PG&E Clayton Hill Repeater Station with the implementation of this project.

Vegetation trimming will be performed as needed to maintain the required safety buffer in accordance with:

- FERC Order No. 777
- NERC Standard FAC-003-3
- CPUC GO 95, Rule 35, and Rule 37, Table 1, Case 4 for 230 kV Transmission Lines

3.8.5.1 Electrical Line Vegetation Management

PG&E performs routine vegetation management on all of its overhead electric distribution, power, and transmission facilities to maintain compliance with PRC Section 4293, CPUC GO 95, Rule 35, and NERC FAC-003-4. The clearance regulations identify, by voltage, minimum clearance distances that PG&E must maintain between vegetation and energized conductors.

Routine vegetation management includes an annual patrol of vegetation growing near overhead distribution, power, and transmission facilities. It also includes pruning or removal of trees that will not remain outside of required clearance distances or that may pose a hazard to electric facilities before the next year's patrol. When appropriate—considering tree species, growth rates, site conditions, landowner notification, and appropriate permits—PG&E removes trees growing below overhead electrical line facilities while conducting routine maintenance activities. Trees are cut off at ground level, with the roots and stump left in place.

PG&E performs vegetation management around poles and TSP foundations on its electrical line facilities to maintain the visibility necessary to inspect for structural integrity. Vegetation management includes

patrol of poles and removal of all trees, tree seedlings, and any material that obstructs the ability to visually inspect for structural integrity. The work is scheduled throughout the year and the work type depends on the plant material to be removed. Vegetation management involves cutting vegetation with string trimmers or chainsaws.

This project does not include new LEU electrical line facilities that are aboveground or outside of substations; therefore, no line vegetation management is required by LEU.

3.8.5.2 Station Vegetation Management

PG&E conducts vegetation management inside and outside of station facilities as required to meet CPUC regulations, reduce and eliminate fire hazards, enhance security for fenced facilities, enhance aesthetics, and reduce potential for illegal dumping and homeless encampments. Activities on PG&E lands to control vegetation external to stations may include mowing grass and weeds. Treatments include pruning or removing vegetation on the immediate perimeter of a fenced facility (usually within approximately 3 to 5 feet of the fence, or farther in the case of hazard trees or other fire hazards). Workers may use tractors, flail mowers, or string trimmers for mowing and discing operations. Tree service crews use chainsaws to manually prune or remove hazard trees and to cut brush. Herbicides may be applied, when appropriate, by use of vehicle-mounted spray equipment on tractors, all-terrain vehicles, and pickups, or manually applied by backpack sprayer. Herbicide applications on special projects are prescribed by a California Licensed Pest Control Adviser and may include pre-emergent, directed post-emergent, and cut-stump treatments.

Existing station vegetation management will not change with the implementation of the project other than less vegetation management will be required at PG&E Lockeford Substation, and on the formerly vegetated land where LEU Guild Substation and PG&E Thurman Switching Station will be located. PG&E will implementation vegetation management on the vegetated portions of the PG&E Thurman Switching Station parcel outside the facility fence line. The new PG&E vegetation management, likely mowing, around the perimeter of the switching station parcel will be offset by the reduction in mowing required at the expanded PG&E Lockeford Substation and new PG&E Thurman Switching Station and LEU Guild Substation footprints.

Existing vegetation management within LEU Industrial Substation includes weeding as necessary, and rerocking areas with compacted gravel base to suppress vegetation growth within the station fence lines. Weeding and rerocking areas as needed will continue within the modified LEU Industrial Substation, and will occur within the new LEU Guild Substation. Existing vegetation management surrounding LEU Industrial Substation, typically mowing, will continue on the remaining portions of City of Lodi land outside LEU Industrial and LEU Guild substations along East Thurman Road.

3.9 Decommissioning

At this time, it is difficult to predict precisely when or how the project will be decommissioned at the end of the project's useful life. At the time of decommissioning, PG&E and LEU will review and consider current options, issues, and regulatory requirements in consultation with landowners, occupants, government representatives, and other participants having interest in the work.

3.10 Anticipated Permits and Approvals

The CPUC is the lead state agency for the project under CEQA because a CPCN is required in accordance with CPUC's GO 131 D, Section III.A. GO 131 D contains the CPUC's permitting requirements for the construction of transmission and power line facilities. In addition to the CPCN, PG&E will obtain all applicable permits for the project from federal, state, and local agencies.

LEU is a municipal utility of the City of Lodi and is not regulated by the CPUC; LEU does not need authorization from the CPUC to construct and operate its components of the project. However, because the PG&E components and the LEU components are intended to be constructed together and are

interconnected, the actions by both constitute the "whole of the action" for purposes of CEQA review and will be evaluated in a single CEQA document. The City of Lodi intends to rely on the CEQA document prepared by the CPUC to comply with CEQA before undertaking any discretionary actions it needs to start its construction of its new 230/60 kV substation and related work on its 60 kV system. Although LEU is not subject to CPUC jurisdiction, LEU intends to implement the mitigation measures identified in the CPUC's CEQA document that apply to the LEU portion of the project.

The necessary federal, state, regional, and local permits that may be required for the PG&E portion of the project are included in Table 3.10-1.

Table 3.10-1. Permits and Approvals that May be Required for PG&E's Portion of the Project

Permit/Authorization | Status	Agency | Contact	Purpose
Federal		
FAA 14 CFR Part 77 Notifications | Issued: 04/26/2022	Federal Aviation Administration | Daniel Shoemaker Mail Processing Center Federal Aviation Administration Southwest Regional Office Obstruction Evaluation Group 10101 Hillwood Parkway Fort Worth, TX 76177	Notification for objects affecting navigable airspace
State		
Certificate of Public Convenience and Necessity | Application Submitted: August 2023	CPUC | Boris Sanchez California Public Utilities Commission Infrastructure Planning and CEQA, Energy Division 505 Van Ness Avenue San Francisco, CA 94102 Boris.Sanchez@cpuc.ca.gov	Overall project approval, CEQA review, and issuance of a CPCN
National Pollutant Discharge Elimination System – General Construction Stormwater Permit (ministerial) | PG&E will apply after CPCN issued	Regional Water Quality Control Board | Regional Board: 5S / Central Valley 11020 Sun Center Drive, #200 Rancho Cordova, CA 95670-6114	Stormwater discharges associated with construction activities disturbing more than 1 acre of land
Encroachment Permit | PG&E will apply after CPCN issued	Caltrans | Francisco J. Rodriguez, P.E. District Permit Engineer District 10 Encroachment Permits Francisco_J_Rodriguez@dot.ca.gov	Electrical line installation over SR 88 and over SR 12
Encroachment Permit Section 408 Review | PG&E will apply after CPCN issued	Central Valley Flood Protection Board | Steve Lamb, PE Permitting Section Chief Central Valley Flood Protection Board steven.lamb@CVFlood.ca.gov	Electrical line installation over federal levee (Bear Creek), 2 crossings
Regional		

Permit/Authorization | Status	Agency | Contact	Purpose
Dust Control Plan (Rule 3135) | PG&E will apply after CPCN issued	San Joaquin Valley Air Pollution Control District | Central Region Office 1990 E. Gettysburg Avenue Fresno, CA 93726-0244	Projects in which construction-related activities will disturb 5 or more acres of surface area
Demolition Permit Release Form | PG&E will apply after CPCN issued	San Joaquin Valley Air Pollution Control District | Central Region Office 1990 E. Gettysburg Avenue Fresno, CA 93726-0244	Review of asbestos survey for demolition of PG&E Rio Oso-Lockeford lattice steel tower.
Indirect Source Review (ISR) (Rule 9510) Air Impact Assessment | PG&E will apply after CPCN issued	San Joaquin Valley Air Pollution Control District | Central Region Office 1990 E. Gettysburg Avenue Fresno, CA 93726-0244	Reduce construction emissions of nitrogen oxides (NOx) and particulate matter less than 10 micrometers in aerodynamic diameter (PM_{10})
Local		
Encroachment Permit (ministerial) | with Traffic Control Plan as indicated; PG&E will apply after CPCN issued	San Joaquin County/City of Lodi | San Joaquin County Public Works Department 1810 East Hazelton Avenue Stockton, CA 95205 City of Lodi Public Works Department 221 W Pine Street Lodi, CA 95240	Electrical line installation over/along/within county or city roads
Grading Permit (ministerial) | PG&E will apply after CPCN issued	San Joaquin County | San Joaquin County Community Development Department 1810 East Hazelton Avenue Stockton, CA 95205	Grading for expansion of Lockeford Substation
Building Permit (ministerial) | PG&E will apply after CPCN issued	San Joaquin County/City of Lodi | San Joaquin County Community Development Department 1810 East Hazelton Avenue Stockton, CA 95205 City of Lodi Community Development Department 221 W Pine Street Lodi, CA 95240	Construction of substations
Railroad Permit | PG&E will apply after CPCN issued	Union Pacific Railroad | Thomas Leddy Utilities/Drainage/Right of Entry San Joaquin County	Conductor crossing of railroad (three crossings)

Permit/Authorization | Status	Agency | Contact	Purpose
	(402) 544-8571 https://www.up.com/real_estate/utilities/encroach_procedure/index.htm	
Flagging Agreement | PG&E will seek agreement after CPCN issued	Central California Traction Company | 2201 W. Washington Road Suite #12 Stockton, CA. 95203 Phone: (209) 466-6927	Conductor crossing of railroad (three crossings)

After the CPCN is issued, LEU will seek permit approval from City of Lodi's Public Works Department and Community Development Department located at 221 W Pine Street. The following permits are expected to be issued by the City of Lodi for LEU's portion of the project, which includes construction at LEU Industrial and LEU Guild substations and the 12 kV feeder line modifications:

- Traffic Control Permit
- Grading Permit
- Building Permit (for control, battery and metering enclosures, and station fence)

Because the LEU portion of the project will disturb more than 1 acre of land, LEU will apply for a National Pollutant Discharge Elimination System Stormwater Construction Permit for discharges of stormwater associated with construction from the SWRCB (Regional Board: 5S / Central Valley, 11020 Sun Center Drive, #200, Rancho Cordova, CA 95670-6114). After the CPCN is issued to PG&E, LEU expects to prepare a Stormwater Management Plan as required by the City of Lodi for the operation of LEU Guild Substation.

3.10.1 Rights-of-Way or Easement Applications

Land entitlement issues are not part of this regulatory proceeding, in which the CPUC is considering whether to grant or deny PG&E's application for a permit to construct new electrical facilities. Rather, any land rights issues will be resolved in subsequent negotiations and/or condemnation proceedings in the proper jurisdiction, following the decision by the Commission on PG&E's application (for example, refer to Jefferson-Martin 230 kV Transmission Project, A.02-04-043, D.04-08-046, p. 85).

3.11 Applicant-Proposed Measures and Best Management Practices

PG&E and LEU propose to implement their respective APMs and BMPs listed in Table 3.11-1 to avoid or further minimize potential less-than-significant project impacts. The measures are discussed with their respective environmental resources in the subsection within each resource category in Chapter 5.

The proposed PG&E facilities, combined with the new LEU Guild Substation and modified Industrial Substation, constitute the Project being evaluated under CEQA. If the CPUC approves PG&E's application to construct and operate its proposed facilities, PG&E would be responsible for implementation all of the APMs and all applicable mitigation measures governing the construction, operation, and maintenance of the Project. However, the LEU facilities would not be part of PG&E's application proceeding and will not be authorized under this specific CPUC decision. Though other federal, State, and local agencies would have permit and approval authority over some aspects of the Project, the CPUC would continue to act as the lead agency for monitoring compliance with all mitigation measures required by the adopted EIR. All approvals and permits obtained by PG&E would be submitted to the CPUC prior to commencing the activity for which the permits and approvals were obtained.

Table 3.11-1. Summary Table for Applicant-Proposed Measures and Best Management Practices

Applicant-Proposed Measures and Best Management Practices
Section 5.1 Aesthetics (AES)
APM AES-1: Aesthetics Impact Reduction During PG&E Construction. All PG&E project sites will be maintained in a clean and orderly state. Construction staging areas will be sited away from the public view where possible. Where this is unavoidable, construction sites, staging areas, and fly yards will be visually screened using temporary screening fencing. Nighttime lighting will be directed away from residential areas and have shields to prevent light spillover effects. Upon completion of project construction, project staging and temporary work areas will be returned to pre-project conditions, including regrading of the site and revegetation or repaving of disturbed areas to match pre-existing contours and conditions.
BMP AES-1: Aesthetics Impact Reduction During LEU Construction. All LEU project sites will be maintained in a clean and orderly state. Construction staging areas will be sited away from the public view where possible. Where this is unavoidable, construction sites, staging areas, and fly yards will be visually screened using temporary screening fencing. Nighttime lighting will be directed away from residential areas and have shields to prevent light spillover effects. Upon completion of project construction, project staging and temporary work areas will be returned to pre-project conditions, including regrading of the site and revegetation or repaving of disturbed areas to match pre-existing contours and conditions.
APM AES-2: Use of Dulled Galvanized Finish on PG&E Tubular Steel Poles and PG&E Non-Specular Conductors. Use of a factory-dulled galvanized finish on new PG&E TSPs and PG&E non-specular (nonreflective) conductors would reduce the potential for a new source of glare and visual contrast resulting from the PG&E TSPs and conductors.
APM AES-3: PG&E Poles near Residences. To reduce potential visibility of PG&E Structure W13 as seen from the residence located within approximately 250 feet, where relatively unobstructed views of the project are seen and the new PG&E structure appears prominent, APM AES-3a and/or 3b will be implemented.
APM AES-3a: PG&E will consult with residential property owner regarding placement of PG&E Structure W13 to reduce its visibility with respect to the residential view.
APM AES-3b: PG&E will consult with residential property owner regarding PG&E's potential purchase of several trees and large shrubs for installation at key locations on residential property to provide visual screening. The selected plant material will be ecologically appropriate to the local landscape setting (in terms of water usage, horticultural and soil requirements, and so on) and will be compatible with PG&E and CPUC requirements for landscaping in proximity to power facilities. After planting, the maintenance of the plants will be the responsibility of the property owner.
Section 5.2 Agriculture and Forestry Resources (AGR)
APM AGR-1: Minimize Impacts on Active Agricultural Areas. • Prior to construction, PG&E will provide written notice to landowners outlining construction activities, preliminary schedule, and timing of restoration efforts. • PG&E will coordinate with landowners to minimize construction-related disruptions to seasonal farming operations. To the extent reasonably feasible, PG&E will schedule construction activities to minimize disruptions to harvesting, planting, and crop maintenance activities, such as fertilizer application and crop dusting. • PGE& will establish temporary overland access routes and work areas to minimize disruptions to agricultural infrastructure (including irrigation lines, wells, pumps, ditches, and drains) to the greatest extent reasonably feasible. If necessary, and upon agreement between PG&E and the landowners, agricultural infrastructure will be protected with temporary materials (for example, steel plates, blankets) to prevent inadvertent damage during construction. Where feasible, overland routes within orchards and vineyards will be aligned with the planting layout or otherwise to minimize tree and vine removal. • If trees or other crops cannot be avoided by PG&E as specified previously, impacts will be limited to the minimum necessary to construct the project, and PG&E will provide the agricultural owner with fair market compensation for crops removed, crops unable to be harvested, lost planting cycles, and any damaged infrastructure.

Applicant-Proposed Measures and Best Management Practices

- PG&E will restore agricultural land temporarily impacted by construction to pre-project conditions following completion of construction, including areas impacted by establishment of temporary staging, laydown and storage areas, overland access, guard structures, and pull sites. If grading occurs in actively planted agricultural areas, topsoil will be stockpiled and used to backfill excavations to pre-existing grade when construction is complete. Restoration of sites will involve removing any rock or material imported to stabilize the site, replacing topsoil, decompacting any soil that has been compacted by heavy equipment, and replanting agricultural crops. The responsibility of performing these various tasks may be stipulated in an agreement between PG&E and the landowner. If a landowner is better equipped or prefers to replant crops or perform other tasks themselves, then PG&E will provide just compensation for this work.

Section 5.3 Air Quality (AIR)

APM AIR-1: PG&E Dust Control During Construction.

PG&E will implement measures to control fugitive dust in compliance with the San Joaquin Valley Air Pollution Control District (SJVAPCD) standards. Dust control measures will include the following at a minimum:

- All exposed surfaces with the potential of dust-generating will be watered or covered with coarse rock to reduce the potential for airborne dust from leaving the site.
- The simultaneous occurrence of more than two ground disturbing construction phases on the same area at any one time will be limited. Activities will be phased to reduce the amount of disturbed surfaces at any one time.
- Cover all haul trucks entering/leaving the site and trim their loads as necessary.
- Use wet power vacuum street sweepers to sweep all paved access road, parking areas, staging areas, and public roads adjacent to project sites on a daily basis (at minimum) during construction. The use of dry power sweeping is prohibited.
- All trucks and equipment, including their tires, will be washed off prior to leaving project sites.
- Apply gravel or non-toxic soil stabilizers on all unpaved access roads, parking areas, and staging areas at project sites.
- Water and/or cover soil stockpiles daily.
- Vegetative ground cover will be planted in disturbed areas as soon as possible and watered appropriately until vegetation is established.
- All vehicle speeds will be limited to 15 miles per hour or less on unpaved areas.
- Implement dust monitoring in compliance with the standards of the local air district.
- Halt construction during any periods when wind speeds are in excess of 50 mph.

BMP AIR-1: LEU Dust Control During Construction

LEU will implement measures to control fugitive dust in compliance with SJVAPCD standards. Dust control measures will include the following at a minimum:

- All exposed surfaces with the potential of dust-generating will be watered or covered with coarse rock to reduce the potential for airborne dust from leaving the site.
- The simultaneous occurrence of more than two ground disturbing construction phases on the same area at any one time will be limited. Activities will be phased to reduce the amount of disturbed surfaces at any one time.
- Cover all haul trucks entering/leaving the site and trim their loads as necessary.
- Use wet power vacuum street sweepers to sweep all paved access road, parking areas, staging areas, and public roads adjacent to project sites on a daily basis (at minimum) during construction. The use of dry power sweeping is prohibited.
- All trucks and equipment, including their tires, will be washed off prior to leaving project sites.
- Apply gravel or non-toxic soil stabilizers on all unpaved access roads, parking areas, and staging areas at project sites.
- Water and/or cover soil stockpiles daily.

Applicant-Proposed Measures and Best Management Practices
• Vegetative ground cover will be planted in disturbed areas as soon as possible and watered appropriately until vegetation is established. • All vehicle speeds will be limited to 15 miles per hour or less on unpaved areas. • Implement dust monitoring in compliance with the standards of the local air district. • Halt construction during any periods when wind speeds are in excess of 50 mph.
Section 5.4 Biological Resources (BIO or PG&E SJVHCP AMM)
APM BIO-1: Develop and implement a PG&E Worker Environmental Awareness Program. A PG&E biologist familiar with resources in the area and with delivering Worker Environmental Awareness Programs will conduct an environmental awareness program for all onsite construction personnel before they begin work on the project. Training will include a discussion of the avoidance and minimization measures that are being implemented to protect biological resources as well as the terms and conditions of project permits. Training will include information about the federal and state Endangered Species Acts and the consequences of noncompliance with these acts. Under this program, workers will be informed of the presence, life history, and habitat requirements of all special-status species that may be affected by the PG&E portion of the project, and about state and federal laws protecting nesting birds, wetlands, and other water resources. An educational brochure will be produced for construction crews working on the project. Color photos of special-status species will be included, as well as a discussion of relevant APMs and specific avoidance or minimization measures for special-status species and habitats.
BMP BIO-1: Develop and implement an LEU Worker Environmental Awareness Program. A biologist for the LEU portion of the project who is familiar with resources in the area and with delivering Worker Environmental Awareness Programs will conduct an environmental awareness program for all onsite construction personnel before they begin work on the project. Training will include a discussion of the avoidance and minimization measures that are being implemented to protect biological resources as well as the terms and conditions of project permits. Training will include information about the federal and state Endangered Species Acts and the consequences of noncompliance with these acts. Under this program, workers will be informed of the presence, life history, and habitat requirements of all special-status species that may be affected by the LEU portion of the project, and about state and federal laws protecting nesting birds, wetlands, and other water resources. An educational brochure will be produced for construction crews working on the project. Color photos of special-status species will be included, as well as a discussion of relevant best practices and specific avoidance or minimization measures for special-status species and habitats.

Applicant-Proposed Measures and Best Management Practices

APM BIO-2: Avoid and protect nesting birds from PG&E impact. If construction is to occur during the avian nesting season (March 1 through August 15), a preconstruction migratory bird and raptor nesting survey will be performed by a PG&E biologist who is familiar with local avian species and nesting birds. Surveys will occur only in publicly accessible areas and areas where PG&E has existing access; private property will not be accessed and will instead be observed from adjacent accessible areas.

Preconstruction nesting bird surveys will be performed in accordance with PG&E's Nesting Bird Management Plan. The preconstruction survey will cover a radius of 200 feet for nonlisted raptors and 100 feet for nonlisted passerines from project locations that will be actively worked at in the near term. Surveys for Swainson's hawk will cover a 0.25-mile radius from the project footprint. The survey will cover all affected areas where ground disturbance or vegetation clearing is required in the near term. Subsequent surveys will be conducted in advance of other project locations becoming active. If any active nests containing eggs or young are found, an appropriate nest exclusion zone will be established by the PG&E biologist in accordance with PG&E's Nesting Bird Management Plan. No heavy equipment will be operated in this exclusion zone until the biologist has determined that the nest is no longer active and the young have fledged. If it is not practicable to avoid work in an exclusion zone around an active nest, work activities will be modified to minimize disturbance of nesting birds but may proceed in these zones at the discretion of the biologist. As appropriate, the biologist will monitor work activities in these zones daily or periodically when construction is occurring and assess their effect on the nesting birds. If the biologist determines that particular activities pose a high risk of disturbing an active nest, the biologist will recommend additional, feasible measures to minimize the risk of nest disturbance. If work cannot proceed without disturbing the nesting birds, or signs of disturbance are observed by the monitor, work may need to be halted or redirected to other areas until the nesting and fledging is completed or the nest has otherwise failed for reasons not related to construction.

BMP BIO-2: Avoid and protect nesting birds from LEU impact. If construction is to occur during the avian nesting season (March 1 through August 15), a preconstruction migratory bird and raptor nesting survey will be performed by a biologist for the LEU portion of the project who is familiar with local avian species and nesting birds. Surveys will occur only in publicly accessible areas and areas where LEU has existing access; private property will not be accessed and will instead be observed from adjacent accessible areas.

The preconstruction survey will cover a radius of 200 feet for nonlisted raptors and 100 feet for nonlisted passerines from project locations that will be actively worked at in the near term. Surveys for Swainson's hawk will cover a 0.25-mile radius from the LEU project footprint. The survey will cover all affected areas where ground disturbance or vegetation clearing is required in the near term. Subsequent surveys will be conducted in advance of other project locations becoming active. If any active nests containing eggs or young are found, an appropriate nest exclusion zone will be established by the biologist. No heavy equipment will be operated in this exclusion zone until the biologist has determined that the nest is no longer active and the young have fledged. If it is not practicable to avoid work in an exclusion zone around an active nest, work activities will be modified to minimize disturbance of nesting birds but may proceed in these zones at the discretion of the biologist. As appropriate, the biologist will monitor work activities in these zones daily or periodically when construction is occurring and assess their effect on the nesting birds. If the biologist determines that particular activities pose a high risk of disturbing an active nest, the biologist will recommend additional, feasible measures to minimize the risk of nest disturbance. If work cannot proceed without disturbing the nesting birds, or signs of disturbance are observed by the monitor, work may need to be halted or redirected to other areas until the nesting and fledging is completed or the nest has otherwise failed for reasons not related to construction.

APM BIO-3: Identify and mark sensitive biological resource areas near PG&E portion of the project. Sensitive biological resources (for example, aquatic resources and nesting birds) in or adjacent to PG&E construction work areas identified during the preconstruction surveys will be clearly marked in the field and on project maps as appropriate. Such areas will be avoided during construction to the greatest extent feasible.

BMP BIO-3: Identify and mark sensitive biological resource areas near LEU portion of the project. Sensitive biological resources (for example, nesting birds) in or adjacent to LEU construction work areas identified during the preconstruction surveys will be clearly marked in the field and on project maps as appropriate. Such areas will be avoided during construction to the greatest extent feasible.

Applicant-Proposed Measures and Best Management Practices
APM BIO-4: Install exclusion fencing near PG&E portion of the project. At the discretion of the PG&E biologist, prior to any ground-disturbing work in proximity to suitable habitat for special-status species or adjacent to wetlands or waters, exclusion fence will be installed around PG&E workspaces as appropriate. Exclusion fencing will be routinely inspected during project activities and any damage, such as holes or gaps, will be promptly repaired.
BMP BIO-4: Install exclusion fencing near LEU portion of the project. At the discretion of the LEU biologist, prior to any ground-disturbing work in proximity to suitable habitat for special-status species, exclusion fence will be installed around LEU workspaces as appropriate. Exclusion fencing will be routinely inspected during project activities and any damage, such as holes or gaps, will be promptly repaired.
APM BIO-5: Allow biological monitor onsite during PG&E construction activities in sensitive biological resource areas. At the discretion of the PG&E biologist, a qualified biologist will be onsite during construction activities in sensitive biological resource areas identified in APM BIO-4 unless the area has been protected by barrier fencing to protect sensitive biological resources and previously cleared by the qualified biologist and the PG&E biologist. The qualified biologist will ensure implementation and compliance with all avoidance and mitigation measures and have the authority to stop or redirect work if construction activities are likely to affect sensitive biological resources.
BMP BIO-5: Allow biological monitor onsite during LEU construction activities in sensitive biological resource areas. At the discretion of the biologist for the LEU portion of project, a qualified biologist will be onsite during construction activities in sensitive biological resource areas identified in BMP BIO-4 unless the area has been protected by barrier fencing to protect sensitive biological resources and previously cleared by the qualified biologist and the biologist for the LEU portion of project. The qualified biologist will ensure implementation and compliance with all avoidance and mitigation measures and have the authority to stop or redirect work if construction activities are likely to affect sensitive biological resources.
APM BIO-6: Avoid and protect special-status amphibians from PG&E impact. During wet weather or the rainy season, all open holes, pits, and trenches at PG&E work areas will be protected to ensure that wildlife does not become entrapped. Protective fencing, coverings, or ramps will be installed to either prevent wildlife from falling into excavations or to allow for escape if they do. At the end of each workday, steep-walled holes or trenches more than approximately 6 inches deep will be covered or provided with one or more escape ramps and/or fenced. Open excavations will be inspected, prior to the start of construction activities, to ensure that no wildlife is trapped. Construction personnel also will check underneath vehicles and within materials to be moved (that is, tires, tracks, pipes) for the presence of frogs when parked or placed near suitable aquatic or upland dispersal habitat.
APM BIO-7: Implement general protection measures for wetlands and other waters near PG&E portion of the project. PG&E will implement the following general measures to minimize or avoid impacts on wetlands and other waters: • Avoid wetlands and other waters during construction activities. • Do not refuel vehicles within approximately 100 feet of a wetland, stream, or other waterway unless a bermed and lined refueling area is constructed. • Implement an SWPPP to minimize construction-related erosion and sediments from entering nearby waterways (refer to APM HYD-1).

Applicant-Proposed Measures and Best Management Practices

APM BIO-8: Implement general resource protection measures for PG&E portion of the project. This APM consists of the following components:

- *Hazardous materials spills.* Emergency spill response and cleanup kits will be readily available for immediate containment and cleanup of an accidental spill. Construction crews will be trained in safe handling of hazardous materials and cleanup responsibilities. Any inadvertent spills into aquatic habitat will be reported to the applicable resource agencies within 24 hours.
- *Reporting and communication.* The PG&E biologist will be responsible for immediately reporting any capture and relocation, or inadvertent harm, entrapment, or death, of a federally or state-listed species under the federal Endangered Species Act (ESA) or the California Endangered Species Act (CESA) to the applicable resource agencies.
- *Restoring temporarily disturbed habitats.* All habitat areas for special-status species that are temporarily disturbed as a result of project activities will be restored upon completion of construction. Disturbed areas will be restored and revegetated in coordination with landowners. Many areas are actively cultivated or grazed and landowners may request replanting of similar crops or plant species as existed previously. These may not necessarily be native plant species. For PG&E-owned parcels, revegetation would be accomplished through application of a habitat-appropriate native seed mix. Restoration is anticipated to be completed within approximately 6 to 9 months after the project, depending on landowner requests and the season in which disturbance activities and subsequent restoration activities will take place.
- *Erosion control materials.* Only tightly woven netting or similar material will be used for all geosynthetic erosion control materials such as coir rolls and geotextiles. No plastic monofilament matting will be used. Sod may be used when restoring landscaped areas.
- *Minimizing grading and vegetation removal along access roads and construction work areas.* PG&E will only trim, clear, or remove vegetation as necessary to establish the access routes and allow equipment use. Trees will be directionally felled away from sensitive biological resource areas and, if that is not possible, they will be removed in sections. Damage to adjacent trees will be avoided to the greatest extent possible.
- *Weed management.* Vehicles and construction equipment will be cleaned of mud and dirt as needed to minimize transport of weed plant parts or seed. Vehicles also will be cleaned at the completion of the project or when off-road use for that vehicle has been completed.

BMP BIO-8: Implement general resource protection measures for LEU portion of the project. This BMP consists of the following components:

- *Hazardous materials spills.* Emergency spill response and cleanup kits will be readily available for immediate containment and cleanup of an accidental spill. Construction crews will be trained in safe handling of hazardous materials and cleanup responsibilities. Any inadvertent spills into aquatic habitat will be reported to the applicable resource agencies within 24 hours.
- *Reporting and communication.* The LEU biologist will be responsible for immediately reporting any capture and relocation, or inadvertent harm, entrapment, or death, of a federally or state-listed species under ESA or CESA to the applicable resource agencies.
- *Erosion control materials.* Only tightly woven netting or similar material will be used for all geosynthetic erosion control materials such as coir rolls and geotextiles. No plastic monofilament matting will be used.
- *Minimizing grading and vegetation removal along access roads and construction work areas.* LEU will only trim, clear, or remove vegetation as necessary to establish the access routes and allow equipment use. Trees will be directionally felled away from sensitive biological resource areas and, if that is not possible, they will be removed in sections. Damage to adjacent trees will be avoided to the greatest extent possible.
- *Weed management.* Vehicles and construction equipment will be cleaned of mud and dirt as needed to minimize transport of weed plant parts or seed. Vehicles also will be cleaned at the completion of the project or when off-road use for that vehicle has been completed.

Applicant-Proposed Measures and Best Management Practices
APM BIO-9: Implement general resource protection measures for PG&E portion of the project. PG&E conductors and ground wires would be spaced sufficiently apart, as feasible, so that raptors cannot contact two conductors or one conductor and a ground wire, causing electrocution (APLIC 2006).
BMP BIO-9: Implement general resource protection measures for LEU portion of the project. LEU conductors and ground wires would be spaced sufficiently apart, as feasible, so that raptors cannot contact two conductors or one conductor and a ground wire, causing electrocution (APLIC 2006).
APM BIO-10: Protect birds on PG&E power lines. All PG&E transmission and power lines and PG&E switching station and substation facilities for the project will be designed to be avian-safe as appropriate and feasible, following the intent of *Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006* (APLIC 2006, 2012).
BMP BIO-10: Protect birds on LEU power lines. All LEU transmission and power lines and LEU substation facilities for the project will be designed to be avian-safe as appropriate and feasible, following the intent of *Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006* (APLIC 2006, 2012).
PG&E SJVHCP AMM-1: Employees and contractors performing O&M activities will receive ongoing environmental education. Training will include review of environmental laws and guidelines that must be followed by all personnel to reduce or avoid effects on covered species during O&M activities.
PG&E SJVHCP AMM-2: Vehicles and equipment will be parked on pavement, existing roads, and previously disturbed areas to the extent practicable.
PG&E SJVHCP AMM-3: The development of new access and ROW roads by PG&E will be minimized and clearing vegetation and blading for temporary vehicle access will be avoided to the extent practicable.
PG&E SJVHCP AMM-4: Vehicles will not exceed a speed limit of 15 mph in the ROWs or on unpaved roads within sensitive land-cover types.
PG&E SJVHCP AMM-5: Trash dumping, firearms, open fires (such as barbecues) not required by the O&M activity, hunting, and pets (except for safety in remote locations) will be prohibited in O&M work activity sites.
PG&E SJVHCP AMM-6: No vehicles will be refueled within 100 feet of a wetland, stream, or other waterway unless a bermed and lined refueling area is constructed.
PG&E SJVHCP AMM-7: During any reconstruction of existing overhead electric facilities in areas with a high risk of wildlife electrocution (e.g., nut/fruit orchards, riparian corridors, areas along canal or creek banks, PG&E's raptor concentration zone), PG&E will use insulated jumper wires and bird/animal guards for equipment insulator bushings or will construct lines to conform to the latest revision of PG&E's Bird and Wildlife Protection Standards.
PG&E SJVHCP AMM-8: During fire season in designated State Responsibility Areas, all motorized equipment will have federal or state approved spark arrestors; a backpack pump filled with water and a shovel will be carried on all vehicles; and fire-resistant mats and/or windscreens will be used when welding. In addition, during fire "red flag" conditions as determined by California Department of Forestry (CDF), welding will be curtailed, each fuel truck will carry a large fire extinguisher with a minimum rating of 40 B:C, and all equipment parking and storage areas will be cleared of all flammable materials.
PG&E SJVHCP AMM-9: Erosion control measures will be implemented where necessary to reduce erosion and sedimentation in wetlands, waters of the United States, and waters of the state, and habitat occupied by covered animal and plant species when O&M activities are the source of potential erosion problems.
PG&E SJVHCP AMM-10: If an activity disturbs more than 0.25 acre in a grassland, and the landowner approves or it is within PG&E rights and standard practices, the area should be returned to pre-existing conditions and broadcast-seeded using a commercial seed mix. Seed mixtures/straw used for erosion control on projects of all sizes within grasslands will be certified weed-free. PG&E shall not broadcast-seed (or apply in other manner) any commercial seed or seed-mix to disturbance sites within other natural land-cover types, within any vernal pool community, or within occupied habitat for any plant covered species.

Applicant-Proposed Measures and Best Management Practices
PG&E SJVHCP AMM-11: When routine O&M activities are conducted in an area of potential VELB habitat, a qualified individual will survey for the presence of elderberry plants within a minimum of 20 feet from the work site. If elderberry plants have one or more stems measuring 1 inch or more in diameter at ground level, the qualified individual will flag those areas to avoid or minimize potential impacts on elderberry plants. If impacts (pruning/trimming, removal, ground disturbance, or damage) are unavoidable or occur, then additional measures identified in the VELB conservation plan and compliance brochure will be implemented. The VELB compliance brochure must be carried in all vehicles performing O&M activities within the potential range of VELB.
Section 5.5 Cultural Resources (CUL)
APM CUL-1: Develop and Implement Worker Environmental Awareness Program Prior to Construction. PG&E will design and implement a worker environmental awareness program that will be provided to all project personnel involved in earth-moving activities. This training will be administered by a qualified cultural resource professional either as a stand-alone training or as part of the overall environmental awareness training required by the project, and may be recorded for use in subsequent training sessions. No construction worker will be involved in field operations without having participated in the worker environmental awareness program, which will include, at a minimum: • A review of archaeology, history, precontact, and Native American cultures associated with historical resources in the project vicinity • A review of applicable local, state, and federal ordinances, laws, and regulations pertaining to historic preservation • A discussion of procedures to be followed in the event that unanticipated cultural resources are discovered during implementation of the project • A discussion of disciplinary and other actions that could be taken against persons violating historic preservation laws and PG&E policies • A statement by the construction company or applicable employer agreeing to abide by the Worker Education Program, PG&E policies, and other applicable laws and regulations
BMP CUL-1: Develop and Implement Worker Environmental Awareness Program Prior to Construction. LEU will design and implement a worker environmental awareness program that will be provided to all project personnel involved in earth-moving activities. This training will be administered by a qualified cultural resource professional either as a stand-alone training or as part of the overall environmental awareness training required by the project, and may be recorded for use in subsequent training sessions. No construction worker will be involved in field operations without having participated in the worker environmental awareness program, which will include, at a minimum: • A review of archaeology, history, precontact, and Native American cultures associated with historical resources in the project vicinity • A review of applicable local, state, and federal ordinances, laws, and regulations pertaining to historic preservation • A discussion of procedures to be followed in the event that unanticipated cultural resources are discovered during implementation of the project • A discussion of disciplinary and other actions that could be taken against persons violating historic preservation laws and PG&E policies • A statement by the construction company or applicable employer agreeing to abide by the Worker Education Program, PG&E policies, and other applicable laws and regulations
APM CUL-2: Archaeological Construction Monitoring in High-Sensitivity Areas. In high-sensitivity areas where survey did not identify archaeological resources (PG&E structures W12, W13 and W14), once per day during ground-disturbing activities a qualified archaeological monitor will observe the ground-disturbing activities and have the authority to halt ground-disturbing work temporarily within 100 feet of a find when safe to do so to assess the find. The assessment, and any subsequent evaluation, will follow the processes described in APM CUL-3. Monitoring at these locations can be reduced if, after initial monitoring, the qualified archaeological monitor has determined there is a low likelihood of identifying cultural resources.

Applicant-Proposed Measures and Best Management Practices

APM CUL-3: Inadvertent Cultural Resource Discoveries. While the pedestrian survey had good ground visibility and did not identify any new cultural resources, it is not uncommon to have unanticipated cultural discoveries during construction. The precontact buried site sensitivity analysis identified a high potential for buried resources near SR 88 and Bear Creek. Additionally, the area has historically been occupied and used for agricultural purposes since the late 1900s. For these reasons, precontact and historic-era inadvertent discoveries are possible during construction. If such discoveries take place, the following procedures will be initiated:

- All ground-disturbing construction activities within 100 feet of the discovery will halt immediately.
- The construction crew will protect the discovery from further disturbance until it has been assessed by a qualified archaeologist.
- The construction supervisor will immediately contact the project construction inspector and the PG&E cultural resource specialist.
- The PG&E cultural resources specialist will coordinate with the state lead officials, as appropriate. If the discovery can be avoided or protected and no further impacts will occur, then the resource will be documented on DPR 523 forms, and no further effort will be required. If the resource cannot be avoided and may be subjected to further impacts, qualified personnel will evaluate the significance of the discovery in accordance with the state laws outlined previously; personnel will implement data recovery or other appropriate treatment measures, if warranted. A qualified historical archaeologist will complete an evaluation of historic-period resources, while evaluation of precontact resources will be completed by a qualified archaeologist specializing in California prehistoric archaeology. Evaluations may include archival research, oral interviews, and/or field excavations to determine the full depth, extent, nature, and integrity of the deposit.

BMP CUL-3: Inadvertent Cultural Resource Discoveries. While the pedestrian survey had good ground visibility and did not identify any new cultural resources, it is not uncommon to have unanticipated cultural discoveries during construction. The precontact buried site sensitivity analysis identified a low potential for buried resources in the LEU portion of the project. Additionally, the area has historically been occupied and used for agricultural purposes since the late 1900s. For these reasons, precontact and historic-era inadvertent discoveries are possible during construction. If such discoveries take place, the following procedures will be initiated:

- All ground-disturbing construction activities within 100 feet of the discovery will halt immediately.
- The construction crew will protect the discovery from further disturbance until it has been assessed by a qualified archaeologist.
- The construction supervisor will immediately contact the project construction inspector and the LEU cultural resource specialist.
- The LEU cultural resource lead will coordinate with the state lead officials, as appropriate. If the discovery can be avoided or protected and no further impacts will occur, then the resource will be documented on DPR 523 forms, and no further effort will be required. If the resource cannot be avoided and may be subjected to further impacts, qualified personnel will evaluate the significance of the discovery in accordance with the state laws outlined previously; personnel will implement data recovery or other appropriate treatment measures, if warranted. A qualified historical archaeologist will complete an evaluation of historic-period resources, while evaluation of precontact resources will be completed by a qualified archaeologist specializing in California prehistoric archaeology. Evaluations may include archival research, oral interviews, and/or field excavations to determine the full depth, extent, nature, and integrity of the deposit.

Applicant-Proposed Measures and Best Management Practices
APM CUL-4: Unanticipated Discovery of Human Remains. If human remains or suspected human remains are discovered during PG&E construction, work within 100 feet of the find will stop immediately and the construction supervisor will contact the PG&E cultural resources specialist, who meets the Secretary of Interior's Standards for archaeology. Upon discovery, the Coroner Division of the San Joaquin County Sheriff's Office will be contacted for identification of human remains. The Coroner has 2 working days to examine the remains after being notified. If the remains are Native American, the Coroner must notify the Native American Heritage Commission (NAHC) of the discovery within 24 hours. The NAHC then will identify and contact a Most Likely Descendant (MLD). The MLD may make recommendations to the landowner or representative for the treatment or disposition, with proper dignity, of the remains and grave goods. When proper consultation has occurred, a procedure that may include the preservation, excavation, analysis, and curation of artifacts and/or reburial of those remains and associated artifacts will be formulated and implemented. If the remains are not Native American, the Coroner will consult with the archaeological research team and the lead agency to develop a procedure for the proper study, documentation, and ultimate disposition of the remains. If a determination can be made as to the likely identity—either as an individual or as a member of a group—of the remains, an attempt should be made to identify and contact any living descendants or representatives of the descendant community. As interested parties, these descendants may make recommendations to the owner or representative for the treatment or disposition, with proper dignity, of the remains and grave goods. Final disposition of any human remains or associated funerary objects will be determined in consultation between the landowner and the MLD.
BMP CUL-4: Unanticipated Discovery of Human Remains. If human remains or suspected human remains are discovered during LEU construction, work within 100 feet of the find will stop immediately and the construction supervisor will contact the LEU cultural resources specialist, who meets the Secretary of Interior's Standards for archaeology. Upon discovery, the Coroner Division of the San Joaquin County Sheriff's Office will be contacted for identification of human remains. The Coroner has 2 working days to examine the remains after being notified. If the remains are Native American, the Coroner must notify the NAHC of the discovery within 24 hours. The NAHC then will identify and contact an MLD. The MLD may make recommendations to the landowner or representative for the treatment or disposition, with proper dignity, of the remains and grave goods. When proper consultation has occurred, a procedure that may include the preservation, excavation, analysis, and curation of artifacts and/or reburial of those remains and associated artifacts will be formulated and implemented. If the remains are not Native American, the Coroner will consult with the archaeological research team and the lead agency to develop a procedure for the proper study, documentation, and ultimate disposition of the remains. If a determination can be made as to the likely identity—either as an individual or as a member of a group—of the remains, an attempt should be made to identify and contact any living descendants or representatives of the descendant community. As interested parties, these descendants may make recommendations to the owner or representative for the treatment or disposition, with proper dignity, of the remains and grave goods. Final disposition of any human remains or associated funerary objects will be determined in consultation between the landowner and the MLD.
Section 5.6 Energy
Refer to Section 5.8 Greenhouse Gas Emissions APMs and BMPs.

Applicant-Proposed Measures and Best Management Practices

Section 5.7 Geology, Soils, and Paleontological Resources (GEO, PAL)

APM GEO-1: Appropriate PG&E Design Measures Implementation. Based in the graded and excavated areas as project construction proceeds. Potentially problematic subsurface conditions may include soft or loose soils. Where soft or loose soils are encountered during design studies or construction on PG&E facilities, appropriate measures will be implemented to avoid, accommodate, replace, or improve soft or loose soils encountered during construction. Such measures may include the following:

- Locating construction facilities and operation away from areas of soft and loose soil.
- Overexcavating soft or loose soils and replacing them with nonexpansive engineered fill.
- Increasing the density and strength of soft or loose soils through mechanical vibration and compaction.
- Treating soft or loose soils in place with binding or cementing agents.
- Construction activities in areas where soft or loose soils are encountered may be scheduled for the dry season, as necessary, to allow safe and reliable equipment access.

BMP GEO-1: Appropriate LEU Design Measures Implementation. Based on available references, sands and loamy sands are the primary soil types expected to be encountered in the graded and excavated areas as project construction proceeds. Potentially problematic subsurface conditions may include soft or loose soils. Where soft or loose soils are encountered during design studies or construction on LEU facilities, appropriate measures will be implemented to avoid, accommodate, replace, or improve soft or loose soils encountered during construction. Such measures may include the following:

- Locating construction facilities and operation away from areas of soft and loose soil.
- Overexcavating soft or loose soils and replacing them with nonexpansive engineered fill.
- Increasing the density and strength of soft or loose soils through mechanical vibration and compaction.
- Treating soft or loose soils in place with binding or cementing agents.
- Construction activities in areas where soft or loose soils are encountered may be scheduled for the dry season, as necessary, to allow safe and reliable equipment access.

APM PAL–1: Retain a PG&E Qualified Paleontological Principal Investigator. A PG&E Paleontological Principal Investigator who meets the standards set forth by the Society of Vertebrate Paleontology will be retained to ensure that all APMs related to paleontological resources are properly implemented. The Paleontological Principal Investigator will have a master's degree or Ph.D. in geology or paleontology, have knowledge of the local paleontology, and be familiar with paleontological procedures and techniques.

BMP PAL–1: Retain an LEU Qualified Paleontological Principal Investigator. An LEU Paleontological Principal Investigator who meets the standards set forth by the Society of Vertebrate Paleontology will be retained to ensure that all BMPs related to paleontological resources are properly implemented. The Paleontological Principal Investigator will have a master's degree or Ph.D. in geology or paleontology, have knowledge of the local paleontology, and be familiar with paleontological procedures and techniques.

APM PAL–2: PG&E Workers Environmental Awareness Training. Training on paleontological resources protection will be administered for excavation deeper than 3 feet bgs at all PG&E work locations. It may be provided by the PG&E project Paleontologist or Archaeologist as a stand-alone training or it may be included as part of the overall environmental awareness training as required by the project.

The training will include the following:

- The types of fossils that could occur at the project site
- The types of lithologies in which the fossils could be preserved
- The procedures that should be taken in the event of a fossil discovery
- Penalties for disturbing paleontological resources

Applicant-Proposed Measures and Best Management Practices
BMP PAL–2: LEU Workers Environmental Awareness Training. Training on paleontological resources protection will be administered for excavation deeper than 3 feet bgs at all LEU work locations. It may be provided by the LEU project Paleontologist or Archaeologist as a stand-alone training or it may be included as part of the overall environmental awareness training as required by the project. The training will include the following: • The types of fossils that could occur at the project site • The types of lithologies in which the fossils could be preserved • The procedures that should be taken in the event of a fossil discovery • Penalties for disturbing paleontological resources
APM PAL-3: Paleontological Resource Monitoring for Select PG&E Construction Activities. A paleontological monitor will be present to monitor for paleontological resources in areas where Riverbank formation or Turlock Lake formation occurs at the surface and excavation is greater than 3 feet deep and, for excavations involving drilling or augering, uses a drill diameter that is larger than 3 feet. The paleontological monitor will be able to: (1) recognize fossils and paleontological deposits, and deposits that may be paleontologically sensitive; (2) take accurate and detailed field notes, photographs, and locality coordinates; and (3) document project-related ground-disturbing activities, their locations, and other relevant information, including a photographic record.
BMP PAL-3: Paleontological Resource Monitoring for Select LEU Construction Activities. A paleontological monitor will be present to monitor for paleontological resources in areas where Riverbank formation occurs at the surface and excavation is greater than 3 feet deep and, for excavations involving drilling or augering, uses a drill diameter that is larger than 3 feet. The paleontological monitor will be able to: (1) recognize fossils and paleontological deposits, and deposits that may be paleontologically sensitive; (2) take accurate and detailed field notes, photographs, and locality coordinates; and (3) document project-related ground-disturbing activities, their locations, and other relevant information, including a photographic record.
APM PAL–4: PG&E Unanticipated Paleontological Discovery. If significant paleontological resources are discovered during PG&E's construction activities, the following procedures will be followed: • Stop work immediately within 100 feet of the fossil find. • Contact the designated project inspector and PG&E Cultural Resources Specialist (CRS) immediately. • Protect the site from further impacts, including looting, erosion, or other human or natural damage. • Arrange for a PG&E Paleontological Principal Investigator to evaluate the discovery. If the discovery is determined to be significant, PG&E will implement measures to protect and document the paleontological resource. Work may not resume within 100 feet of the find until approved by the paleontologist and PG&E CRS. • Curate all fossils discovered in an appropriate repository. • A qualified paleontologist will be notified to review the need for paleontological monitoring during subsequent ground-disturbing activities with the potential to affect paleontologically sensitive sediments at that location. The qualified paleontologist will be responsible for the reassessment of paleontological sensitivity upon the receipt of additional information from ongoing excavations, which may result in reducing, or increasing, the amount of monitoring required.

Applicant-Proposed Measures and Best Management Practices

BMP PAL–4: LEU Unanticipated Paleontological Discovery. If significant paleontological resources are discovered during LEU's construction activities, the following procedures will be followed:

- Stop work immediately within 100 feet of the fossil find.
- Contact the designated project inspector and LEU Cultural Resource Lead immediately.
- Protect the site from further impacts, including looting, erosion, or other human or natural damage.
- Arrange for an LEU Paleontological Principal Investigator to evaluate the discovery. If the discovery is determined to be significant, LEU will implement measures to protect and document the paleontological resource. Work may not resume within 100 feet of the find until approved by the paleontologist and LEU Cultural Resource Lead.
- Curate all fossils discovered in an appropriate repository.
- A qualified paleontologist will be notified to review the need for paleontological monitoring during subsequent ground-disturbing activities with the potential to affect paleontologically sensitive sediments at that location. The qualified paleontologist will be responsible for the reassessment of paleontological sensitivity upon the receipt of additional information from ongoing excavations, which may result in reducing, or increasing, the amount of monitoring required.

Section 5.8 Greenhouse Gas Emissions (GHG)

APM GHG-1: PG&E Minimize GHG Emissions. PG&E will implement the following to minimize GHG emissions:

- Minimize unnecessary construction vehicle idling time. The ability to limit construction vehicle idling time will depend on the sequence of construction activities and when and where vehicles are needed or staged. Certain vehicles, such as large diesel-powered vehicles, have extended warm-up times following start-up that limit their availability for use following start-up. Where such diesel-powered vehicles are required for repetitive construction tasks, these vehicles may require more idling time. The project will apply a "common sense" approach to vehicle use, so that idling is reduced as far as possible below the maximum of 5 consecutive minutes allowed by California law; if a vehicle is not required for use immediately or continuously for construction activities, its engine will be shut off. Construction supervisors will include briefings to crews on vehicle use as part of pre-construction conferences. Those briefings will include discussion of a "common sense" approach to vehicle use.
- Maintain construction equipment in proper working conditions in accordance with manufacture specifications.
- Minimize construction equipment exhaust by using low-emission or electric construction equipment where feasible. Portable diesel fueled construction equipment with engines 50 horsepower or larger and manufactured in 2000 or later will be registered under the California Air Resources Board (CARB) Statewide Portable Equipment Registration Program.
- Minimize welding and cutting by using compression of mechanical applications where practical and within standards.
- Encourage use of natural gas-powered vehicles for passenger cars and light-duty trucks where feasible and available.
- On road and off-road vehicle tire pressures will be maintained to manufacturer specifications. Tires will be checked and re-inflated at regular intervals.
- Use line power instead of diesel generators at construction sites where line power is available.
- If suitable park-and-ride facilities are available in the project vicinity, construction workers will be encouraged to carpool to the job site.
- Encourage the recycling of construction waste where feasible.

Applicant-Proposed Measures and Best Management Practices

BMP GHG-1: LEU Minimize GHG Emissions. LEU will implement the following to minimize GHG emissions:

- Minimize unnecessary construction vehicle idling time. The ability to limit construction vehicle idling time will depend on the sequence of construction activities and when and where vehicles are needed or staged. Certain vehicles, such as large diesel-powered vehicles, have extended warm-up times following start-up that limit their availability for use following start-up. Where such diesel-powered vehicles are required for repetitive construction tasks, these vehicles may require more idling time. The project will apply a "common sense" approach to vehicle use, so that idling is reduced as far as possible below the maximum of 5 consecutive minutes allowed by California law; if a vehicle is not required for use immediately or continuously for construction activities, its engine will be shut off. Construction supervisors will include briefings to crews on vehicle use as part of pre-construction conferences. Those briefings will include discussion of a "common sense" approach to vehicle use.
- Maintain construction equipment in proper working conditions in accordance with manufacture specifications.
- Minimize construction equipment exhaust by using low-emission or electric construction equipment where feasible. Portable diesel fueled construction equipment with engines 50 horsepower or larger and manufactured in 2000 or later will be registered under the CARB Statewide Portable Equipment Registration Program.
- Minimize welding and cutting by using compression of mechanical applications where practical and within standards.
- Encourage use of natural gas-powered vehicles for passenger cars and light-duty trucks where feasible and available.
- On road and off-road vehicle tire pressures will be maintained to manufacturer specifications. Tires will be checked and re-inflated at regular intervals.
- Use line power instead of diesel generators at construction sites where line power is available.
- If suitable park-and-ride facilities are available in the project vicinity, construction workers will be encouraged to carpool to the job site.
- Encourage the recycling of construction waste where feasible.

APM GHG-2: PG&E Minimize SF_6 Emissions. PG&E will employ standard best practices—such as minimizing vehicle trips and keeping vehicles and equipment well maintained—during PG&E operations, and will comply with CARB Early Action Measures (CARB 2011c) as these policies become effective.

- Incorporate PG&E Thurman Switching Station and PG&E Lockeford Substation's modification into PG&E's systemwide SF_6 emission reduction program. CARB has adopted the *Regulation for Reducing Sulfur Hexafluoride Emissions from Gas Insulated Switchgear*, Sections 95350 to 95359, Title 17, CCR, which requires that companywide SF_6 emission rate not exceed 1% by 2020. Since 1998, PG&E has implemented a programmatic plan to inventory, track, and recycle SF_6 inputs, and inventory and monitor systemwide SF_6 leakage rates to facilitate timely replacement of leaking breakers. PG&E has improved its leak detection procedures and increased awareness of SF_6 issues within the company. X-ray technology is now used to inspect internal circuit breaker components to eliminate dismantling of breakers, reducing SF_6 handling and accidental releases. As an active member of EPA's SF_6 Emission Reduction Partnership for Electrical Power Systems, PG&E has focused on reducing SF_6 emissions from its transmission and distribution operations and has reduced the SF_6 leak rate by 89% and absolute SF_6 emissions by 83%.
- Require that the breakers at PG&E Thurman Switching Station and PG&E Lockeford Substation have a manufacturer's guaranteed maximum leakage rate of 0.5% per year or less for SF_6.
- Maintain substation breakers in accordance with PG&E's maintenance standards.
- Comply with California Air Resources Board Early Action Measures as these policies become effective.

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BMP GHG-2: LEU Minimize SF_6 Emissions. LEU will employ standard best practices—such as minimizing vehicle trips and keeping vehicles and equipment well maintained—during LEU operations, and will comply with CARB Early Action Measures (CARB 2011c) as these policies become effective.

- LEU has specified vacuum breakers for one additional 60 kV breaker and five 12 kV distribution feeder breakers all of which are currently oil filled. Additionally, as part of a 10-year capital improvement plan, LEU has a plan to replace fourteen 60 kV SF_6 insulated breakers from LEU Industrial Substation by the end of year 2024.
- Incorporate LEU Guild substation into LEU's systemwide SF_6 emission reduction program. CARB has adopted the Regulation for Reducing Sulfur Hexafluoride Emissions from Gas Insulated Switchgear sections 95350 to 95359, Title 17, CCR, which requires that companywide SF_6 emission rate not exceed 1% by 2020.
- Require that the breakers at LEU Guild Substation have a manufacturer's guaranteed maximum leakage rate of 0.5% per year or less for SF_6.
- Maintain substation breakers in accordance with LEU's maintenance standards.
- Comply with California Air Resources Board Early Action Measures as these policies become effective.

Section 5.9 Hazards, Hazardous Materials, and Public Safety (HAZ)

APM HAZ-1: PG&E Development and Implementation of Hazardous Material and Emergency Response Procedures. PG&E will implement construction controls, training, and communication to minimize the potential exposure of the public and site workers to potential hazardous materials during all phases of project construction and, as appropriate, during the O&M phase. Construction procedures that will be implemented include worker training appropriate to the worker's role, and containment and spill control practices in accordance with the SWPPP (APM HYD-1). If required, a site-specific SPCC Plan and a Hazardous Materials Business Plan (HMBP) will be developed before the operation of the expanded PG&E Lockeford Substation and new PG&E Thurman Switching Station (APM HYD-4).

BMP HAZ-1: LEU Development and Implementation of Hazardous Material and Emergency Response Procedures. LEU will implement construction controls, training, and communication to minimize the potential exposure of the public and site workers to potential hazardous materials during all phases of project construction and, as appropriate, during the O&M phase. Construction procedures that will be implemented include worker training appropriate to the worker's role, and containment and spill control practices in accordance with the SWPPP (BMP HYD-1). A site-specific SPCC Plan and an HMBP will be developed before the operation of the new LEU Guild Substation (BMP HYD-4).

APM HAZ-2: PG&E Emergency Spill Supplies and Equipment. Materials will be available on the project site during construction to contain, collect, and dispose of any minor spill at PG&E's project components. Oil-absorbent material, tarps, and storage drums will be available on the project site during construction and will be used to contain and control any minor releases of oil. If excess water and liquid concrete escape during pouring, they will be directed to adjacent lined and bermed areas, where the concrete will dry and then be transported for disposal per applicable regulations.

BMP HAZ-2: LEU Emergency Spill Supplies and Equipment. Materials will be available on the project site during construction to contain, collect, and dispose of any minor spill at LEU's project components. Oil-absorbent material, tarps, and storage drums will be available on the project site during construction and will be used to contain and control any minor releases of oil. If excess water and liquid concrete escape during pouring, they will be directed to adjacent lined and bermed areas, where the concrete will dry and then be transported for disposal per applicable regulations.

APM HAZ-3: PG&E Shock Hazard Safety Measures. All authorized personnel working on site, during either construction or O&M, will be trained according to PG&E standards. To minimize potential exposure of the public to electric shock hazards, a 9-foot-tall chain-link fence topped with 1 foot of barbed wire (total height of approximately 10 feet) will be installed around the perimeter of the expanded PG&E Lockeford Substation and the new PG&E Thurman Switching Station before the new electric equipment is energized.

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BMP HAZ-3: LEU Shock Hazard Safety Measures. All authorized personnel working on site, during either construction or O&M, will be trained according to LEU standards. To minimize potential exposure of the public to electric shock hazards, an 8-foot-tall chain-link fence topped with 1 to 2 feet of barbed wire (up to approximately 10 feet in height) will be installed around the perimeter of the new LEU Guild Substation before the new electric equipment is energized.
APM HAZ-4: PG&E Worker Environmental Awareness Training Program. A PG&E worker environmental awareness training program (WEAP) will be developed and implemented prior to construction. The WEAP program will be established to communicate environmental concerns and appropriate work practices to all construction field personnel. The training program will emphasize site-specific physical conditions to improve hazard prevention and will include a review of the SWPPP, which also will address spill response and proper best practices implementation. The PG&E WEAP program will be provided separately to CPUC staff prior to construction. If it is necessary to store chemicals, they will be managed in accordance with all applicable regulations. SDSs will be maintained and kept available onsite, as applicable.
BMP HAZ-4: LEU Worker Environmental Awareness Training Program. An LEU WEAP will be developed and implemented prior to construction. The WEAP program will be established to communicate environmental concerns and appropriate work practices to all construction field personnel. The training program will emphasize site-specific physical conditions to improve hazard prevention and will include a review of the SWPPP, which also will address spill response and proper best practices implementation. If it is necessary to store chemicals, they will be managed in accordance with all applicable regulations. SDSs will be maintained and kept available onsite, as applicable.
APM HAZ-5: PG&E Potentially Contaminated Soil. Soil occurring at PG&E project components that is suspected of being contaminated (based on existing analytical data or visual, olfactory, or other evidence) and is removed during excavation activities will be segregated and tested; if the soil is contaminated above hazardous levels, it will be contained and disposed of offsite at a licensed waste facility. The presence of known or suspected contaminated soil will require testing and investigation procedures to be supervised by a qualified person, as appropriate, to meet state and federal regulations.
BMP HAZ-5: LEU Potentially Contaminated Soil. Soil occurring at LEU project components that is suspected of being contaminated (based on existing analytical data or visual, olfactory, or other evidence) and is removed during excavation activities will be segregated and tested; if the soil is contaminated above hazardous levels, it will be contained and disposed of offsite at a licensed waste facility. The presence of known or suspected contaminated soil will require testing and investigation procedures to be supervised by a qualified person, as appropriate, to meet state and federal regulations
Section 5.10 Hydrology and Water Quality (HYD)
APM HYD-1: Prepare and Implement an SWPPP for PG&E Project Components. Stormwater discharges associated with project construction activities are regulated under the Construction General Permit (CGP). Cases in which construction will disturb more than 1 acre of soil require submittal of a Notice of Intent, development of an SWPPP (both certified by the Legally Responsible Person), periodic monitoring and inspections, retention of monitoring records, reporting of incidences of noncompliance, and submittal of annual compliance reports. PG&E will comply with all CGP requirements for construction of PG&E project components. Following project approval, PG&E will prepare and implement a SWPPP, which will address erosion and sediment control concerns to minimize construction impacts on surface water quality, as well as reduce the potential for stormwater runoff to impact adjacent properties. The SWPPP will be designed specifically for the hydrologic setting of the proposed project (surface topography, storm drain configuration, and other factors) at PG&E project components. Implementation of the SWPPP will help stabilize graded areas and reduce erosion and sedimentation. The SWPPP will propose best practices that will be implemented during construction activities. Erosion and sediment control measures – such as straw wattles, erosion control blankets, and silt fences – will be installed in compliance with the SWPPP. Suitable soil stabilization measures will be used to protect exposed areas during construction activities, as specified in the SWPPP. During construction activities, measures will be implemented to reduce exposure of construction materials and wastes to stormwater. Measures will be installed following manufacturer's specifications and according to standard industry practice. Erosion and sediment control measures may include the following: • Straw wattle, silt fence, or gravel bag berms

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• Trackout control at all entrances and exits • Stockpile management • Effective dust control measures • Good housekeeping measures • Stabilization measures, which may include wood mulch, gravel, and/or seeding Identified erosion and sediment control measures will be installed prior to the start of construction activities and will be inspected and improved as required by the CGP Temporary sediment control measures intended to minimize sediment transport from temporarily disturbed areas such as silt fences or wattles will remain in place until disturbed areas are stabilized. In areas where soil is to be temporarily stockpiled, soil will be placed in a controlled area and will be managed using industry-standard stockpile management techniques. Where construction activities occur near a surface waterbody or drainage channel, the staging of construction materials and equipment and excavation spoil stockpiles will be placed and managed in a manner to minimize the risk of sediment transport to the drainage. Any surplus soil will be transported from the site and disposed of in accordance with federal, state, and local regulations. The SWPPP will identify areas where refueling and vehicle-maintenance activities and storage of hazardous materials will be permitted, if necessary. A copy of the SWPPP will be provided to CPUC for recordkeeping. The plan will be maintained and updated during construction as required by the CGP.
BMP HYD-1: Prepare and Implement an SWPPP for LEU Project Components. Stormwater discharges associated with project construction activities are regulated under the CGP. Cases in which construction will disturb 1 acre or greater of soil require submittal of a Notice of Intent, development of an SWPPP (both certified by the Legally Responsible Person), periodic monitoring and inspections, retention of monitoring records, reporting of incidences of noncompliance, and submittal of annual compliance reports. LEU will comply with all CGP requirements for construction of LEU project components. Following project approval, LEU will prepare and implement a SWPPP, which will address erosion and sediment control concerns to minimize construction impacts on surface water quality, as well as reduce the potential for stormwater to impact adjacent properties. The SWPPP will be designed specifically for the hydrologic setting of the proposed project (surface topography, storm drain configuration, and other factors) at LEU project components. Implementation of the SWPPP will help stabilize graded areas and reduce erosion and sedimentation. The SWPPP will propose best practices that will be implemented during construction activities. Erosion and sediment control measures – such as straw wattles, erosion control blankets, and silt fences – will be installed in compliance with the CGP. Suitable soil stabilization measures will be used to protect exposed areas during construction activities, as specified in the SWPPP. During construction activities, measures will be implemented to reduce exposure of construction materials and wastes to stormwater. Measures will be installed following manufacturer's specifications and according to standard industry practice. Erosion and sediment control measures may include the following: • Straw wattle, silt fence, or gravel bag berms • Trackout control at all entrances and exits • Stockpile management • Effective dust control measures • Good housekeeping measures • Stabilization measures, which may include wood mulch, gravel, and/or seeding Identified erosion and sediment control measures will be installed prior to the start of construction activities and will be inspected and improved as required by the CGP. Temporary sediment control measures intended to minimize sediment transport from temporarily disturbed areas such as silt fences or wattles will remain in place until disturbed areas are stabilized. In areas where soil is to be temporarily stockpiled, soil will be placed in a controlled area and will be managed using industry-standard stockpile management techniques. Where construction activities occur near a surface waterbody or drainage channel, the staging of construction materials and equipment and excavation spoil stockpiles will be placed and managed in a manner to minimize the risk of sediment transport to the drainage. Any surplus soil will be transported from the site and disposed of in accordance with federal, state, and local regulations. The SWPPP will identify areas where refueling and vehicle-maintenance activities and storage of hazardous materials will be permitted, if necessary. The plan will be maintained and updated during construction as required by the CGP.

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APM HYD-2: PG&E Worker Environmental Awareness Program. The PG&E worker environmental awareness program will be developed and provided separately to CPUC staff prior to construction. The worker environmental awareness program will communicate environmental issues and appropriate work practices specific to PG&E project components to all field personnel. These will include spill prevention and response measures and proper implementation of best practices. A copy of the PG&E worker environmental awareness program record will be provided to CPUC for recordkeeping at the completion of the project. A PG&E environmental monitoring program also will be implemented to ensure that the plans are followed throughout the construction period for PG&E project components.
BMP HYD-2: LEU Worker Environmental Awareness Program. LEU's worker environmental awareness program will communicate environmental issues and appropriate work practices specific to LEU project components to all field personnel. These will include spill prevention and response measures and proper implementation of best practices. An LEU environmental monitoring program also will be implemented to ensure that the plans are followed throughout the construction period for LEU project components.
APM HYD-3: Project Site Restoration. As part of the final construction activities, PG&E will restore all removed curbs and gutters, repave, and restore landscaping or vegetation as necessary for its portion of the project.
BMP HYD-3: Project Site Restoration. As part of the final construction activities, LEU will restore all removed curbs and gutters, repave, and restore landscaping or vegetation as necessary for its portion of the project.
APM HYD-4: SPCC Plan for PG&E Thurman Switching Station and SPCC Plan Modification for PG&E Lockeford Substation. PG&E will prepare an SPCC plan for PG&E Thurman Switching Station for implementation during operation, and the existing PG&E Lockeford Substation SPCC Plan will be modified prior to operation of the expanded facility, as required by applicable regulations (40 CFR 112). An SPCC plan includes engineered and operational methods for preventing, containing, and controlling potential releases (for example, construction of a retention pond, moats, or berms) as well as provisions for quick and safe cleanup.
BMP HYD-4: SPCC Plan for LEU Guild Substation and SPCC Plan Modification for LEU Industrial Substation. LEU will prepare an SPCC plan for LEU Guild Substation for implementation during operation, and the existing LEU Industrial Substation SPCC Plan will be modified prior to operation of the expanded facility, as required by applicable regulations (40 CFR 112). An SPCC plan includes engineered and operational methods for preventing, containing, and controlling potential releases (for example, construction of a retention pond, moats, or berms) as well as provisions for quick and safe cleanup.
APM HYD-5: Project Stormwater Plan for PG&E Thurman Switching Station. PG&E will prepare a Project Stormwater Plan for PG&E's Thurman Switching Station to submit to the City of Lodi as part of it building permit and to align with the City of Lodi's Stormwater Management and Discharge Control Code, Lodi Municipal Code Chapter 13.14. The plan will include proposed site design and control measures and postconstruction stormwater runoff calculations showing pre-project and post-project volumes.
BMP HYD-5: Project Stormwater Plan for LEU Guild Substation. LEU will prepare a Project Stormwater Plan for LEU Guild Substation to align with the City of Lodi's Stormwater Management and Discharge Control Code, Lodi Municipal Code Chapter 13.14. The plan will include proposed site design and control measures and postconstruction stormwater runoff calculations showing pre-project and post-project volumes.
Section 5.11 Land Use and Planning (LAN)
APM LAN-1: Provide Construction Notification and Minimize Construction Disturbance. A PG&E public liaison representative will provide the public with advance notification of PG&E construction activities, between approximately two and four weeks prior to construction. The announcement will state specifically where and when construction will occur in the area. Notices will provide tips on reducing noise intrusion (for example, closing windows facing the planned construction).
BMP LAN-1: Provide Construction Notification and Minimize Construction Disturbance. A LEU public liaison representative will provide the public with advance notification of LEU construction activities, between approximately two and four weeks prior to construction. The announcement will state specifically where and when construction will occur in the area. Notices will provide tips on reducing noise intrusion (for example, closing windows facing the planned construction).

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APM LAN-2: Provide Public Liaison Person and Toll-Free Information Hotline. PG&E will identify and provide a public liaison person before and during construction to respond to concerns of neighboring residents about noise, dust, and other construction disturbance. Procedures for reaching the public liaison officer via telephone, email, or in person will be included in notices distributed to the public as described previously. PG&E will also establish a toll-free telephone number for receiving questions or complaints during construction.
BMP LAN-2: Provide Public Liaison Person and Toll-Free Information Hotline. LEU will identify and provide a public liaison person before and during construction to respond to concerns of neighboring residents about noise, dust, and other construction disturbance. Procedures for reaching the public liaison officer via telephone, email, or in person will be included in notices distributed to the public as described previously. LEU will also establish a toll-free telephone number for receiving questions or complaints during construction.
Section 5.12 Mineral Resources
The project will have no impact on mineral resources, and no APMs or BMPs are proposed.
Section 5.13 Noise (NOI)
APM NOI-1: PG&E General Construction Noise Management. PG&E will employ standard noise-reducing construction practices such as the following: • Comply with manufacturer's muffler requirements on all construction equipment engines and ensure exhaust mufflers are in good condition. • Turn off construction equipment when not in use, where applicable. • Locate stationary equipment, construction staging areas, helicopter landing zones, and construction material areas as far as practical from sensitive receptors. • Include noise control requirements for construction equipment and tools in specifications provided to construction contractors to the maximum extent practicable, including performing all work in a manner that minimizes noise. • PG&E will provide written notice at least 1 week prior to planned construction activities to all sensitive receptors and residences within approximately 500 feet of construction sites, staging yards, and access roads, and within approximately 1,000 feet of helicopter landing zones. PG&E also will post notices in public areas, including recreational use areas, within approximately 500 feet of the project alignment and construction work areas. The announcement will state approximately where and when construction will occur in the area, including areas of helicopter construction. Notices will provide tips on reducing noise intrusion – for example, by closing windows facing the planned construction. PG&E will identify a public liaison to respond to concerns of neighboring receptors during construction, including residents, about construction noise disturbance. PG&E also will establish a toll-free telephone number for receiving questions or concerns during construction and develop procedures for responding to callers. Contact information for reaching the PG&E public liaison officer by telephone or in person will be included in the notices and also posted conspicuously at the construction sites. PG&E will respond to questions or concerns received.
BMP NOI-1: LEU General Construction Noise Management. LEU will employ standard noise-reducing construction practices such as the following: • Comply with manufacturer's muffler requirements on all construction equipment engines and ensure exhaust mufflers are in good condition. • Turn off construction equipment when not in use, where applicable. • Locate stationary equipment, construction staging areas, and construction material areas as far as practical from sensitive receptors. • Include noise control requirements for construction equipment and tools in specifications provided to construction contractors to the maximum extent practicable, including performing all work in a manner that minimizes noise. • LEU will provide written notice at least 1 week prior to planned construction activities to all sensitive receptors and residences within approximately 500 feet of construction sites, staging yards, and access roads. LEU will post notices in public areas, including recreational use areas, within approximately 500 feet of

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the construction work areas. The announcement will state approximately where and when construction will occur in the area. Notices will provide tips on reducing noise intrusion – for example, by closing windows facing the planned construction. LEU will identify a public liaison to respond to concerns of neighboring receptors during construction, including residents, about construction noise disturbance. LEU also will establish a toll-free telephone number for receiving questions or concerns during construction and develop procedures for responding to callers. Contact information for reaching the LEU public liaison officer by telephone or in person will be included in the notices and also posted conspicuously at the construction sites. LEU will respond to questions or concerned received.
APM NOI-2: PG&E Noise Minimization with Portable Barriers. Compressors and other small stationary equipment used during construction of PG&E project components will be shielded with portable barriers if appropriate and if located within approximately 200 feet of a residence.
BMP NOI-2: LEU Noise Minimization with Portable Barriers. Compressors and other small stationary equipment used during construction of LEU project components will be shielded with portable barriers if appropriate and if located within approximately 200 feet of a residence.
APM NOI-3: PG&E Noise Minimization with Quiet Equipment. Quiet equipment will be used during construction of PG&E project components whenever possible (for example, equipment that incorporates noise-control elements into the design, such as quiet model compressors or generators, can be specified).
BMP NOI-3: LEU Noise Minimization with Quiet Equipment. Quiet equipment will be used during construction of LEU project components whenever possible (for example, equipment that incorporates noise-control elements into the design, such as quiet model compressors or generators, can be specified).
APM NOI-4: PG&E Noise Minimization through Direction of Exhaust. When in proximity to noise-sensitive uses, PG&E equipment exhaust stacks and vents will be directed away from those noise-sensitive uses where feasible.
BMP NOI-4: LEU Noise Minimization through Direction of Exhaust. When in proximity to noise-sensitive uses, LEU equipment exhaust stacks and vents will be directed away from those noise-sensitive uses where feasible.
APM NOI-5: PG&E Noise Disruption Minimization through Residential Notification. In the event that nighttime construction is necessary for PG&E project components– for instance, if certain activities such as line splicing or horizontal directional drilling in certain soil conditions need to continue to completion – affected residents will be notified in advance by mail, personal visit, or door-hanger, and will be informed of the expected work schedule.
BMP NOI-5: LEU Noise Disruption Minimization through Residential Notification. In the event that nighttime construction is necessary for LEU project components – for instance, if certain activities such as horizontal directional drilling in certain soil conditions need to continue to completion – affected residents will be notified in advance by mail, personal visit, or door-hanger, and will be informed of the expected work schedule.
APM NOI-6: PG&E Horizontal Directional Drilling Noise Minimization Measures. Temporary barriers utilizing materials such as intermodal containers or frac tanks, plywood walls, mass-loaded vinyl (vinyl impregnated with metal), sound-absorbing blankets, hay bales, or similar materials will be used to reduce noise generated by the auger bore operations. HDD activities will be limited to daylight hours unless a situation arises where ceasing the activity would compromise safety (both human health and environmental) and the integrity of the project. If nighttime HDD activities are required, the project will monitor actual noise levels from the HDD activities between 10:00 p.m. and 7:00 a.m. If the nighttime noise levels created by the HDD operation result in outreach to PG&E public liaison officer and are in excess of the ambient noise level by approximately 5 dBA at the nearest residential property plane, PG&E will, within 24 hours of the excess measurement, employ additional minimization measures to the greatest extent practicable. Such measures may include ensuring that semipermanent stationary equipment (for example, generators) is stationed as far from sensitive areas as practicable, using sound-attenuated "quiet" or "Hollywood/Movie Studio" silencing packages, or modifying barriers to further reduce noise levels.
BMP NOI-6: LEU Horizontal Directional Drilling Noise Minimization Measures. Temporary barriers utilizing materials such as intermodal containers or frac tanks, plywood walls, mass-loaded vinyl (vinyl impregnated with metal), sound-absorbing blankets, hay bales, or similar materials will be used to reduce noise generated by the auger bore operations. HDD activities will be limited to daylight hours unless a situation arises where ceasing the activity would compromise safety (both human health and environmental) and the integrity of the project. If nighttime HDD

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activities are required, the project will monitor actual noise levels from HDD activities between 10:00 p.m. and 7:00 a.m. If the nighttime noise levels created by HDD operation result in outreach to LEU public liaison officer and are in excess of the ambient noise level by approximately 5 dBA at the nearest residential property plane, LEU will, within 24 hours of the excess measurement, employ additional minimization measures to the extent practicable. Such measures may include ensuring that semi-permanent stationary equipment (for example, generators) is stationed as far from sensitive areas as practicable, using sound-attenuated "quiet" or "Hollywood/Movie Studio" silencing packages, or modifying barriers to further reduce noise levels.
APM NOI-7: PG&E Noise Minimization Equipment Specification. PG&E will specify general construction noise reduction measures that require the contractor to ensure that all equipment is in good working order, adequately muffled, and maintained in accordance with the manufacturers' recommendations.
BMP NOI-7: LEU Noise Minimization Equipment Specification. LEU will specify general construction noise reduction measures that require the contractor to ensure that all equipment is in good working order, adequately muffled, and maintained in accordance with the manufacturers' recommendations.
Section 5.14 Population and Housing
The project will have no impact on population and housing, and no APMs or BMPs are proposed.
Section 5.15 Public Services
The project will have no impact on public services, and no APMs or BMPs are proposed.
Section 5.16 Recreation
The project will have no impact on recreation, and no APMs or BMPs are proposed.
Section 5.17 Transportation (TRA)
APM TRA-1: PG&E Temporary Traffic Controls. PG&E will obtain any necessary transportation and encroachment permits from Caltrans and the local jurisdictions, as required, including those permits related to state route crossings and the transport of oversized loads and certain materials, and will comply with permit requirements designed to prevent excessive congestion or traffic hazards during construction. PG&E will develop traffic control plans to detail road and lane closure or width reduction or traffic diversions as required by the encroachment permits. Construction activities that are in, along, or cross local roadways will follow best practices and local jurisdictional encroachment permit requirements—such as traffic controls in the form of signs, cones, and flaggers—to minimize impacts on traffic and transportation in the project area. PG&E will provide the CPUC with copies of permits obtained prior to construction activity in a given jurisdiction or location. If required for obtaining a local encroachment permit, PG&E will establish a Traffic Management Plan (TMP) to address haul routes, timing of heavy equipment and building material deliveries, potential street or lane closures, signing, lighting, and traffic control device placement. When working on state highways, PG&E will ensure traffic control operations are compliant with both the *California Temporary Traffic Control Handbook*, 2018 edition, and the *California Manual on Uniform Traffic Control Devices*, 2014 edition.
BMP TRA-1: LEU Temporary Traffic Controls. LEU will obtain any necessary transportation and encroachment permits from Caltrans and the local jurisdictions, as required, including those permits related to the transport of oversized loads and certain materials, and will comply with permit requirements designed to prevent excessive congestion or traffic hazards during construction. LEU will develop traffic control plans to detail road and lane closure or width reduction or traffic diversions as required by the encroachment permits. Construction activities that are in, along, or cross local roadways will follow best practices and local jurisdictional encroachment permit requirements—such as traffic controls in the form of signs, cones, and flaggers—to minimize impacts on traffic and transportation in the project area. If required for obtaining a local encroachment permit, LEU will establish a TMP to address haul routes, timing of heavy equipment and building material deliveries, potential street or lane closures, signing, lighting, and traffic control device placement.
APM TRA-2: PG&E Repair of Damaged Transportation Infrastructure. As part of the final construction activities of the project, PG&E will restore all removed curbs, gutters, and sidewalks, and repave all removed or damaged paved surfaces associated with PG&E construction activities.

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BMP TRA-2: LEU Repair of Damaged Transportation Infrastructure. As part of the final construction activities of the project, LEU will restore all removed curbs, gutters, and sidewalks, and repave all removed or damaged paved surfaces associated with LEU construction activities.

Section 5.18 Tribal Cultural Resources (TCR)

APM TCR-1: Undiscovered Potential Tribal Cultural Resources. The following procedure will be employed (after stopping work and following the procedure for determining eligibility in APM CUL-4) if a resource is encountered and determined by the geographically affiliated tribe in collaboration with the project's qualified archaeologist (if applicable) to be potentially eligible for the California Register of Historical Resources (CRHR) or a local register of historic resources and is associated with a California Native American Tribe with a traditional and cultural affiliation with the geographic area of the proposed project:

- The PG&E cultural resources specialist will notify the CPUC for appropriate action. PG&E will assist the CPUC if needed to identify the lead contact person for the California Native American Tribe(s) potentially associated with the cultural resource and with a traditional and cultural affiliation with the geographic area of the proposed project. The CPUC will communicate with the lead contact person to set up a meeting with PG&E and the CPUC.
- The PG&E cultural resources specialist will participate with the CPUC in discussions with the California Native American Tribe(s) to determine whether the resource is a "tribal cultural resource" as defined by PRC Section 21074 and the tribe(s)' preferred method of mitigation, if the resource is determined to be a TCR.

If no agreement can be reached for mitigation after discussions with the California Native American Tribe(s) or it is determined that the tribe(s)' preferred mitigation is not feasible, PG&E will implement one of the example mitigation measures listed in PRC Section 21084.3(b), or other feasible mitigation.

BMP TCR-1: Undiscovered Potential Tribal Cultural Resources. The following procedure will be employed (after stopping work and following the procedure for determining eligibility in BMP CUL-4) if a resource is encountered and determined by the geographically affiliated tribe in collaboration with the project's qualified archaeologist (if applicable) to be potentially eligible for the CRHR or a local register of historic resources and is associated with a California Native American Tribe with a traditional and cultural affiliation with the geographic area of the proposed project:

- The LEU cultural resource lead will notify the CPUC for appropriate action. LEU will assist the CPUC if needed to identify the lead contact person for the California Native American Tribe(s) potentially associated with the cultural resource and with a traditional and cultural affiliation with the geographic area of the proposed project. The CPUC will communicate with the lead contact person to set up a meeting with LEU and the CPUC.
- The LEU cultural resource lead will participate with the CPUC in discussions with the California Native American Tribe(s) to determine whether the resource is a "tribal cultural resource" as defined by PRC Section 21074 and the tribe(s)' preferred method of mitigation, if the resource is determined to be a TCR.

If no agreement can be reached for mitigation after discussions with the California Native American Tribe(s) or it is determined that the tribe(s)' preferred mitigation is not feasible, LEU will implement one of the example mitigation measures listed in PRC Section 21084.3(b), or other feasible mitigation.

Section 5.19 Utilities and Service Systems

The project will have no impact on utilities and service systems, and no APMs or BMPs are proposed.

Applicant-Proposed Measures and Best Management Practices

Section 5.20 Wildfire (WFR)

APM WFR-1: PG&E Construction Fire Prevention Plan. A project-specific *Construction Fire Prevention Plan* for construction of the project will be prepared prior to initiation of construction by PG&E. The PG&E plan will be approved by the CPUC and the local fire agencies with jurisdiction over the areas where the project is located at least 90 days prior to the initiation of construction activities in areas designated as very high or high FHSZs. Plan reviewers also will include federal, state, or local agencies with jurisdiction over areas where the project is located. The final plan will be approved by the CPUC at least 30 days prior to the initiation of construction activities. The plan will be fully implemented throughout the construction period, and it will include the following at a minimum:

- The purpose and applicability of the plan
- Incorporation of the requirements in PG&E's current Utility Standard for *Preventing and Mitigating Fires While Performing PG&E Work*
- Responsibilities and duties for compliance
- Preparedness training and drills
- Procedures for fire reporting, response, and prevention that include:

Identification of daily site-specific risk conditions

The tools and equipment needed on vehicles and on hand at sites

Reiteration of fire prevention and safety considerations during tailboard meetings

Daily monitoring of the Red-Flag Warning System with appropriate restrictions on types and levels of permissible activity

- Coordination procedures with federal, state, and local fire officials
- Crew training, including the construction fire prevention practices described in APM WFR-2
- Method(s) for verifying that all plan protocols and requirements are being followed

A project Fire Marshal or similar qualified person will be responsible for training project personnel and enforcing all provisions of the *PG&E Construction Fire Prevention Plan,* as well as performing other duties related to fire detection, prevention, and suppression for the project. Construction activities will be monitored to ensure implementation and effectiveness of the plan.

BMP WFR-1: LEU Construction Fire Prevention Plan. A project-specific *Construction Fire Prevention Plan* for construction of the project will be prepared prior to initiation of construction by LEU. The plan will be provided to the City of Lodi Fire Department, which has jurisdiction over the area where LEU's project activities are located, none of which are within very high or high FHSZs. The plans will be provided to the department at least 90 days prior to the initiation of construction activities for review and approval. The plan will be fully implemented throughout the construction period, and it will include the following at a minimum:

- The purpose and applicability of the plan
- Incorporation of the requirements in LEU's current Wildfire Management Plan (WMP)
- Responsibilities and duties for compliance
- Preparedness training and drills
- Procedures for fire reporting, response, and prevention that include:

Identification of daily site-specific risk conditions

The tools and equipment needed on vehicles and on hand at sites

Reiteration of fire prevention and safety considerations during tailboard meetings

Daily monitoring of the Red-Flag Warning System with appropriate restrictions on types and levels of permissible activity

- Coordination procedures with federal, state, and local fire officials
- Crew training, including the construction fire prevention practices described in BMP WFR-2
- Method(s) for verifying that all plan protocols and requirements are being followed

A project Fire Marshal or similar qualified person will be responsible for training project personnel and enforcing all provisions of the *LEU Construction Fire Prevention Plan,* as well as performing other duties related to fire detection,

Applicant-Proposed Measures and Best Management Practices

prevention, and suppression for the project. Construction activities will be monitored to ensure implementation and effectiveness of the plan.

APM WFR-2: PG&E Fire Prevention Practices. PG&E will implement the following fire prevention practices at active construction sites and during maintenance activities:

- Existing PG&E personnel conducting maintenance on the project are trained on the PG&E Utility Standard TD-1464S for Preventing and Mitigating Fires While Performing PG&E Work and will follow the standard in regard to training, preparation, communication methods and means, observations of and alerts concerning weather conditions including National Weather Service (NWS) events, and PG&E's work restrictions and fire mitigation required for elevated PG&E utility fire potential index (FPI) ratings (R4, R5, or R5-Plus).
- Construction personnel will be trained in fire-safe actions, including PG&E's current Utility Standard for Preventing and Mitigating Fires While Performing PG&E Work, Wildfire Prevention Contract Requirements, and the project's PG&E Construction Fire Prevention Plan concerning initial attack, firefighting, and fire reporting. Construction personnel will be trained and equipped to extinguish small fires to prevent them from growing into more serious threats.
- All construction personnel will carry a laminated card and be provided a hard hat sticker that list pertinent telephone numbers for reporting fires and define immediate steps to take if a fire starts. Information on laminated contact cards and hard hat stickers will be updated as needed and redistributed to all construction personnel prior to the day the information change goes into effect.
- PG&E will coordinate with the applicable local fire departments prior to construction activities to determine the appropriate amounts of fire equipment to be carried on vehicles and, should a fire occur, to coordinate fire suppression activities as part of the PG&E Construction Fire Prevention Plan review.
- Construction personnel will have fire suppression equipment on all construction vehicles and will be required to park vehicles away from dry vegetation. Water tanks and/or water trucks will be sited or available at active project sites for fire protection during construction.
- All construction crews and inspectors will be provided with radio and cellular telephone access that is operational in all work areas and access routes to allow for immediate reporting of fires. Communication pathways and equipment will be tested and confirmed operational each day prior to initiating construction activities at each work site. All fires will be reported to the fire agencies with jurisdiction in the area immediately upon discovery of the ignition.
- While performing stationary ground-level jobs or activities from which a spark, fire, or flame may originate (for example, welding, cutting, grinding), all flammable material (for example, grass, leaf litter, dead or dying tree) must be removed down to the mineral soil around the operation for a minimum of 10 feet.
- PG&E General Requirements for wildfire mitigation (R1 to R3) apply for PG&E work areas located farther than 5 miles from a fire index area (FIA) when the nearest FIA has an elevated FPI rating (R4, R5, or R5-Plus), except during NWS Red-Flag Warnings and Fire Weather Watch events when R5 mitigations would apply.
- At PG&E's Clayton Hill Repeater Station, which is within an FIA, during Red-Flag Warning and Fire Weather Watch events, as issued by the NWS, and elevated PG&E utility FPI rating (R4, R5, or R5-Plus), all construction activities will refer to the current PG&E Standard TD-1464S and related requirements such as PG&E Wildfire Prevention Contract Requirements, Attachment 1 – Wildfire Mitigation Matrix, and Attachment 2 – Wildfire Risk Checklist Fire Mitigations. With increased potential fire risk of R4, additional water resources are required and a working fire watch is assigned to be able to continue work as long as the weather conditions are evaluated to ensure it remains safe to continue work.

For R5 and R5-Plus ratings, mitigation beyond R1 to R4 levels includes a dedicated fire watch at the jobsite, a trailer-mounted water tank or alternative water delivery method at the jobsite, and modifying the fuel sources surrounding the jobsite. All planned work is suspended during an R5-Plus fire rating. During all emergency work being performed for an R5-Plus fire rating, personnel must have a PG&E Safety and Infrastructure Protection Team on standby or a 300-gallon water tender available. Use of heavy equipment (blades, dozers, skid steers, excavators, back hoes), construction hot work, and electrical equipment work (including tasks related to conductors, pole, and overhead equipment from which a spark, fire, or flames may originate) are allowed with the R5 mitigations in place but not allowed during R5-Plus conditions.

Applicant-Proposed Measures and Best Management Practices

BMP WFR-2: LEU Construction Fire Prevention Practices. LEU will implement the following fire prevention practices at active construction sites and during maintenance activities:

- Existing LEU personnel conducting maintenance on the project are trained on the LEU WMP and will follow the plan in regard to training, preparation, communication methods and means, observations of and alerts concerning weather conditions including NWS events, and LEU's work restrictions and fire mitigation required for elevated fire potential.
- Construction personnel will be trained in fire-safe actions, including the LEU project Construction Fire Prevention Plan, initial attack firefighting, and fire reporting. Construction personnel will be trained and equipped to extinguish small fires to prevent them from growing into more serious threats.
- All construction personnel will carry a laminated card and be provided a hard hat sticker that list pertinent telephone numbers for reporting fires and defining immediate steps to take if a fire starts. Information on laminated contact cards and hard hat stickers will be updated as needed and redistributed to all construction personnel prior to the day the information change goes into effect.
- LEU will coordinate with the City of Lodi Fire Department prior to construction activities to determine the appropriate amounts of fire equipment to be carried on vehicles and, should a fire occur, to coordinate fire suppression activities as part of the LEU Construction Fire Prevention Plan review.
- Construction personnel will have fire suppression equipment on all construction vehicles and will be required to park vehicles away from dry vegetation. Water tanks and/or water trucks will be sited or available at active project sites for fire protection during construction.
- All construction crews and inspectors will be provided with radio and cellular telephone access that is operational in all work areas and access routes to allow for immediate reporting of fires. Communication pathways and equipment will be tested and confirmed operational each day prior to initiating construction activities at each work site. All fires will be reported to the fire agencies with jurisdiction in the area immediately upon discovery of the ignition.
- While performing stationary ground-level jobs or activities from which a spark, fire, or flame may originate (for example, welding, cutting, grinding), all flammable material (for example, grass, leaf litter, dead or dying tree) must be removed down to the mineral soil around the operation for a minimum of 10 feet.
- The risk for potential fire hazards associated with the construction of the new substation is low because the setting has no known potential wildfire risk. Given the surrounding settings of urban development, LEU does not expect any restrictions to be used for "high-risk days." LEU will continue to comply with its 2021 WMP, as updated yearly.

3.12 Electric and Magnetic Fields Discussion

Recognizing that there is public interest and concern regarding potential health effects from exposure to electric and magnetic fields (EMF) from power lines, this document provides some general background information in Appendix 3A regarding EMF. The CPUC has repeatedly recognized that EMF is not an environmental impact to be analyzed in the context of CEQA because (1) there is no agreement among scientists that EMF creates a potential health risk, and (2) there are no defined or adopted CEQA standards for defining health risk from EMF. For example, refer to CPUC Decision No. 04-07-027 (July 16, 2004); Delta DPA Capacity Increase Substation Project Final Mitigated Negative Declaration and Supporting Initial Study (November 2006), A.05-06-022, Section B.1.14.1, page B-31, adopted in Decision 07-03-009 (March 1, 2007).

Section X(A) of the CPUC's GO 131-D, CPUC Decision No. D.06-01-042 ("EMF Decision"), and PG&E's EMF Design Guidelines prepared in accordance with the EMF Decision, require PG&E to prepare a Field Management Plan that indicates the no-cost and low-cost EMF measures that will be installed as part of the final engineering design for the project. The Field Management Plan will evaluate the no-cost and low-cost measures considered for the project, the measures adopted, and reasons that certain measures were not adopted. A copy of the Preliminary EMF Management Plan and Substation Checklist for this project will be included as an exhibit to the project Application provided to the CPUC.

4 Description of Alternatives

This chapter considers and discusses alternatives to the Northern San Joaquin 230 kV Transmission Project, consistent with the CEQA Guidelines, Section 15126.6. It is prepared in accordance with the CPUC's *Guidelines for Energy Project Applications Requiring CEQA Compliance: Pre-filing and Proponent's Environmental Assessments*, which assumes an Environmental Impact Report (EIR) would be prepared for the proposed project, unless CPUC CEQA Unit Staff make a preliminary determination during pre-filing consultation that a Mitigated Negative Declaration is likely. The description of alternatives is provided in this chapter of the Proponent's Environmental Assessment (PEA), and the comparison of each alternative to the proposed project is provided in Chapter 6, Comparison of Alternatives. The project is described in detail in Chapter 3, Project Description, of this PEA.

Because the CPUC anticipates preparing an EIR for the state environmental document, this PEA section has been prepared consistent with CEQA requirements to support the CPUC action. CEQA Guidelines Section 15126.6(e)(2) states that "if the environmentally superior alternative is the 'no project' alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives."

Section 4.1 discusses the alternatives screening methodology. Section 4.2 lists alternatives considered and describes those carried forward for analysis. Section 4.3 provides a description of the No Project Alternative. Section 4.4 discusses alternatives that were rejected and the reasons for the rejection.

4.1 Alternatives Screening Methodology

As noted in the CEQA Guidelines Section 15126.6(a), the alternatives described in an EIR must feasibly accomplish most of the basic project objectives, should reduce or eliminate one or more of the significant impacts of the proposed project, and must be potentially feasible. To comply with these requirements, PG&E screened potential alternatives based on three criteria:

1. Does the alternative meet most basic project objectives?

Section 15126(a) of the CEQA Guidelines requires that project objectives be set forth in an EIR to help define alternatives to the proposed project that meet most of the basic project objectives. Moreover, a project may not limit its objectives in such a way as to effectively confine the range of feasible alternatives that are available. The project purpose and objectives are discussed in Chapter 2, Introduction.

The purpose of the project is to address reliability and capacity issues on the existing PG&E 230 kV and 60 kV systems serving the area between PG&E Lockeford and PG&E Lodi substations in northern San Joaquin County. The proposed project is needed because the existing PG&E 230/60 kV system is experiencing voltage issues and thermal overloads. The northern San Joaquin area is forecasted to continue to grow its power load requirements, which will worsen these voltage and thermal overload issues. Chapter 2 of this PEA contains additional discussion of the project purpose.

PG&E has identified the following objectives for the project:

- Meet PG&E's legal obligation to implement the CAISO-approved project.
- Improve system reliability for PG&E's approximately 10,000 electrical customers, one of which is Lodi Electric Utility, which itself serves approximately 27,750 customers.
- Increase capacity to accommodate projected growth in demand and minimize future reliability issues.
- Address thermal overloads and voltage concerns on PG&E's 60 kV system identified during P1 contingencies and maintain compliance with the NERC standards.
- Address thermal overloads on PG&E's 60 kV system identified during P6 contingencies and maintain compliance with the NERC standards.

- Reinforce the PG&E 60 kV system in the Lodi area by constructing a new PG&E 230 kV double-circuit line to provide an additional source of power.
- Construct a new PG&E 230 kV switching station to receive the new PG&E 230 kV double-circuit line and provide power to a new 230 kV/60 kV substation to be constructed by LEU.
- Separate PG&E's 60 kV system at the LEU Industrial Substation from LEU's 60 kV system.
- Construct a safe, economical, and technically feasible project that minimizes environmental and community impacts.

2. Is the alternative feasible?

As defined by Section 15364 of the CEQA Guidelines, "feasible" means capable of being accomplished in a successful manner within a reasonable period of time, taking into consideration economic, environmental, legal, social, and technological factors. These factors include, for example, technology availability, constructability, and regulatory permits. PG&E considered these factors in evaluating the overall list of potential alternatives. To evaluate the feasibility of different transmission line corridors, PG&E considered potential routes based on the siting objectives and existing setting shown in Table 4.1-1.

Table 4.1-1. Siting Analysis Objectives and Existing Setting

Siting Objectives	Existing Setting
Compatibility with Land Use and Land Ownership	• Land ownership and jurisdiction • Recreational areas • Population density • Land use
Compatibility with Agricultural Land Uses	• Agricultural crop type/land use • Center-pivot irrigation • Prime farmland soils • California farmland mapping and monitoring • Williamson Act lands
Compatibility with Infrastructure	• Existing utilities and facilities • Other linear facilities • Communication towers
Provision for Efficient and Reliable Engineering, Construction, and Operations	• Site slope • Construction access and staging • Flood or other water inundation • Geotechnical conditions • Solid waste landfill and hazardous materials sites • Airfield • Length of line
Protection of Natural Resources	• Wetlands and waterways • Natural resource protection • Special-status species critical habitat • Vegetation/land cover types
Protection of Cultural Resources	• High-sensitivity areas • Historic landmarks and historic places
Protection of Visual Resources	• Designated scenic resources and visually sensitive areas

The existing setting was not reviewed during siting for the associated switching station or substations' modification, expansion, and construction because these project components were predetermined to be located within or adjacent to existing facilities.

3. Does the alternative avoid or substantially lessen any significant environmental effects of the proposed project (including consideration of whether the alternative itself could create significant environmental effects potentially greater than those of the proposed project)?

Per Section 15126.6(a) of the CEQA Guidelines, alternatives considered must "avoid or substantially lessen any of the significant effects of the project." Based on the analysis presented in Chapter 5, Environmental Analysis, the project is not expected to result in significant impacts. Nevertheless, PG&E evaluated alternatives based on potential environmental impacts, including:

- Conflicts with existing land uses
- Conflicts with existing agricultural land uses, including wineries
- Impacts on special-status species and habitats
- Impacts on visual resources

4.2 Alternatives Considered

4.2.1 Potential Alternatives to the Project

Section 15126.6(a) of the CEQA Guidelines requires an EIR to consider a reasonable range of potentially feasible alternatives to the proposed project to support informed decision-making and public participation. Alternatives described in an EIR must feasibly accomplish most of the basic project objectives and reduce or eliminate one or more of the significant impacts of the proposed project. An EIR is not required to consider every conceivable alternative to a project, nor is it required to consider alternatives that are infeasible. Per Section 15126.6(e) of the CEQA Guidelines, an EIR also must consider the No Project Alternative to allow decision-makers to compare the impacts of approving the proposed project against the impacts of not approving the proposed project. The No Project Alternative is discussed in Section 4.3.

Section 15126.6 of the CEQA Guidelines states that an EIR must briefly describe the rationale for selecting the alternatives to be discussed. In addition, an EIR should identify any alternatives that were considered but were rejected as infeasible during the scoping process and briefly explain the reason for their rejection.

PG&E obtained input on potential alternatives from CAISO, community and agency stakeholder information, and project planners and engineers. The public outreach process is described in Chapter 2; after each stakeholder meeting, PG&E considered the input as part of its project planning and identification of alternatives. In developing a list of alternatives for consideration in this PEA, PG&E considered the following factors:

- Alternatives to the proposed project that were suggested, considered, or studied by CAISO or by a CAISO stakeholder. The CAISO studied a prior version of the project, the Lockeford-Lodi Area 230 kV Development (Eight Mile Substation) project. CAISO stakeholders suggested battery energy storage solutions be considered.
- Alternatives suggested during public outreach; stakeholders had numerous suggestions for transmission line routing such as use of existing ROW or roadways, and also suggested undergrounding as an option.
- Reduction in footprint, which is incorporated in the project design through use of monopoles instead of traditional towers and by constructing new and expanded substations on existing substation property. Reduction in footprint also was considered through system alternatives such as reconductoring and battery energy storage, which are listed in Table 4.2-1 as system and energy storage alternatives. In addition, use of existing ROW for new transmission lines, which could reduce project footprint, was considered as part of siting analysis.
- Project phasing. No alternatives were identified for project phasing, because the entire project must be built to meet basic objectives.

- Alternative facility and construction activity sites. Alternative locations for transmission lines are included in the evaluation of possible transmission line routes. Multiple potential construction staging areas have been included in the project description. Alternative locations were not considered for substation expansion and construction because the use of existing substation sites as included in the project description is expected to be the least impactful.
- Renewable energy, energy conservation, energy efficiency, demand response, distributed energy resources, and energy storage. The potential for alternatives of this type was limited. For example, feasible reductions in energy use from energy conservation/energy efficiency would not be sufficient to avoid voltage issues and thermal overload issues. These considerations did support identification of alternatives incorporating battery storage and distribution energy resources.
- Avoiding or limiting the construction of new transmission-voltage facilities, which was considered in reconductoring alternatives, energy storage, and demand response alternatives.
- Transmission line routes. As part of its routing, PG&E evaluated electrical transmission or power lines, railroads and roads within the project area for potential paralleling or ROW reuse opportunities, as well as routes across agricultural land, as possible corridors for the new 230 kV lines. While some roads were identified as having opportunities and are included as alignments for retained routes, aligning was constrained for most roads and lines because of structures and existing vegetation (mature trees/biological resources). PG&E used the siting objectives and existing setting discussed in Section 4.1 to identify several potential corridors to be carried forward for further analysis as alternatives.
- Engineering or technological approaches, which were incorporated in reconductoring, routing, and other alternatives.

PG&E identified 13 alternatives and screened them against the three criteria discussed in Section 4.1. The alternatives are provided in the following list. Siting alternatives either were identified to be carried forward by PG&E's siting analysis or were suggested by stakeholders. Other alternatives were identified by CAISO or public stakeholders. Table 4.2-1 summarizes the alternatives screening analysis.

System Alternatives

A. Lockeford-Lodi Area 230 kV Development (Eight Mile Substation, CAISO 2013)
B. 60 kV Reconductoring
C. Upgrade Lockeford-Industrial 60 kV to 115 kV
D. Undergrounding

Siting Alternatives

A. Central Route
B. Northern Route
C. Southern Route East
D. Victor Road/SR 12 Route
E. East Kettleman Lane Route
F. Use Existing 60 kV ROW (including replacing existing 60 kV with 230 kV, building parallel line to 60 kV, or building 230 kV over 60 kV)

Energy Storage Alternatives

A. BESS Only
B. Hybrid BESS

Demand Response Alternative

A. Distribution Energy Resources Improvement

Table 4.2-1. Summary of Alternatives Screening Analysis

Potential Alternative	Project Purpose and Objectives Criterion	Feasibility Criterion[a]	Environmental Criterion[b]
System Alternatives			
A. Lockeford-Lodi Area 230 kV Development (Eight Mile Substation)	Meets project purpose and most objectives.	Alternative would cost more than project, with a new 230 kV transmission line approximately twice as long as project. Otherwise appears feasible.	Impacts likely greater than project because of longer transmission line (approximately twice as long as project).
B. 60 kV Reconductoring	Does not meet project purpose or most objectives. Reconductored 60 kV lines would not be strong enough to address the voltage and thermal issues.	Alternative appears feasible.	Impacts would likely be less than the project because of reconducting and replacement of 60 kV poles within existing alignments.
C. Upgrade PG&E Lockeford-Industrial 60 kV to 115kV	Would not meet project purpose or most objectives. A 115 kV line would not be strong enough to address the voltage and thermal issues.	Alternative appears feasible.	Similar impacts compared to the proposed project because of the 115 kV line having a similar ROW footprint and construction duration.
D. Undergrounding	Meets project purpose and most objectives. It is not consistent with CAISO-recommended solution.	Not economically feasible. Cost is an order of magnitude greater than the proposed project or other alternatives.	Avoids visual and other impacts of aboveground alternatives. Construction impacts would be greater than project for some areas such as traffic and air quality.
Siting Alternatives			
E. Central Route	Meets project purpose and most objectives.	Alternative appears feasible.	Impacts would likely be similar to the project.
F. Northern Route	Meets project purpose and most objectives.	Alternative appears feasible.	Impacts would likely be similar to the project.
G. Southern Route East	Does not fully meet project purpose based on reliability concerns. Meets most objectives, except for improving reliability. Having a double-circuit 230 kV transmission line cross over multiple other transmission lines (required near PG&E Lockeford Substation) can compound line failures.	Alternative appears feasible, although it presents technological issues in crossing multiple existing transmission lines near PG&E Lockeford Substation.	Results in greater impacts than the project based on multiple crossings of wetlands and creeks, as well as longer transmission line. More and taller poles would be required in the vicinity of PG&E Lockeford Substation to cross existing transmission lines, increasing visual impacts.

Potential Alternative	Project Purpose and Objectives Criterion	Feasibility Criterion[a]	Environmental Criterion[b]
H. Victor Road/SR 12 Route	Does not meet project purpose or objectives because it is not technically feasible.	Not technically feasible. Between Kennison Lane and UPRR Railroad, there is not enough clearance to accommodate height restrictions or ROW width requirements for a new 230 kV line because of industrial developments on the north and residential developments on the south of the roadway.	If it were technically feasible, potentially greater impacts because of the portion of line between eastern end of SR 12 and PG&E Lockeford Substation. Siting options for this section place a potential 230 kV line in very close proximity to residences that would be within the required ROW.
I. East Kettleman Lane Route	Does not meet project purpose or objectives because it is not technically feasible.	Not technically feasible. There is not enough clearance to accommodate height restrictions or ROW width requirements for a new 230 kV line along some portions of East Kettleman Lane.	If it were technically feasible, potentially greater impacts from placing 230 kV line in very close proximity to residences and businesses that would be within the required ROW.
J. Use Existing 60 kV ROW	Does not meet project purpose or objectives because it is not technically feasible.	Not technically feasible. Each existing 60 kV power line has lengths with insufficient ROW to accommodate the required ROW for 230 kV line. Proximity to roads, existing structures, and mature vegetation prevents expansion of 60 kV ROW. Additionally, three circuits on the same structure create a single point of failure and is a nonstandard design.	If it were technically feasible, potentially greater impacts from placing 230 kV line in very close proximity to residences and businesses that would be within the required ROW.
Energy Storage Alternatives			
K. BESS Only	Would not meet project purpose or most objectives, including mitigating thermal overloads and meeting PG&E's legal obligations. The batteries cannot be charged enough to address the overloads under the NERC P1 category contingency.	Alternative appears feasible. Some uncertainty given the unknown timeline for a BESS to be built, which would be done by a third party selected by CAISO through a competitive bid process. There is also a lack of a clear standard for battery sizing.	Impacts would be less than the project because no new 230 kV lines would be constructed.

Potential Alternative	Project Purpose and Objectives Criterion	Feasibility Criterion[a]	Environmental Criterion[b]
L. Hybrid BESS	Would meet project purpose and some objectives. Would not accommodate projected growth in demand beyond approximately 10 years.	Alternative appears feasible. Some uncertainty given the unknown timeline for a BESS to be built, which would be done by a third party selected by CAISO through a competitive bid process. There is also a lack of a clear standard for battery sizing.	Impacts would likely be similar to the project based on reconductoring and replacement of 60 kV poles.
Demand Response Alternatives			
M. Distribution Energy Resources Improvement	Would not meet project purpose or most objectives.	Not technically feasible to reduce electrical system demand sufficiently to meet project objectives.	Unable to determine because exact improvements are unknown.

Notes:

[a] Considers economic, environmental, legal, social, and technological factors.

[b] Proposed project would not result in significant environmental impacts.

Bold text indicates alternative carried forward in the PEA.

4.2.2 Alternatives Carried Forward for PEA Evaluation

Three alternatives, in addition to the No Project Alternative, are carried forward for evaluation in this PEA. These alternatives are shown on Figure 4.2-1 and are described in the following sections. These alternatives were selected because they are potentially feasible, meet the underlying purpose of the proposed project, meet most of the project objectives, and represent a reasonable range of alternatives to the project. As noted earlier in this chapter, the proposed project would not result in potentially significant impacts.

4.2.2.1 Central Route Alternative

Description. The Central Route Alternative would route the western portion of the new 230 kV line to the north of the proposed project between PG&E Lockeford Substation and LEU Industrial Substation, as shown on Figure 4.2-1. It would parallel portions of the existing PG&E Lockeford-Industrial 60 kV Line. For the eastern segment between PG&E Lockeford Substation and PG&E Brighton-Bellota 230 kV Line, this alternative would parallel the existing PG&E Lockeford-Bellota 230 kV Line, the same eastern alignment as the project. The total length of new PG&E 230 kV transmission lines would be approximately 10.04 miles.

Within the footprint of the Central Route Alternative, land uses include orchard and semiagricultural, including wineries, with rural residential clusters mainly on local and county roads with mature vegetation. Like the project, the Central Route Alternative includes one canal crossing (Bear Creek), one highway crossing (SR 88), one railroad crossing, and multiple road crossings. The Central Route Alternative would enter the City of Lodi approximately 0.5 mile south of the proposed project and follow South Guild Avenue north to PG&E Thurman Switching Station. Some of the 230 kV tubular steel pole structures would likely need to be in business parking lots fronting South Guild Avenue for this route segment to accommodate the needed 230 kV alignment width.

All other components of this alternative would be the same as the project, including:

- PG&E Thurman Switching Station
- LEU Guild Substation
- PG&E and LEU Thurman-Guild 230 kV No. 1 and No. 2 Transmission Lines
- LEU Guild-Industrial 60 kV No. 1 and No. 2 Power Lines
- PG&E 60 kV power lines reconfiguration

In general, construction activities for the Central Route Alternative would be similar to the project, including the types of equipment to be used in each phase of construction and hours per day that equipment would be used during construction (refer to Chapter 3, Project Description). Substation construction activities would be the same as the proposed project. Construction staging areas, pull-and-tension sites, and access roads were not identified for this alternative, but would be expected to be similar to and at the same scale as the project.

Rationale for Carrying Forward. The Central Route Alternative would meet the project purpose and all project objectives, and it would be feasible. This alternative was carried forward to compare the project to an alternative that would increase paralleling of existing roadways and power line ROW.

4.2.2.2 Northern Route Alternative

Description. The Northern Route Alternative alignment would route the western portion of the new 230 kV corridor, between PG&E Lockeford Substation and LEU Industrial Substation, to the north of the proposed project alignment, as shown on Figure 4.2-1. It would parallel portions of the existing PG&E Lockeford-Industrial 60 kV Line on the western segment. Most of the eastern portion of the Northern

Route Alternative 230 kV transmission line would be the same as the project. Approximately 1 mile west of PG&E Brighton-Bellota 230 kV Line (approximately 0.25 mile west of North Linn Road), the corridor would turn north and then east on East Sargent Road. The total length of new PG&E 230 kV transmission lines would be approximately 10.39 miles.

Land uses along the alignment include orchard and semiagricultural, wineries, and rural residential clusters mainly on local and county roads with mature vegetation. Similar to the project, the Northern Route Alternative includes one canal crossing (Bear Creek), one highway crossing (SR 88), one railroad crossing, and multiple road crossings. As with the proposed project, this route alternative runs adjacent to the cemetery when entering the City of Lodi and would reuse the western end of PG&E Lockeford-Industrial 60 kV line alignment.

All other components of this alternative would be the same as the project, including:

- PG&E Thurman Switching Station
- LEU Guild Substation
- PG&E and LEU Thurman-Guild 230 kV No. 1 and No. 2 Transmission Lines
- LEU Guild-Industrial 60 kV No. 1 and No. 2 Power Lines
- PG&E 60 kV power lines reconfiguration

In general, construction activities for the Northern Route Alternative would be similar to the project, including the types of equipment to be used in each phase of construction and hours per day that equipment would be used during construction (refer to Chapter 3, Project Description). Substation construction activities would be the same as the proposed project. Construction staging areas, pull-and-tension sites, and access roads were not identified for this alternative, but would be expected to be similar to and at the same scale as the project.

Rationale for Carrying Forward. The Northern Route Alternative would meet the project purpose and all project objectives, and it would be feasible. This alternative was carried forward to compare the project to an alternative that would increase paralleling of existing roadways and power line ROW and decrease paralleling of existing transmission line ROW.

4.2.2.3 Lockeford-Lodi Area 230 kV Development (Eight Mile Substation) Alternative

Description. This version of the proposed project was included in the CAISO *2012-2013 Final ISO Transmission* Plan (CAISO 2013). This alternative would include a 230 kV double-circuit transmission line from PG&E Eight Mile Substation to PG&E Lockeford Substation, construction of a new LEU 230 kV bus at LEU Industrial Substation and looping one of the new PG&E Eight Mile/Lockeford 230 kV lines into this bus from an adjacent new PG&E switching station. A combination of potential route options presented at the December 2016 open houses for the 2013 CAISO project is used as the alternative's centerline for comparison purposes. The alternative centerline avoids existing and planned land use constraints and generally is a shorter length than other potential route combinations. Combining the Southern Route Via Industrial and the Central routes to connect the end points creates a total length of new PG&E 230 kV transmission lines of approximately 19.85 miles. Components of this alternative would include the following.

- Construction of a new PG&E Thurman Switching Station and LEU Guild Substation
- Construction of a new 230 kV DCTL between PG&E Eight Mile Substation and PG&E Lockeford Substation with a loop into PG&E Thurman Switching Station
- Expansion of PG&E Eight Mile Substation by approximately 3.38 acres and grade approximately 5.85 acres to connect to the new 230 kV DCTL
- Expansion of approximately 1.5 acres and grading to PG&E Lockeford Substation to connect to the new 230 kV DCTL

- PG&E 60 kV power lines reconfiguration

Rationale for Carrying Forward. The Lockeford-Lodi Area 230 kV Development Alternative would meet the project purpose and most project objectives and would be technically feasible. This alternative was carried forward because it was approved as an earlier version of the project, is the best representative of alternatives considered at that time, and still meets most of the project objectives even if not the current solution identified by CAISO.

4.3 No Project Alternative

Section 15126.6(e) of the CEQA Guidelines requires that the No Project Alternative be considered to allow decision-makers to compare the impacts of approving the proposed project against the impacts of not approving the proposed project. CEQA requires a discussion of what would be reasonably expected to occur in the foreseeable future if the project were not approved.

Under the No Project Alternative, no new infrastructure would be constructed, including the new overhead double-circuit 230 kV transmission lines, new PG&E Thurman Switching Station, new LEU Guild Substation, and other system improvements. There would be no improvements to system reliability and Category P1 and P6 contingency scenarios would not be addressed. PG&E would not meet its legal obligation to implement the CAISO-approved project. The No Project Alternative would not meet project objectives.

The service area would continue to experience overload and high voltage deviation issues that do not meet NERC thermal and voltage performance requirements. When these issues occur, customers in the service area could lose power. The probability of these issues would increase over time, as power demand on the system increases. Energy demand in the northern San Joaquin County area is steadily increasing with residential development, as well as agricultural and industrial growth.

4.4 Rejected Alternatives

This section discusses all alternatives considered by PG&E that were not selected for further analysis. For each alternative, this section provides a brief description of the alternative, a description of why the alternative was rejected, and comments from the public or agencies about the alternative. Table 4.2-1 provides a discussion of the extent to which each alternative would meet project purpose and objectives, its feasibility, its potential to reduce environmental impacts of the project, and any new impacts that could occur with its implementation. Figure 4.4-1 provides a map of the alternative sites where they have been identified.

4.4.1 60 kV Reconductoring

Description. Reconductor the PG&E 60 kV power lines in the study area by replacing existing lines and poles. The lines that would be reconductored include:

- PG&E Lockeford-Industrial 60 kV
- PG&E Industrial Tap 60 kV
- PG&E Lockeford-Lodi No. 2 60 kV
- PG&E Lockeford-Lodi No. 3 60 kV

Rationale for Rejection. This alternative does not meet the project purpose or most objectives. Reconductored PG&E 60 kV lines would not be strong enough to address the voltage and thermal issues and would not accommodate planned growth in the service area.

Public and Agency Comments. Several community stakeholders, including at the July 2019 open house, suggested this alternative to minimize or avoid impacts to agriculture with the construction of a new 230 kV line.

4.4.2 Upgrade PG&E Lockeford-Industrial 60 kV to 115 kV

Description. This alternative would upgrade the existing Lockeford-Industrial 60 kV line between PG&E Lockeford Substation and LEU Industrial Substation. It would replace the existing 60 kV poles and install a new 115 kV line.

Rationale for Rejection. This alternative does not meet the project purpose or most objectives. A 115 kV line would not be strong enough to address the voltage and thermal issues and would not accommodate planned growth in the service area.

Public and Agency Comments. Several community stakeholders, including at the July 2019 open house, suggested this alternative to minimize or avoid impacts to agriculture with the construction of a new 230 kV line.

4.4.3 Undergrounding

Description. This alternative would construct the new 230 kV lines underground along existing roadways. The alternative could not be constructed on agricultural land because it would prevent any use of the land in the ROW. Suggested alignments included East Kettleman Lane and Victor Road/SR 12.

Rationale for Rejection. This alternative is not economically feasible. The construction cost would be an order of magnitude greater than the project or other alternatives that meet most project objectives.

Public and Agency Comments. Community stakeholders, including at the July 2019 open house, suggested this alternative to minimize or avoid impacts to agriculture, wineries, and similar businesses.

4.4.4 Southern Route East

Description. This alternative would route the eastern segment of the new PG&E 230 kV line parallel to the existing PG&E 115 kV line from PG&E Lockeford Substation to East Harney Lane, then turn east along Harney Lane to PG&E Brighton-Bellota 230 kV Line. Other project components would be the same as the proposed project.

Rationale for Rejection. This alternative was rejected for several reasons. Because it would result in a new PG&E double-circuit 230 kV transmission line crossing over multiple other PG&E transmission and power lines near PG&E Lockeford Substation, it would be more constrained during operations and maintenance than the project. It would be more expensive than the project or other alternatives carried forward because of the longer 230 kV line and taller structures required to cross the other existing lines. Existing PG&E distribution and 60 kV lines and residential structures along the edge of the road and center-pivot irrigation agricultural use would prevent the 230 kV line from continuous and adjacent paralleling of the roadway or other lines. Avoiding the constraints by setting the 230 kV line back from the existing lines, structures and center-pivot irrigation reduces the benefits of paralleling and increases the impacts that typically would be avoided or minimized by paralleling. It would result in greater biological impacts than the project because of multiple crossings of wetlands and creeks as well as the longer transmission line.

Public and Agency Comments. No comments were made specifically on this alternative. It was one of the route alignments considered by PG&E in early analysis.

4.4.5 Victor Road/SR 12 Route

Description. This alternative would route the western segment of the new 230 kV line west on East Kettleman Lane from PG&E Lockeford Substation then north along SR 88 to parallel Victor Road/SR 12 toward the City of Lodi. An option for this alternative would follow existing PG&E 60 kV lines north from PG&E Lockeford Substation before turning west along Victor Road/SR 12. The eastern segment of the new 230 kV line and substation components would be the same as the project.

Rationale for Rejection. This alternative was rejected because it is not technically feasible given height restrictions and required width of ROW. Between North Kennison Lane and the UPRR railroad, industrial development on both sides of the road present constraints to height clearance and ROW width requirements. Additionally, at the Town of Victor (between Cherry Road and North Locust Tree Road), there is not enough height or width clearance for a new 230 kV line because of existing industrial developments on the north side and residential developments on the south side of Victor Road.

In addition, there would be constraints to connect the line from Victor Road to PG&E Lockeford Substation, with possible routes including Tretheway Road, Fox Road, and the existing PG&E Lockeford-Industrial 60 kV line along a farm road (between Tretheway Road and North Locust Tree Road). Along these routes, a potential 230 kV line would be in very close proximity to residences, especially the cluster of residences on both sides of the route south of SR 12 at Tretheway Road and Fox Road. The distances from the potential 230 kV line and residences would be less than the widths required for a 230 kV line ROW.

Public and Agency Comments. Community stakeholders, including at the July 2019 open house, suggested that roadways be paralleled for the new 230 kV lines to minimize or avoid impacts to agriculture, wineries, and similar businesses. Agriculture was described as Lodi's economic engine and should be protected. Victor Road/SR 12, as one of the larger east-west roads in the study area, was identified by multiple stakeholders as a potential corridor.

4.4.6 East Kettleman Lane Route

Description. This alternative would route the new 230 kV line along East Kettleman Lane from PG&E Brighton-Bellota 230 kV Line to just west of North Curry Avenue, where it would follow the project alignment north to LEU Industrial Substation. Substation components would be the same as the project.

Rationale for Rejection. This alternative was rejected because it is not technically feasible. There is not enough clearance to accommodate height restrictions or ROW width requirements for a new 230 kV line paralleling East Kettleman Lane.

Public and Agency Comments. Community stakeholders, including at the July 2019 open house, suggested that roadways be paralleled for the new 230 kV lines to minimize or avoid impacts to agriculture, wineries, and similar businesses. East Kettleman Lane, as one of the larger east-west roads in the study area, was identified by multiple stakeholders as a potential corridor. Others noted that East Kettleman Lane contains wine-related business that would be impacted by this route and hurt the appeal of wedding businesses, wine-tasting fundraisers, and other tourist-oriented activities. Several residents on East Kettleman Lane east of PG&E Lockeford Substation noted that they already have three transmission or power lines and associated towers on or near their properties.

4.4.7 Use Existing 60 kV ROW

Description. This alternative would route the new 230 kV lines using an existing PG&E 60 kV power line ROW. This would be done either by constructing a new 230 kV line parallel to the existing 60 kV line, removing the 60 kV line to construct the new 230 kV line, or by placing both the 60 kV and 230 kV lines on the same structures (underbuild). Substation components would be the same as the project. Possible 60 kV line routes include PG&E Lockeford-Industrial 60 kV, PG&E Lockeford-Lodi No. 2 60 kV, PG&E Lockeford-Lodi No. 3 60 kV, and PG&E Industrial Tap 60 kV.

Rationale for Rejection. This alternative was rejected because it is not technically feasible. Each existing PG&E 60 kV power line has large portions with insufficient ROW to accommodate the required ROW for a double-circuit 230 kV line. Proximity to roads, existing structures, and mature vegetation constrain expansion of 60 kV ROW. Avoiding the constraints by setting the 230 kV line back from the existing 60 kV line reduces the benefits of paralleling and increases the impacts that typically would be avoided or minimized by paralleling. Crossing back and forth across roads to achieve the required ROW clearance could be done but would result in a non-typical 230 kV line, because engineering would not recommend

that a line zigzags unless all other alternatives are infeasible. It also could significantly increase the height and number of structures required, increasing impacts and cost. Specific issues include the following.

- PG&E Lockeford-Industrial 60 kV to East Sargent Road Constraint (between Tecklenberg Road and North Curry Avenue). The majority of this PG&E line could be paralleled by a new 230 kV line by setting the new structures in fields adjacent to the 60 kV alignment. Where residential structures are located on both sides of East Sargent Road between Tecklenberg Road and North Curry Avenue, the existing 60 kV ROW mainly uses franchise rights, which are unlikely to also accommodate an adjacent 230 kV line. Routing a 230 kV line here would require a ROW width of at least 80 to 100 feet, but because the existing 60 kV ROW does not accommodate that width, the new 230 kV line would have to be engineered to zigzag across East Sargent Road. A new 230 kV line with 60 kV underbuild could be accommodated if structures were tall enough and a 60 kV shoofly was used during construction. The new tall 230 kV line segment with 60 kV underbuild would pass within approximately 40 to 50 feet of some of the residences and span several residential driveways. Zigzagging the line across East Sargent Road would be required to achieve adequate ROW clearance and would result in greater impacts to the residences on this section of East Sargent Road because of the shorter span length with increased angle pole height and width required; each crossing of the road requires a pole at each end. Routing under this method would result in a nontypical 230 kV line, because engineering would not recommend that a line zigzags with 60 kV underbuild unless all other alternatives are infeasible.
- PG&E Industrial Tap 60 kV to Victor Road. The northern approximately 0.5 mile of the existing PG&E Industrial Tap 60 kV line would likely accommodate a parallel 230 kV line to the west. The final approximately 0.42 mile is constrained by a cemetery and East Lodi Avenue to the north and railroad tracks to the south. These constraints on the west end of the line do not allow for sufficient double-circuit 230 kV line ROW.
- PGE Lockeford-Lodi No. 3 60 kV. This route does not contain enough ROW width at the residential structures east of Bear Creek. Additionally, along East Harney Lane between SR 88 and SR 99, there are numerous residences, wineries, and industrial structures located on both north and south sides of the road. Because residences are located on both sides of East Harney Lane, the existing ROW crossing back and forth across the roadway and the existing ROW is mainly within franchise rights, which will not accommodate the width needed for a double-circuit 230 kV line with the existing 60 kV line. Routing a 230 kV line here would require a ROW width of at least 80 to 100 feet, but because the existing ROW does not accommodate that width, the new 230 kV line would have to be engineered to zigzag across East Harney Lane. As noted previously, zigzagging the line would result in greater potential impacts to the residences on East Harney Lane because of the increase in poles required; each crossing of the road requires a taller pole at each end. Avoiding the constraints by setting the 230 kV line back from the existing lines and structures reduces the benefits of paralleling and increases the impacts that typically would be avoided or minimized by paralleling. Routing under this method would result in a nontypical 230 kV line, because engineering would not recommend that a line zigzags unless all other alternatives are infeasible.
- PG&E Lockeford-Lodi No. 2 60 kV. This route parallels PG&E Sutter Home SW Sta to Lockeford-Lodi 60kV line from PG&E Lockeford Station to approximately 860 feet north of SR 12, where it splits from PG&E Sutter 60 kV line. Paralleling this route would result in an additional 80 to 100 feet width of ROW for a new 230kV line for approximately 1.7 miles of the route, in addition to the existing ROW for the two existing 60 kV lines. The northern portion of the route would result in a significant number of water crossings of the Mokelumne River, potentially up to nine river crossings. Paralleling this route could result in significant biological and riparian habitat impacts that would not occur with other alternatives.

For safety and reliability reasons, putting both lines on the same structures (underbuild) is not preferred, even if there were sufficient ROW. Multiple circuits on a line limit operations flexibility because all circuits on a line need to be taken offline for maintenance. Additionally, three circuits on a structure creates a single point of failure for all circuits and is a nonstandard design.

Public and Agency Comments. Community stakeholders, including at the July 2019 open house, suggested that the existing PG&E 60 kV power line ROW be used or paralleled for the new PG&E 230 kV lines to minimize or avoid impacts to agriculture, wineries, and similar businesses. Agriculture was described as Lodi's economic engine and should be protected. It should be noted that suggestions were also made to place the new PG&E 230 kV lines on an existing 60 kV alignment using existing poles. However, there are no "empty" areas or framing on existing structures to locate new lines. Additionally, existing structures are not designed to support the weight of 230 kV lines and are not tall enough to achieve the required vertical clearance to ground. The existing PG&E 60 kV lines cannot be taken out of service for more than approximately 4 to 5 months annually when the project service area load requirements can be supported with one PG&E 60 kV line offline. This is an insufficient period of time to remove a 60 kV line, construct a new double-circuit 230 kV line, and place the new 230 kV source into service. In addition, multiple circuits on a line can impact operations because all circuits on a line need to be taken offline for maintenance. Use of an existing 60 kV line was not evaluated as an alternative.

4.4.8 BESS (Battery Energy Storage Solution) Only

Description. This alternative would install two blocks of 50-MW batteries and a new PG&E 60 kV switching substation at LEU Industrial Substation. No changes or additions to power or transmission lines would be included.

Rationale for Rejection. This alternative was rejected because it would not meet project purpose and most objectives, including mitigating thermal overloads and meeting PG&E's legal obligations. The batteries cannot be charged enough to meet peak demand and address the overloads under the NERC P1 category contingency.

Public and Agency Comments. CAISO received this as a non-participating transmission owner submittal regarding Lockeford-Lodi area reliability issues, as listed in the 2017-2018 CAISO Transmission Plan. In 2017, CAISO evaluated the NEER – Lodi 40 MW BESS Project as an alternative and determined that it would address thermal overloads but there were other lower-cost alternatives. This alternative was requested to be reconsidered by CPUC.

4.4.9 Hybrid BESS

Description. PG&E considered whether reconductoring existing PG&E 60 kV lines and installing a BESS would be a feasible project alternative. Specific components of this alternative included the following:

- Two blocks of 40 MW BESS at LEU Industrial Substation
- A new PG&E 60 kV switching substation for BESS interconnection to LEU Industrial Substation
- Acquisition of approximately 4 acres of land at LEU Industrial Substation
- New PG&E 230 kV transmission line (approximately 3.8 miles long) to connect the existing PG&E Brighton-Bellota 230 kV Line to PG&E Lockeford 230 kV Substation; the alignment would be the same as the project
- Reconductor approximately 13.67 miles of PG&E 60 kV Lines with new poles and some switches
- Replace limiting terminal equipment at PG&E Lockeford and PG&E Lodi substations

Rationale for Rejection. The BESS Hybrid Alternative would not meet key project objectives, including mitigating thermal overloads and meeting PG&E's legal obligations. The system would require further upgrades within approximately 10 years. The battery would be built by a third party selected by CAISO with unknown cost. The dependency between the PG&E 60 kV line reconductoring and the battery development which a third party would lead, creates uncertainty with the in-service timing of both Hybrid BESS Alternative components to address the NERC P1 category contingency. For example, if the PG&E 60 kV line reconductoring completed before the battery was installed PG&E Lockeford-Lodi 60 kV system would still have thermal overloads risk under the NERC P1 category contingencies.

Public and Agency Comments. This alternative was requested to be considered by CPUC.

4.4.10 Distribution Energy Resources Improvement

Description. This alternative would implement improvements to reduce electrical system demand (such as distributed generation, energy efficiency, and demand response).

Rationale for Rejection. This alternative was rejected because it would not meet the project purpose and objectives. It is not technically feasible to reduce electrical system demand sufficiently to meet project objectives.

Public and Agency Comments. Community stakeholders, including at the July 2019 open house, suggested that PG&E pursue alternatives such as solar and batteries to avoid new transmission lines.

4.4.11 Other Suggestions Regarding Alternatives

In addition to some of the alternatives discussed previously (East Kettleman Lane and Victor Road/SR 12), community stakeholders suggested use of other existing roadways as routing alternatives for a new PG&E 230 kV transmission line. The suggested roadways represent only a small portion of the overall needed alignment and not a full alternative, so by themselves were not considered as individual alternatives. In addition, existing structures and biological resources would constrain the space needed for a continuous ROW along these roads and use of these roads would substantially increase the length of the transmission line, result in greater impacts, and be infeasible to construct. Nevertheless, PG&E considered these roadways during its initial development of complete routing alternatives.

Community-suggested roadways include the following:

- North Jack Tone Road, which runs north-south through the project area to the east of PG&E Lockeford Substation
- East Harney Lane, which runs east-west in the study area between SR 99 and PG&E Brighton-Bellota 230 kV Line
- East Turner Road, which runs east-west on the north side of the City of Lodi, west of North Guild Avenue
- East Sargent Road, which runs east of the railroad tracks near SR 99 for approximately 0.63 mile, and is again a paved road for approximately 2.5 miles between Jack Tone Road and North Linn Road
- Live Oak Road/East Live Oak Road, which in the study area runs east-west between SR 99 and North Tully Road
- North Furry Road, which in the study area runs north-south to the east of SR 99 between East Hogan Lane and Live Oak Road
- Newfield Road, which in the study area is a nonpublic roadway that runs east-west just north of East Kettleman Lane between Alpine Road and North Tretheway Road

Several community members proposed to LEU three alternative routes between LEU Industrial Substation and PG&E Lockeford Substation. One of these three alignments is generally the same as the western component for the Central Alternative (refer to Section 4.2.2.1) and the Northern Alternative (refer to Section 4.2.2.2), both of which were carried forward for consideration. Each of the other two routes includes a large portion along one of two alignments that were rejected for reasons discussed previously: Victor Road/SR 12 (refer to Section 4.4.5) and existing 60 kV ROW (refer to Section 4.4.7). Other portions of these two routes cross areas that were not identified as being compatible with siting objectives.

5 Environmental Analysis

The following sections provide an assessment of environmental impacts anticipated from construction, operation, and maintenance of the Northern San Joaquin 230 kilovolt Transmission Project. Project description information and potential impacts are organized and discussed by each participating utility's portion of the project. The environmental impacts are evaluated for the following resource areas, consistent with the requirements of CEQA:

1. Aesthetics
2. Agriculture and Forestry Resources
3. Air Quality
4. Biological Resources
5. Cultural Resources
6. Energy
7. Geology, Soils, and Paleontological Resources
8. Greenhouse Gas Emissions
9. Hazards, Hazardous Materials, and Public Safety
10. Hydrology and Water Quality
11. Land Use and Planning
12. Mineral Resources
13. Noise
14. Population and Housing
15. Public Services
16. Recreation
17. Transportation
18. Tribal Cultural Resources
19. Utilities and Service Systems
20. Wildfire
21. Mandatory Findings of Significance

Sections 5.1 through 5.21 present the environmental impact analysis for each resource area evaluated for the project. A checklist is provided in each section to summarize the anticipated level of impact (No Impact, Less-than-Significant Impact, Less-than-Significant Impact with Mitigation Incorporated, and Potentially Significant Impact) to each resource area, according to CEQA significance criteria. Each section addresses analysis methodology and environmental setting, applicable regulations, impact questions, applicant-proposed measures and best management practices to avoid or minimize potential impacts, and potential impacts.

With respect to PG&E, because the CPUC has exclusive jurisdiction over the siting, design, and construction of the project, PG&E's portion of the project is not subject to local (city and county) discretionary regulations except for air districts and CUPAs that have special air quality and hazardous waste regulations. A summary of local standards and ordinances pertaining to the resources within the project area is provided for informational purposes and to assist with the CEQA review process in each section.

The City of Lodi is a local agency and must comply with its own local plans and policies for LEU's portion of the project. The City of Lodi intends to rely on the CEQA document (anticipated to be a Final Environmental Impact Report) prepared by the CPUC to comply with CEQA before undertaking any discretionary actions it needs to construct LEU Guild Substation and carry out related work on its 60 kV system. Although LEU is not subject to CPUC jurisdiction, LEU intends to implement the mitigation measures identified in the CPUC's CEQA document that apply to the LEU portion of the project.

The analysis concludes that, overall, impacts will be less than significant. The implementation of APMs and BMPs will further avoid or minimize impacts on environmental resources, ensuring that any remaining impacts will be less than significant.

5.1 Aesthetics

This section describes existing conditions and potential impacts on aesthetics/visual resources as a result of construction, operation, and maintenance of the project. Project description information and potential impacts are organized and discussed by each participating utility's portion of the project. The analysis concludes that impacts on aesthetic resources will be less than significant; the measures described in Section 5.1.4.2 will further reduce the project's less-than-significant impacts on aesthetic resources. The project's potential effects on aesthetic resources were evaluated using the significance criteria set forth in Appendix G of the CEQA Guidelines. The conclusions are summarized in Table 5.1-2 and discussed in more detail in Section 5.1.4.

5.1.1 Methodology and Environmental Setting

The visual analysis is based on review of technical data, including project maps and drawings provided by PG&E and LEU, aerial and ground-level photographs of the project area, local planning documents, and computer-generated visual simulations. Field observations were conducted in March, April, and July 2021 to document existing visual conditions in the project area and to identify potentially affected sensitive viewing locations.

This visual study employs assessment methods based, in part, on guidance from the Federal Highway Administration (FHWA) and other accepted visual analysis techniques. This study also addresses the CEQA Guidelines for visual impact analysis. Systematic documentation of the visual setting and an evaluation of visual changes associated with the project are provided. To convey a sense of existing visual conditions, photographs are included that show representative public views of the project area.

Consistent with FHWA methods, this impact analysis describes change to existing visual resources and assesses viewer response to that change. Central to this assessment is an evaluation of representative views from which the project will be visible to the public. Four key representative public viewpoints or Key Observation Points (KOPs) have been selected to represent viewing locations where the project could be most visible to the public. To document the visual change that will occur, visual simulations, presented as before and after images, show the project from these KOPs. Note that no landscaping is proposed as part of the project and no simulations are provided showing landscape vegetation establishment. Section 5.1.4.5 contains a description of the technical methods employed for digital site photography and to produce the Proponent's Environmental Assessment (PEA) visual simulations. Section 5.1.4.6 includes additional description of methods employed for evaluating visual change. The visual impact assessment is based on evaluation of the changes to the existing visual resources that will result from construction and operation of the project. These changes were assessed, in part, by evaluating the KOP after views provided by the computer-generated visual simulations and comparing them to the existing visual environment.

5.1.1.1 Landscape Setting

The project is situated at the north end of Central California's San Joaquin Valley, an area bordered by the Sierra Nevada foothills on the east and the inner Central Coast Range on the west. Figure 5.1-1a shows the project location within a regional and local landscape context. Located in San Joaquin County near the confluence of the Sacramento River to the north and the San Joaquin River to the south that drain the western flank of the Sierra Nevada mountains, the regional landscape includes a complex network of water conveyance and flood control infrastructure, as well as large riparian areas that connect the San Joaquin Valley with the San Francisco Bay to the west. The proposed PG&E Northern San Joaquin 230 kV Transmission Project consists of an approximately 10.6-mile-long PG&E transmission corridor extending the existing PG&E Brighton-Bellota 230 kV transmission line with the proposed PG&E Thurman Switching Station, proposed LEU Guild Substation, and existing LEU Industrial Substation located within the City of Lodi. Modifications of three existing PG&E 60 kV lines within their alignments will occur within Lodi. The project area is bordered by the Mokelumne River to the north, and Bear Creek and the Calaveras River to the south. Gently undulating grassland near the project's eastern margin gives way to the low-lying,

largely flat former floodplain of the Mokelumne River to the west. Elevations range from approximately 135 feet above sea level where the project intersects the PG&E Brighton-Bellota 230 kV transmission line to approximately 60 feet above sea level at LEU's Industrial Substation within the City of Lodi.

The northern San Joaquin Valley landscape generally reflects a high level of human modification that includes vast areas of agricultural land and important population centers such as Stockton, located approximately 12 miles to the south of the project. Smaller semirural and suburban communities located closer to the project include the community of Lockeford, with a population of approximately 3,400, located approximately 3 miles northeast of the project, while approximately 4 miles to the south is the Town of Morada, with a population of approximately 3,800. With a population of approximately 62,000, the City of Lodi is the largest urban center in the immediate project area. Major north-south transportation corridors that provide links between cities and smaller communities within the region include Interstate 5 (I-5), located approximately 8 miles to the west of the project's terminus in Lodi, and SR 99, which skirts the eastern edge of Lodi approximately 0.3 mile from the proposed PG&E Thurman Switching Station. Regional highways passing through or near the project area connecting local communities with coastal population centers to the west as well as with recreation destinations in the Sierra Nevada mountains to the east include SR 12 to the north and SR 88, which is crossed by the new PG&E 230 kV transmission line approximately 3.8 miles east of Lodi. Additionally, a grid of local paved and unpaved rural roadways traverses the area, several of which cross or closely parallel the new 230 kV double-circuit line; local roads include East Kettleman Lane, East Harney Lane, Clements Road, and North Jack Tone Road, the latter two being County-designated scenic routes. Within the project area, other established built landscape features include irrigation canals, railroad corridors, and agricultural processing facilities. Throughout the project area, electric utility structures, including substations and overhead power lines, are established landscape features. Figure 5.1-1a shows locations of existing power and transmission lines in the immediate vicinity.

Vegetation in the project vicinity includes agricultural crops – primarily vineyards, orchards, and forage cropland – as well as grassland and riparian corridors. Scattered stands of mature trees, both native and introduced, also are characteristic visual features seen throughout the project area, lining many of the area roadways and surrounding most residences. Although predominantly agricultural, land use immediately north and south of the project corridor includes residential parcels. Within the eastern part of the project area, residences generally consist of isolated rural houses with associated farm buildings surrounded by fields. Near Lodi to the west, houses are more numerous and are largely found along well-traveled public roadways. At the western edge of the project alignment at the proposed PG&E Thurman Switching Station, the existing LEU Industrial Substation, and new proposed LEU Guild Substation, vegetation is limited, consisting primarily of isolated tree stands and ornamental landscaping near industrial uses.

5.1.1.2 Scenic Resources

Scenic resources are those natural and built landscape patterns and features that are considered visually or aesthetically pleasing and, therefore, contribute positively to the definition of a distinct community or region. Because of the predominantly flat terrain and prevailing poor visibility, scenic resources in the project area generally are limited to near- and medium-range viewpoints available within public recreation areas within the City of Lodi and from several public roadways. The foothills of the Sierra Nevada mountains begin to rise approximately 6 to 8 miles east of the project connection with the PG&E Brighton-Bellota 230 kV transmission corridor and occasionally they can be seen from some locations within the project vicinity during winter months; however, views of the mountains are largely obscured by atmospheric haze that persists in the area throughout much of the year. The Mokelumne River defines the northern perimeter of the City of Lodi, extending east between approximately 1 and 2.5 miles north of the PG&E 230 kV corridor as shown on Figure 5.1-1a. Public recreation areas in the project vicinity are concentrated along the river; however, because of a combination of distance and intervening vegetation and structures, the project would not be seen from locations along the Mokelumne River. Several San Joaquin County designated- scenic routes are found at varying distances from the project area; these include portions of SR 12 and SR 88, as well as North Jack Tone Road and Liberty Road (Clements Road). SR 88, approximately 4 miles south of its scenic designation, and North Jack Tone Road both are crossed by the new PG&E 230 kV line.

5.1.1.3 Viewshed Analysis

A project viewshed is defined as the general area from which a project is visible. For purposes of describing a project's visual setting and assessing potential visual impacts, the viewshed can be broken down into foreground, middleground, and background zones. The foreground is defined as the zone within 0.25 mile to 0.5 mile of the viewer; the middleground is defined as the zone that extends from the foreground to a maximum of 3 to 5 miles from the viewer; and the background zone extends from the middleground to infinity (U.S. Department of Transportation 2015). Viewing distance is a key factor that affects the potential degree of project visibility. Visual details generally become apparent to the viewer when they are observed in the foreground, at a distance of 0.25 mile to 0.5 mile or less.

Figure 5.1-1b shows the potential visibility of PG&E and LEU project elements from a distance of up to 5 miles from the project corridor. A delineation of the area within 0.5 mile from the project also is shown. Because of the relatively flat terrain in the project area, the viewshed map demonstrates that, based on the topography, project structures could be visible from most of the surrounding area. While topography generally does not play a significant role in inhibiting visibility of built elements in the project area landscape, intervening structures, consisting mainly of rural and suburban residences and farm utility buildings, typically are surrounded by stands of tall trees, which – along with the preponderance of orchards and vineyards in many locations – constrains distant views across the landscape. Additionally, the presence of persistent temperature inversions, which prevents the dispersion of atmospheric pollutants within the valley environment, results in generally poor visibility within the project area for much of the year and, for the most part, this limits visual details to short-range perspectives. Accordingly, the primary focus of the visual analysis included in this PEA is the foreground viewshed zone, where project-related visual effects would be most apparent, particularly those areas within 0.5 mile of project elements.

5.1.1.4 Landscape Units

For purposes of documenting and describing the project's foreground viewshed, three subareas or landscape units with distinguishing land use and development patterns have been identified and are shown on Figure 5.1-1a. Landscape Unit 1 encompasses the eastern segment of the project area, extending approximately 3.8 miles west from the PG&E Brighton-Bellota transmission corridor to PG&E's Lockeford Substation, where an existing PG&E 230 kV transmission ROW passes through a largely open landscape dominated by low-growing forage cropland, vineyards, and scattered orchards with widely dispersed homesteads. The project would closely parallel the existing PG&E transmission ROW, located between approximately 760 and 1,600 feet north of East Kettleman Lane. Photographs 1 through 6 on Figures 5.1-2a through 5.1-2b show representative views of the project and surrounding landscape character found within Landscape Unit 1. One of these views is a KOP selected for visual simulation to show the project as seen from North Jack Tone Road, a County-designated scenic roadway.

Landscape Unit 2 extends approximately 6.8 miles in a generally westerly direction from PG&E Lockeford Substation to the eastern perimeter of the City of Lodi. Compared with Landscape Unit 1, this area is characterized by a more-diverse mix of land uses and a greater prevalence of built landscape features, including commercial wineries, and a greater concentration of rural and suburban residences. Electrical infrastructure in this landscape unit generally is dispersed, consisting of wood utility poles supporting numerous power and distribution lines. Additionally, a denser network of public roadways, with an associated greater volume of vehicular traffic, characterizes Landscape Unit 2. Photographs 7 through 16 on Figures 5.1-2c through 5.1-2f show representative views of the project and surrounding landscape character found within Landscape Unit 2. Two of these views are KOPs selected for visual simulations to show the project as seen from sensitive locations, including a commercial winery.

Landscape Unit 3 encompasses the area surrounding the existing LEU Industrial Substation, proposed LEU Guild Substation, proposed PG&E Thurman Switching Station, the western terminus of the proposed PG&E 230 kV transmission line, and three PG&E 60 kV power lines that will be reconfigured as part of the project. Situated in an industrial-zoned district within the eastern perimeter of the City of Lodi, this area consists predominantly of agricultural processing, warehousing, and transportation facilities, including

railway infrastructure. Representative views of this landscape unit are illustrated in Photographs 17 and 18 on Figure 5.1-2f and include a KOP selected for visual simulation of the proposed substation, switching station, and adjacent project transmission and communication structures.

5.1.1.5 Viewers and Viewer Sensitivity

Accepted visual assessment methods, including those adopted by the FHWA, establish sensitivity levels as a measure of public concern for changes to scenic quality. Viewer sensitivity, one of the criteria for evaluating visual impact significance, can be divided into high, moderate, and low categories. Factors considered in assigning a sensitivity level include viewer activity, view duration, viewing distance, adjacent land use, and special management or planning designation. According to the FHWA's *Visual Impact Assessment for Highway Projects* (FHWA 2015), research on the subject suggests that certain activities tend to heighten viewer awareness of visual and scenic resources, while others tend to be distracting. The project viewshed includes several types of concerned viewer groups, primarily motorists and recreationalists, specifically visitors to area wineries, as well as residents and agricultural workers.

Motorists, the largest viewer group, include people traveling on local public roadways relatively close to or crossing the project alignment. In the eastern part of the project area (Landscape Unit 1), this includes East Kettleman Lane, an arterial roadway that crosses the project route near PG&E Lockeford Substation and continues parallel to the general project trajectory approximately 0.25 mile to the south to near the project's eastern terminus. Clements Road and North Jack Tone Road, both County-designated scenic roadways, extend north of East Kettleman Lane and cross or pass within close proximity to the project. In the area within and around Lodi (Landscape Unit 3), motorists with potential views of the project include those passing along South Guild Avenue and East Thurman Road near the proposed PG&E Thurman Switching Station, existing PG&E 60 kV lines, proposed PG&E 230 kV line, LEU Guild Substation, and LEU Industrial Substation in Lodi's industrial district, as well as those on East Kettleman Lane east of the SR 99 corridor crossed by the project route. In Landscape Unit 2, East Kettleman Lane passes within approximately 0.25 and approximately 0.5 mile north of the project as it continues east of Lodi, where it eventually intersects SR 88, an important regional highway that crosses the project area. Traffic volume varies on these roads, ranging from the comparatively heavily traveled SR 88, an important regional link between the Central Valley and resort destinations to the east, to the lightly traveled local roadways that provide access to surrounding agricultural, industrial, and residential areas. Motorists consist mainly of local commuters who are familiar with the visual setting, as well as regional travelers using the roads less regularly. Roadway views generally are brief in duration, with SR 88 and East Kettleman Lane posting speed limits of 45 and 55 miles per hour (mph), respectively. In many of these locations, motorists' views are screened by roadside vegetation that includes orchards, vineyards, and stands of mature trees. Sensitivity of this viewer group is considered low to moderate.

Recreational visitors to the commercial wineries comprise another potentially important viewer group. Known as a wine-producing region, the area around Lodi attracts recreational visitors from the Central Valley and beyond. Wineries typically are located on rural residential properties adjacent to vineyards and production facilities; some with tasting rooms include outdoor terraces with seating, where comparatively open landscape views are available. Three wineries are situated within 0.5 mile of the project corridor and visitors may see portions of the new PG&E transmission line from some outdoor locations at winery tasting rooms. Tourism related to wine tasting is highly seasonal, with peak visitation in the fall and spring. Views tend to be brief or moderate in duration, and the sensitivity of this viewer group is considered moderate to high. In addition, recreational visitors to Black Diamond Mines Regional Preserve and Mount Diablo State Park may have limited views of modifications to the existing PG&E Clayton Hill Repeater Station south tower from a distance of greater than 0.25 mile (EBRPD 2020; Mount Diablo State Park 2018).

Another viewer group consists of residents situated near the project route. This viewer group includes inhabitants of suburban and semirural properties located along North Curry Avenue, Alpine Road, East Kettleman Lane, and East Harney Lane in the area between Lodi and SR 88, as well as a more limited number of rural residents living in areas of agricultural land crossed by the project east of

Lockeford Substation. As described in Section 5.1.1.1, mature trees and other vegetation on residential properties provide a measure of screening at these locations. Residential views tend to be long in duration, and the sensitivity of this viewer group is considered moderate to high.

Agricultural workers along most of the project route and industrial workers near the western end of the project in Lodi are another viewer group. Agriculture is the predominant land use within the project area, consisting primarily of vineyards, nut and fruit orchards, and open forage cropland. Permanent and seasonal workers may be in close proximity to the project route. Their views tend to be brief or moderate in duration, and the sensitivity of this viewer group is considered low to moderate.

5.1.1.6 Representative Viewpoints

Eighteen representative viewpoints have been identified for the project. Table 5.1-1, a summary of this set of representative viewpoints and photographs, includes information on the viewpoint location, primary type of viewers, approximate viewing distance to the project, and a description of the existing visual conditions. In addition, the table also highlights a subset of the photographs that are KOPs selected for visual simulations. Figures 5.1-2a through 5.1-2f includes six sheets showing a photograph taken from each of the KOPs. Taken together, these photographs convey a general sense of the existing visual character of the landscape within the vicinity of the project.

5.1.1.1 Representative Photographs

Figures 5.1-2a through 5.1-2f present a set of 18 photographs taken from representative viewpoint locations along the alignment within the project viewshed. Detailed location coordinate data and other information is included in Appendix A2 with the figures.

5.1.1.7 Visual Resource Management Areas

No Visual Resource Management Areas are applicable to the project.

5.1.2 Regulatory Setting

5.1.2.1 Federal

No federal regulations related to aesthetic or visual resources are applicable to the project.

5.1.2.2 State

California Scenic Highway Program

The California Scenic Highway Program, a provision of the Streets and Highways Code, was established by the State Legislature in 1963 to preserve and enhance the natural beauty of California. The California Scenic Highway Program includes highways that are either eligible for designation as scenic highways or have been designated as such. The status of a state scenic highway changes from eligible to officially designated when the local jurisdiction adopts a scenic corridor protection program, applies to Caltrans for scenic highway approval, and receives the designation from Caltrans (Caltrans 2022). A city or county may propose to add routes with outstanding scenic elements to the list of eligible highways; however, state legislation is required for a highway to be officially designated. A review of the California Scenic Highway Program indicates that the project is not visible from a designated or eligible state scenic highway. SR 160, the closest designated (or eligible) state scenic highway, is located more than 17 miles west of the project terminus at LEU Industrial Substation. The project is not visible from this roadway.

Table 5.1-1. Summary of Representative Viewpoints and Photographs

Viewpoint Number, Location, and Viewing Direction (* denotes KOP)	Primary Viewers	Approximate Viewing Distance to Project	Existing Visual Conditions
Landscape Unit 1			
1. Clements Road looking southwest toward eastern end of project	Local motorists, nearby residents, and agricultural workers	3,274 feet (0.62 mile)	In this open view from a County-designated scenic roadway toward the eastern end of the project, an expanse of vineyard grapevines dominates the foreground, and stands of mature trees surrounding isolated rural residences are visible in the distance. Along the horizon, existing lattice towers of the PG&E Rio Oso-Lockeford and PG&E Lockeford-Bellota 230 kV transmission line junction and PG&E Brighton-Bellota transmission lines can be seen silhouetted against open sky.
2. North Linn Road near East Kettleman Lane looking west	Local motorists and nearby residents	1,540 feet (0.29 mile)	This view across an open pasture and vineyard shows multiple existing lattice transmission towers silhouetted against the sky; the towers are part of the existing PG&E Rio Oso-Lockeford-Bellota 230 kV alignment that closely parallels the proposed project route. Mature trees in close proximity to widely scattered residences and farm utility buildings partially screen open views toward the existing and proposed alignments.
3. Smith Road at North Jory Road looking southwest	Local motorists, nearby residents, and agricultural workers	525 feet	In this close-range view from a local farm road approximately 0.25 mile north of East Kettleman Lane, existing lattice towers and conductors of the PG&E DCTL (Rio Oso-Lockeford and Lockeford-Bellota) are prominent against the sky where the alignment crosses a vineyard in the foreground. Dense mature trees situated along East Kettleman Lane largely screen a nearby residence and utility buildings, while a rail fence and metal post-mounted mailbox along the roadside are in the immediate foreground.
4. East Kettleman Lane at North Tully Road looking northeast	Local motorists	925 feet	This view from a well-traveled public roadway shows characteristic landscape at the eastern margin of the project area. Scattered vertical stands of mature trees surrounding isolated residences punctuate the open vista of flat, expansive fields, and lattice towers of the existing PG&E DCTL (Rio Oso-Lockeford and Lockeford-Bellota) can be seen against the sky. On exceptionally clear days, as illustrated in this photograph, a distant profile of the Sierra Nevada foothills can be seen.
5. North Jack Tone Road near East Kettleman Lane looking south*	Local and regional motorists, nearby residents, and agricultural workers	460 feet	This close-range southbound motorist's view from a County-designated scenic road shows a rural agricultural landscape with irrigated covered row crops and adjacent open pasture, as well as roadside drainage canals and fences, and several farm utility buildings with accessory structures, which are partially screened by roadside vegetation. Multiple existing transmission lines situated in close proximity to the proposed project route cross the roadway. Lattice steel towers as well as an array of wood utility poles are seen on the right side of the road. Together with numerous intersecting overhead conductors, these built features are noticeable against the light sky backdrop.

Viewpoint Number, Location, and Viewing Direction (* denotes KOP)	Primary Viewers	Approximate Viewing Distance to Project	Existing Visual Conditions
6. East Kettleman Lane near Lockeford Substation looking northwest	Local and regional motorists, nearby residents	885 feet	This view shows PG&E Lockeford Substation as seen by westbound motorists and nearby residents along East Kettleman Lane. The PG&E DCTL (Rio Oso-Lockeford and Lockeford-Bellota) lattice steel tower is in the right of the view. Prominent foreground elements include overhead conductors supported by an array of wood utility poles that parallel the roadway, along with lattice towers supporting existing overhead transmission lines. Portions of the substation facility are visible against the sky; however, views toward the substation are partially screened by intervening elements, including a red agricultural storage building, a dense stand of trees along the roadway, and several utility buildings.
Landscape Unit 2			
1. SR 88 looking south	Regional and local motorists, nearby residents, and agricultural workers	580 feet	This is a close-range view toward the proposed project route crossing from a well-traveled roadway carrying motorists, including local and regional recreational travelers. Vineyards and orchards are visible along both sides of the roadway; in the immediate foreground, chain link fencing, a horse farm, and a farm equipment storage yard are visible on the right. Also on the right are several widely scattered rural residences facing this segment of highway, as well as a commercial winery that is accessible to the public. On the left side of the roadway, wood utility poles supporting multiple overhead lines are noticeable against the sky in the foreground.
2. Intercoastal Vineyard at SR 88 looking north	Regional and local recreationalists and nearby residents	1,380 feet (0.26 mile)	This view toward the project crossing of SR 88 is from a publicly accessible outdoor terrace at a commercial winery facing SR 88. Beyond the vineyard seen in the foreground, vehicles traveling on the highway are visible, along with a residence and farm utility buildings, although these are partially screened by vegetation. On the right near the edge of the outdoor terrace is a lawn area with immature, conical-shaped conifer trees; the trees partially screen a wood utility pole, visible in the foreground to the right, as well as distant views of landscape features across the highway.
3. Harmony Wynelands winery near East Harney Lane looking north	Regional and local recreationalists and agricultural workers	1,620 feet (0.31 mile)	This view toward the project from an outdoor terrace of a commercial winery accessible to the public shows a cluster of brightly colored umbrellas and informal seating in the immediate foreground. Dense landscaping at the edge of the terrace largely screens views of an expanse of vineyard beyond. Stands of mature trees, residences, and utility poles along East Kettleman Lane are partially visible on the horizon at a distance of approximately 0.75 mile.
4. North Alpine Road looking north	Local and regional motorists and nearby residents	500 feet	This is a close-range view toward the project crossing from a lightly traveled public roadway, as well as that seen from the adjacent residence located less than 0.25 mile from the proposed project. Next to a wood utility pole seen immediately on the right is a residence surrounded by a fence and mature landscaping. Overhead utility lines cross the roadway in the foreground and wood utility poles line the left side of road, while additional poles are visible along the horizon on the left. In the center of the view, beyond the agricultural storage building, a residence is partially screened by stands of mature vegetation and trees line the roadway in the distance. On the right, another nearby residence is partially surrounded by vineyard grapevines.

Viewpoint Number, Location, and Viewing Direction (* denotes KOP)	Primary Viewers	Approximate Viewing Distance to Project	Existing Visual Conditions
5. Prie Vineyard and Winery at Alpine Road looking southeast	Local and regional recreationalists and agricultural workers	4,900 feet (0.93 mile)	This distant view toward the project route from a commercial winery with public access includes an expanse of vineyard grapevines in the foreground. Dense stands of mature trees surrounding numerous residences along East Kettleman Lane can be seen in the background located approximately 0.4 mile from this viewpoint. Isolated wood utility poles can be seen in the distance through gaps in the vegetation; however, distant views across the flat terrain toward the proposed project are screened by intervening tree canopy.
6. Mettler Family Vineyards at East Harney Lane looking north*	Local and regional recreationalists and agricultural workers	2,125 feet (0.40 mile)	This view toward the project from a publicly accessible outdoor seating terrace at a commercial winery looks across a flat landscape dominated by grapevines seen in the foreground. In the immediate foreground, portions of a paved patio, lawn area, and decorative landscape elements are visible. The close proximity of the outdoor terrace to the vineyard contributes to screening more distant landscape features and, as a result, the tall tree canopies, residences, and utility poles along East Kettleman Lane that are partially visible from Viewpoint 9 are only barely visible from this location.
7. East Kettleman Lane at Hoerl Road looking southwest	Local motorists and nearby residents	1,750 feet (0.33 mile)	This view shows the project route from a public arterial in an area where some residences face the roadway. Relatively open motorist views across the landscape include vineyards and orchards; arrays of wood utility poles supporting existing overhead lines are visible against the sky along East Kettleman Lane and adjacent roadways. By contrast, stands of existing mature trees screen residential views across the landscape from this area.
8. East Kettleman Lane near North Curry Avenue looking northwest*	Local motorists and residents	1,065 feet (0.20 mile)	This is an open view toward the project route from a well-traveled public roadway near eastern Lodi's industrial perimeter, where clusters of residences situated along East Kettleman Lane and North Curry Avenue are interspersed among vineyards and a multi-acre tree farm (not shown). Wood utility poles supporting multiple overhead power and telecommunication lines are visible in the foreground against a backdrop of sky with light-colored, low-rise industrial warehouse facilities, railroad infrastructure, and pole-mounted industrial lights seen along the horizon.
9. East Kettleman Lane at Pixley Parkway looking east	Local motorists and nearby residents	3,170 feet (0.6 mile)	This motorist view shows the location of the project crossing from a well-traveled public roadway at Lodi's eastern perimeter, approximately 0.33 mile from SR 99. In this area, the development pattern reflects land use transition and industrial and commercial enterprises are interspersed with open fields, vineyards, and scattered residences. On the right, wood utility poles line the roadway, diminishing in prominence as they recede into the distance. Roadside commercial signage and pole-mounted street and industrial lights are noticeable elements in the foreground on the left. Stands of mature trees screen more distant views.

Viewpoint Number, Location, and Viewing Direction (* denotes KOP)	Primary Viewers	Approximate Viewing Distance to Project	Existing Visual Conditions
10. East Realty Road at North Curry Avenue looking northwest	Local motorists and residents and agricultural workers	775 feet	This close-range view shows the project route from a roadway intersection in an area of scattered rural residences. In the immediate foreground, a vineyard borders a private access road leading to an isolated residence and cluster of farm utility buildings, and an array of wood utility poles supporting overhead conductors lines the road. Mature trees surround the residence and adjacent buildings, partially screening a large industrial warehouse building seen on the right, beyond the vineyard.
Landscape Unit 3			
1. South Guild Avenue near East Thurman Road looking north	Local motorists and pedestrians, and industrial workers	230 feet	This close-range view looks north toward the PG&E Thurman Switching Station site and the existing PG&E Lockeford-Industrial, Lodi-Industrial, and Industrial Tap 60 kV lines from a public street within the City of Lodi's industrial district. Agricultural processing and warehousing facilities dominate this area and numerous utility poles, overhead conductors, and pole-mounted streetlights are present. The existing LEU Industrial Substation (not visible in this view) is located to the left of the undeveloped land in the center of the view.
2. East Thurman Road looking northeast*	Local motorists and pedestrians, and industrial workers	400 feet	This close-range view looking toward South Guild Avenue shows the southeastern corner of the existing LEU Industrial Substation perimeter fence, the proposed LEU Guild Substation, and PG&E Thurman Switching Station site from a public street in Lodi's industrial district. Roadway pavement and the undeveloped proposed switching station and substation site are prominent in the foreground, while the backdrop comprises an industrial warehouse building, which is partially screened by tractor-trailer rigs parked along the street. On the left in the distance, portions of the existing PG&E Industrial Tap and Lockeford-Industrial 60 kV power lines with the LEU 12 kV feeder line underbuild can be seen against the sky where they are visible above tree canopies located near the warehouse as well as at the Memorial Park and Cemetery.

5.1.2.3 Local

Because the CPUC has exclusive jurisdiction over project siting, design, and construction, PG&E's portion of the project is not subject to local (city and county) discretionary regulations except for air districts and CUPAs with respect to air quality and hazardous waste regulations. However, local plans and policies are considered for informational purposes and to assist with the CEQA review process.

City of Lodi is a local agency and must comply with its own local plans and policies. The project is located in unincorporated areas of San Joaquin County and also passes through a portion of the City of Lodi. This section reviews policies and regulations of these jurisdictions as they relate to visual resources in the project area.

San Joaquin County General Plan (2016)

Scenic resources are addressed in the Natural and Cultural Resources (NCR) Element of the *San Joaquin County General Plan*. This element of the Plan notes, "… views of the Delta and the agriculturally rich valley floor, as well as panoramic views of the Coastal ranges and the Sierra, when visibility conditions permit, form the primary scenic resources within San Joaquin County. Because of the flatness of most of the County's terrain, and often poor air quality, most scenic views are limited to near and medium-range viewpoints as provided by viewpoints such as public recreation areas and roadways…" (p. 3.4-11).

Goals and policies include NCR-5.5, Environmental Protection, which states, "The County shall strive to balance the development of energy facilities with environmental protection and the preservation of other natural resources"; and NCR-7.1, "… to protect and enhance the unique scenic features of San Joaquin County."

Policies address scenic roadways, calling for protection of the visual character of and views from designated scenic roadways (NCR-7-1.1 and 7-1.2). NCR-7-1.3 indicates the County shall preserve scenic views from roadways by designating scenic routes. Figure NCR-1 shows 14 local and state scenic routes. North Jack Tone Road and Liberty Road (Clements Road) are crossed by, or near, the project, respectively. Other scenic routes within the project vicinity include SR 88/SR 12, approximately 4 miles north of the project, Eight Mile Road between Jack Tone Road and SR 88, approximately 3.5 miles south of the project, and a section of I-5, located approximately 8 miles west of the project terminus.

City of Lodi General Plan (2010)

The *City of Lodi General Plan* describes the Industrial land use classification as a mix of heavy manufacturing, warehousing, general service, storage, and distribution activities. Industrial sites are available within and adjacent to the existing cluster of industrial uses on the east side of the City. Per Section 17.24.030 of the City's Municipal Code, utility facilities are permitted with a use permit within the Industrial zone district.

Conservation Policies within the General Plan include measures to address protection of vegetation and wildlife habitat:

- C-P15: Site new development to maximize the protection of native tree species and sensitive plants and wildlife habitat. Minimize impacts to protect mature trees … when approving new development.

Policies relating to efforts to minimize air pollution within the Lodi planning area include:

- C-P6: Require new development to implement measures that minimize soil erosion from wind and water related to construction and urban development. Measures may include:
    - Construction techniques that utilize site preparation, grading, and best practices that provide erosion control and prevent soil contamination.

- C-P50: Require contractors to implement dust suppression measures during excavation, grading, and site preparation activities, including site watering, covering of stockpiles, and revegetation of graded areas.

5.1.3 Impact Questions

The project's potential effects on aesthetic resources were evaluated using the significance criteria set forth in Appendix G of the CEQA Guidelines. The criteria and conclusions are summarized in Table 5.1-2 and discussed in more detail in the following sections. Section 5.1.4.6 includes additional discussion of visual change and the potential impact associated with the project.

Table 5.1-2. CEQA Checklist for Aesthetics

Would the project:	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
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?	☐	☐	☒	☐
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☒	☐

5.1.3.1 Additional CEQA Impact Questions

None.

5.1.4 Potential Impact Analysis

Project impacts related to aesthetic resources were evaluated against the CEQA significance criteria and are discussed in the following subsections. The impact analysis evaluates potential project impacts during the construction phase and the operation and maintenance phase. The impact discussion is organized to describe the effects that each participating utility's portion of the project has on the environment.

5.1.4.1 Significance Criteria

According to Section 15002(g) of the CEQA Guidelines, "a significant effect on the environment is defined as a substantial adverse change in the physical conditions which exist in the area affected by the project."

As stated in Section 15064(b) of the CEQA Guidelines, the significance of an activity may vary with the setting. Per Appendix G of the CEQA Guidelines, the potential significance of project impacts on aesthetics were evaluated for each of the criteria listed in Table 5.1-2, as discussed in Section 5.1.4. The following sections describe significance criteria for aesthetic impacts derived from Appendix G of the CEQA Guidelines and additional CEQA impact questions, and address potential project-related construction and operational visual impacts.

5.1.4.2 Applicant-Proposed Measures and Best Management Practices

The project will implement the following APMs and BMPs:

APM Aesthetics (AES)-1: Aesthetics Impact Reduction During PG&E Construction. All PG&E project sites will be maintained in a clean and orderly state. Construction staging areas will be sited away from the public view where possible. Where this is unavoidable, construction sites, staging areas, and fly yards will be visually screened using temporary screening fencing. Nighttime lighting will be directed away from residential areas and have shields to prevent light spillover effects. Upon completion of project construction, project staging and temporary work areas will be returned to pre-project conditions, including regrading of the site and revegetation or repaving of disturbed areas to match pre-existing contours and conditions.

BMP AES-1: Aesthetics Impact Reduction During LEU Construction. All LEU project sites will be maintained in a clean and orderly state. Construction staging areas will be sited away from the public view where possible. Where this is unavoidable, construction sites, staging areas, and fly yards will be visually screened using temporary screening fencing. Nighttime lighting will be directed away from residential areas and have shields to prevent light spillover effects. Upon completion of project construction, project staging and temporary work areas will be returned to pre-project conditions, including regrading of the site and revegetation or repaving of disturbed areas to match pre-existing contours and conditions.

APM AES-2: **Use of Dulled Galvanized Finish on PG&E Tubular Steel Poles and PG&E Non-Specular Conductors.** Use of a factory-dulled galvanized finish on new PG&E TSPs and PG&E non-specular (nonreflective) conductors would reduce the potential for a new source of glare and visual contrast resulting from the PG&E TSPs and conductors.

APM AES-3: PG&E Poles near Residences. To reduce potential visibility of PG&E Structure W13 as seen from the residence located within approximately 250 feet, where relatively unobstructed views of the project are seen and the new PG&E structure appears prominent, APM AES-3a and/or 3b will be implemented.

APM AES-3a: PG&E will consult with residential property owner regarding placement of PG&E Structure W13 to reduce its visibility with respect to the residential view.

APM AES-3b: PG&E will consult with residential property owner regarding PG&E's potential purchase of several trees and large shrubs for installation at key locations on residential property to provide visual screening. The selected plant material will be ecologically appropriate to the local landscape setting (in terms of water usage, horticultural and soil requirements, and so on) and will be compatible with PG&E and CPUC requirements for landscaping in proximity to power facilities. After planting, the maintenance of the plants will be the responsibility of the property owner.

5.1.4.3 Potential Impacts

Project impacts related to aesthetics were evaluated against the CEQA significance criteria and are discussed in the following sections. The impact analysis evaluates potential project impacts during the construction phase and the operation and maintenance phase. The impact discussion is organized to describe the effects of each participating utility's portion of the project on the environment.

As described in Chapter 3, Project Description, the project will provide a new 230 kV transmission source in northern San Joaquin County, in central California. The project includes extending an existing PG&E 230 kV transmission line through PG&E's Lockeford Substation to a new PG&E Thurman Switching Station in Lodi, California, by installing new TSPs and conductors for approximately 11 miles. PG&E's Lockeford Substation will be expanded on existing substation property to accommodate the new 230 kV facility. LEU's Thurman Switching Station will transfer the new 230 kV source to the new adjacent LEU 230/60 kV Guild Substation. LEU's Guild Substation will transfer the 60 kV power to the existing adjacent LEU 60 kV Industrial Substation, which will be modified to receive the new 60 kV lines (via the new 230 kV source) and to disconnect the existing PG&E 60 kV sources. When disconnected, the three existing PG&E 60 kV lines will be partially removed and reconfigured mainly within their existing alignments to continue operation between PG&E's Lockeford and Lodi substations. LEU distribution and third-party telecommunication underbuild on a PG&E 60 kV line portion being removed will be relocated by the respective utility owner to within or adjacent to other existing alignments. An existing PG&E distribution line will be extended underground approximately 500 feet in franchise to provide a permanent secondary service line to PG&E Thurman Switching Station. PG&E project-related work to update communication between facilities and the protection scheme system also will occur within the existing fence lines of remote-end substations Brighton, Bellota, Lodi, and Rio Oso, and a communication facility, Clayton Hill Repeater Station.

a) **Would the project have a substantial adverse effect on a scenic vista? *No impact.***

PG&E Potential Impact Discussion

CEQA requires that the project be evaluated as to whether its implementation has a substantial, adverse effect on a scenic vista. For purposes of this evaluation, a scenic vista is defined as a distant public view along or through an opening or corridor that is recognized and valued for its scenic quality. With the exception of the existing PG&E Clayton Hill Repeater Station, there are no recognized scenic vistas within the PG&E portion of the project viewshed. The existing PG&E Clayton Hill Repeater Station is located more than 3 miles from the summit of Mount Diablo, a scenic vista point, and PG&E project modifications would not be noticeable at this distance; therefore, there would be no substantial adverse effect on a scenic vista from the PG&E portion of the project. Additionally, the PG&E portion of the project would not obstruct views to the Coast and Sierra Nevada ranges and nearby rivers. There would be no impact.

LEU Potential Impact Discussion

There are no recognized scenic vistas within the LEU portion of the project viewshed; therefore, there would be no substantial adverse effect on a scenic vista from the LEU portion of the project. Additionally, the LEU portion of the project would not obstruct views to the Coast and Sierra Nevada ranges and nearby rivers. There would be no impact.

b) **Would the project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway? *No impact.***

PG&E Potential Impact Discussion

As documented in Section 5.1.2.2, the proposed PG&E 230 kV transmission line, modified PG&E Lockeford Substation, and proposed PG&E Thurman Switching Station would not be visible from any state-designated or eligible scenic highway, and there are no designated or eligible state scenic highways within the project viewshed. Therefore, the proposed PG&E portion of the project would not substantially damage scenic resources within a state scenic highway.

Portions of the new PG&E 230 kV transmission line would be visible from San Joaquin County scenic routes in the project area. These include Clements Road, situated approximately 0.6 mile east of the takeoff point from the PG&E Brighton-Bellota transmission corridor, and North Jack Tone Road, which is crossed by the proposed alignment east of PG&E Lockeford Substation. Views of the PG&E transmission

line crossing from North Jack Tone Road, as well as the view toward the transmission line available from Clements Road, would be seen in the context of multiple existing transmission lines that closely parallel the project route. Other County scenic routes in the project area include SR 12 and SR 88. The designated scenic portion of SR 12 and SR 88 begins where the two highways are collocated approximately 3 miles north of PG&E Lockeford Substation. From this location and from along the approach to the scenic portion of SR 12 east of Lodi, visibility of project components is limited by viewing distance and the presence of intervening vegetation and structures. SR 88 is crossed by the PG&E transmission line alignment approximately 4 miles southwest of its scenic designation. PG&E project components visible to motorists along SR 88 would be seen in the context of an existing 60 kV power line supported by wood poles that crosses the highway approximately 0.25 mile south of the transmission line alignment. Furthermore, affected views would be fleeting, given typical highway speeds along this stretch of roadway (posted speed limit of 55 mph). In light of conditions described previously, the PG&E project would not have a significant effect on views from local scenic roadways in the project area. There would be no impact.

LEU Potential Impact Discussion

The proposed LEU Industrial and Guild substations would not be visible from any state-designated or eligible scenic highway, and there are no designated or eligible state scenic highways within the project viewshed. Therefore, the LEU project would not substantially damage scenic resources within a state scenic highway. There would be no impact.

c) **In nonurbanized areas, would the project 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 a publicly accessible vantage point.) If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?**
Less-than-Significant Impact

PG&E Potential Impact Discussion

PG&E's construction of its facilities would occur primarily in unincorporated San Joaquin County and includes modification of the existing PG&E Lockeford Substation and the introduction of approximately 10.6 miles of a new PG&E 230 kV transmission line between the existing PG&E Brighton-Bellota transmission corridor and LEU Industrial Substation. Construction of a new PG&E Thurman Switching Station and microwave tower, and new PG&E transmission and telecommunication lines, along with reconfiguration of existing power and service lines and removal of a portion of an existing PG&E 60 kV wood pole power line, would occur in an industrial-zoned district within the City of Lodi. Additional project details are included in the Project Description in Chapter 3 of this document. PG&E facilities will be located in a nonurbanized area and, therefore, the impact analysis focuses on substantial adverse impacts to the existing visual character or quality of public views of the site and its surroundings.

Temporary Construction Impacts

Construction-related visual impacts resulting from the temporary presence of equipment, materials, and work crews at PG&E Lockeford Substation, and Thurman Switching Station sites, as well as along the existing PG&E 60 kV lines and new PG&E 230 kV transmission alignment, including staging and work areas and stringing sites, would not substantially degrade the existing visual character or quality of the site and its surroundings. During construction, visual impacts would include the temporary presence of workers, temporary structures, construction equipment, and vehicles associated with the installation of poles, conductors, and substation components. PG&E portions of the project, including PG&E Lockeford Substation, and proposed PG&E Thurman Switching Station, as well as the modified PG&E 60 kV power lines, are located in proximity to public roadways. Although construction activities would be visible to motorists and a limited number of residents (in the case of PG&E Lockeford Substation) at these locations, adjacent structures and vegetation would provide some measure of screening. APM AES-1 calls for construction staging, material storage, and work areas to be located away from public view wherever

possible. Where this is unavoidable, construction sites, staging areas, and landing zones will be visually screened using temporary screening fencing.

Construction of the new PG&E 230 kV transmission line would occur primarily on agricultural land located at varying distances from roadways in areas where mechanized agricultural production activities typically employ the use of trucks and other equipment that is not unlike project-related construction equipment. For the most part, the project would use the existing network of public and private farm roads to access structure work areas, pull and tension sites, and staging areas. Public views available to nearby residents and some agricultural workers of construction activities along the PG&E 230 kV transmission alignment would be more limited. Residences generally are isolated and scattered and, for the most part, are surrounded to varying degrees by mature vegetation that would screen open views across the landscape. Motorists potentially would have more open views of construction activities where the proposed route would cross area roadways; with the exception of SR 88, where such views would be fleeting given typical roadway speeds, local roadways crossed by the project generally carry light and intermittent traffic. Construction is expected to take approximately 34 months, although construction activity would be visible for considerably less time at any one location along the project alignment.

Project construction would require minimal grading and, while some permanent removal of existing vegetation would be necessary, this would be limited for the most part to grapevines and a small number of orchard trees. Trees that encroach on existing access and spur roads, stringing sites, construction laydown and work areas, staging yards, and helicopter landing zones may be trimmed or removed to permit the safe operation of construction equipment; however, locations of these areas would be selected to minimize the effects on existing vegetation. This visual change would be minor and not particularly noticeable to the public. In the anticipated limited instances where tree removal is required, new replacement trees would be planted post construction. Overall, the visual effects of vegetation removal would be minor and temporary, and not particularly noticeable to the public.

Installation of poles and other structures would result in minor disturbance of land within the station areas and along the project transmission alignments. In addition, minor land disturbance resulting in a limited degree of visual contrast may occur at some of the temporary staging and work areas that would be established as part of the project construction; these areas generally would be located on previously disturbed land located near or along the project transmission alignment. As included in APM AES-1, all areas that would be temporarily disturbed by construction would be restored to conditions as close to preconstruction as feasible, or to the conditions agreed upon between the landowner and PG&E following the completion of construction. These measures would reduce visual contrast and potential visibility of land disturbance resulting from temporary construction activities. As a result, given the existing presence of mechanized agricultural activities and the limited number of affected viewers with close-range project views, temporary construction-related visual effects would be less than significant.

Permanent Construction Impacts

The PG&E project would involve the construction of a new PG&E 230 kV transmission line supported by approximately 72 TSPs with an average height of approximately 126 feet along approximately 10.6 miles of predominantly agricultural land, in addition to expansion of PG&E Lockeford Substation on existing substation property to accommodate the new transmission components and the construction of a new PG&E Thurman Switching Station on a vacant parcel adjacent to the existing LEU Industrial Substation within the City of Lodi. Three existing PG&E 60 kV lines will be partially removed and reconfigured mainly within their existing alignments to continue operation between PG&E's Lockeford and Lodi substations. LEU feeder and Comcast telecommunication underbuild on a PG&E 60 kV line portion being removed will be relocated by the respective utility owners to within or adjacent to other existing alignments. An existing PG&E service line will be extended underground approximately 500 feet in franchise to provide a permanent secondary service line to PG&E Thurman Switching Station, and two additional microwave antennas will be added to the existing PG&E Clayton Hill Repeater Station south tower.

Modifications to existing PG&E 60 kV lines and removal of a portion of an existing PG&E 60 kV wood pole power line would occur in an industrial-zoned district within the City of Lodi. Modifications may be noticeable, but would represent an incremental visual effect in an industrial setting that includes adjacent built features of similar material, scale, and appearance. The modified PG&E 60 kV line would be seen by viewers who generally would be familiar with the surrounding industrial environment.

Permanent visual change resulting from modifications to the existing PG&E Lockeford Substation and new PG&E Thurman Switching Station sites would be noticeable but largely incremental and would not substantially alter or degrade the existing visual character of the landscape in these areas. The proposed PG&E 230 kV transmission structures would be predominantly situated on (private) agricultural land where, in many cases, intervening vegetation and structures would screen public views of the project. New PG&E transmission structures would be noticeable to varying degrees, particularly west of PG&E Lockeford Substation where close-range, largely screened views of new project structures would be seen by a relatively small number of residential viewers. In one location, a proposed PG&E transmission structure would be located less than 250 feet from a residence on Alpine Road and could appear prominent in unobstructed close-range views. APM AES-3 would relocate the structure and/or provide new landscape screening to reduce the potential project visibility with respect to the residential view.

Throughout the project area, the visual modifications to the landscape resulting from PG&E project construction would be experienced by motorists, residents, and visitors to area wineries and would be seen within the context of a working landscape with considerable modification related to agricultural activity, and where irrigation infrastructure along with agricultural processing, storage, and transport facilities are established visible landscape features. This infrastructure includes built elements such as steel fencing, corrugated metal warehouses, and vertical light standards. Within the project vicinity, existing electric utility structures – including substation components, wood power poles, and overhead power and telecommunication lines – also are characteristic landscape elements in addition to numerous existing lattice steel towers supporting overhead transmission lines that closely parallel and intersect the approximately 3.8-mile project segment that extends from the PG&E Brighton-Bellota takeoff point to PG&E Lockeford Substation. Along its entire length, the project alignment passes near, or crosses, public roads as well as private farm roads where existing wood poles currently support overhead transmission and distribution lines. Within the City of Lodi, the PG&E project includes the construction of a new PG&E switching station on a vacant parcel adjacent to the existing LEU Industrial Substation, located within an industrial-zoned district characterized by existing industrial and commercial facilities and associated railroad lines.

Although distant, open views toward the PG&E portion of the project would potentially be available from some locations in the project area. The frequent atmospheric haze within the San Joaquin Valley generally limits visibility to near- and medium-range views throughout much of the year. The visual change associated with the project would potentially be most noticeable where the alignment closely parallels or crosses paved (public) roadways and where the alignment passes near more visually sensitive areas such as residential properties or publicly accessible commercial wineries, which afford relatively close-range, medium- to long-duration views of project elements.

Within Landscape Unit 1, the new PG&E 230 kV alignment extends east-west approximately 3.8 miles between the PG&E Brighton-Bellota transmission corridor and PG&E Lockeford Substation, closely paralleling an existing transmission ROW and crossing a number of unpaved private farm roads along with several paved public roadways. Figures 5.1-3a and 5.1-3b, an existing and a post-project KOP view along North Jack Tone Road near the intersection with East Kettleman Lane, show numerous wood utility poles supporting an existing power line that parallels the roadway on the right, while multiple existing lattice steel structures support several collocated transmission lines that cross the road a short distance beyond.

In the Figure 5.1-3b simulation, a new TSP supports the double-circuit PG&E 230 kV project transmission line where it crosses the roadway on the right in the immediate foreground. The new structure would be noticeable; however, because of the presence of numerous existing structures, it would not dominate the view. Additionally, because of the new structure's light color and nonreflective surface, the potential visual

contrast against the sky backdrop is lessened. Given the brief duration of motorists' views, and because there are multiple existing nearby transmission structures and overhead lines, the moderate level of incremental visual change at this location would not substantially affect the existing landscape character.

In Landscape Unit 2, the new PG&E 230 kV alignment extends generally east-west for approximately 6 miles from just west of PG&E Lockeford Substation to the City of Lodi. Compared with the visual setting in Landscape Unit 1, a more-diverse mix of land uses characterizes the area. Along with vineyards and orchards, this area includes a more-dense public roadway network, as well as more residential properties, and a number of commercial wineries, many found near to or fronting area roadways. The vegetation pattern within this landscape unit also differs from the predominantly open landscape found east of PG&E Lockeford Substation because of mature vegetation along roadways and enclosing residential and commercial properties such as wineries. Although vegetation would screen views of the project from many locations, portions of the project would be noticeable to varying degrees where the alignment passes in proximity to residences, to area commercial wineries, and to roadways. One proposed PG&E transmission structure along Alpine Road would be located less than 250 feet from a residence and could appear prominent in unobstructed close-range views. APM AES-3 would relocate the structure and/or provide new landscape screening to reduce the potential project visibility with respect to the residential view.

Figure 5.1-4a is a view from Mettler Vineyards, a commercial winery located along East Harney Lane. Taken at standing eye-level, this view looking north across a mature vineyard is framed by the winery's indoor tasting room and a decorative masonry wall in the foreground. Slightly visible on the horizon are stands of mature trees along East Kettleman Lane located approximately 0.8 mile away.

Figure 5.1-4b simulation shows the new PG&E 230 kV transmission line at a distance of approximately 0.4 mile, where a pair of new TSPs can be seen silhouetted against the sky on the left and right, beyond the expanse of vineyard in the foreground. Although the new project structures are noticeable against the light sky backdrop, they do not dominate this standing eye-level view in which the grapevines, as well as decorative landscape and structural elements, provide focal points in the immediate foreground. Note that the approximately 6-foot-tall grapevines would effectively screen views of winery visitors who are seated at the outdoor tables, and thus the project would not be visible from this vantage point. As described previously, the project would not substantially degrade the existing visual character of the landscape at this location.

Farther west, where the new PG&E 230 kV project alignment parallels North Curry Avenue just east of Lodi, Figure 5.1-5a and 5.1-5b show a motorist's view from East Kettleman Lane, a well-traveled public roadway approaching the eastern perimeter of Lodi's industrial zone. A residence seen on the right edge of the view is one of several that are interspersed among vineyards along both North Curry Avenue and East Kettleman Lane. For residences in this area, mature vegetation lining the roadways and enclosing many of the residential properties generally screens open views of the landscape. Seen in the foreground silhouetted against the sky, wood utility poles support numerous overhead power and telecommunication lines along North Curry Avenue while several low-rise industrial warehouse structures also are partially visible in the background beyond an expanse of vineyard in the foreground.

The Figure 5.1-5b visual simulation shows two new PG&E 230 kV TSPs supporting overhead conductors silhouetted against the sky where the project alignment skirts the edge of an industrial complex beyond the grapevines seen in the foreground. The new structure on the left is noticeably taller and larger in diameter than the nearby wood poles; however, based on the presence of existing wood poles seen at this location, the new poles do not dominate the view. Compared with the darker existing wood poles, the potential visual contrast and resulting visibility of the new light-colored poles would be lessened when seen against the sky under typical viewing conditions. The nonreflective surfaces of the new poles and conductor also would tend to reduce their potential visibility. Overall, the introduction of the new PG&E project structures would represent an incremental change to the visual setting that includes existing electrical infrastructure as well as industrial structures in the background. Thus, the PG&E project would not substantially degrade the existing visual character of the landscape at this location.

Landscape Unit 3 encompasses the area surrounding the proposed LEU Guild Substation, PG&E Thurman Switching Station, and the western terminus of the proposed PG&E 230 kV transmission line. Figure 5.1-6a shows a view of the proposed LEU Guild Substation and PG&E switching station site from East Thurman Road, a public street located in an industrial district along Lodi's eastern perimeter. Looking toward South Guild Avenue, this motorist's view shows the undeveloped parcel adjacent to the existing LEU Industrial Substation against the backdrop of a large industrial warehouse on the right. On the far left, a corner of the existing LEU Industrial Substation fencing is visible, with the majority of the substation equipment farther to the left and out of this view. Silhouetted against the sky near the center left of the view, existing PG&E 60 kV power lines situated along a rail corridor on the far side of the site can be seen above tree canopies near the warehouse; a larger stand of trees surrounds Memorial Park and Cemetery, located beyond South Guild Avenue.

The Figure 5.1-6b visual simulation depicts part of the new LEU Guild Substation on the left and the new PG&E Thurman Switching Station in the center. This close-range view of the project shows the new perimeter fences screen lower portions of substation and switching station components. Within the perimeter fence, taller support structures ranging in height from approximately 45 feet to 55 feet and an approximately 150-foot-tall communications (or microwave) tower adjacent to the facility on the left are seen against a sky backdrop. The new PG&E communications tower, which may be approximately 125 feet tall, is similar in scale and appearance to an existing tower located approximately 1 mile to the east. New TSP structures ranging in height from 130 feet to 145 feet support the new PG&E 230 kV transmission line. They are partially visible beyond the new PG&E switching station and extend beyond the existing warehouse in the center of the view. The project also includes removing and reconfiguring some existing PG&E 60 kV poles partially visible behind the switching station in this view. Located adjacent to existing substation facilities, the new PG&E switching station and associated structures would be seen in the context of numerous similar electrical utility structures and substation components. Given its context, the new PG&E facility would represent an incremental visual effect in an industrial setting that includes adjacent built features of similar material, scale, and appearance. Project components would be seen by a limited number of viewers, who generally would be familiar with the surrounding industrial environment; the overall visual sensitivity at this location is considered low to moderate because of its location, industrial use, and zoning. As a result of conditions outlined previously, the project would not substantially degrade the existing visual character of the landscape at this location.

The addition of two new antennas to the existing PG&E Clayton Hill Repeater Station microwave tower, which has approximately 11 existing attachments, is a minor modification that is unlikely to be noticeable from more than 0.25 mile away by recreational users of Black Diamond Mines Regional Park.

As discussed previously, as well as in Section 5.1.4.6, and as demonstrated by the set of visual simulations from KOPs presented on Figures 5.1-3a and 5.1-3b through Figures 5.1-6a and 5.1-6b, while the construction of the PG&E project would result in visual changes that would be noticeable to varying degrees, and could be considered adverse, overall the effects of the PG&E project would not substantially degrade the existing visual character of the landscape setting and the impacts would be less than significant.

Operation Impacts

At PG&E Lockeford Substation and PG&E's four modified 60 kV lines, current ongoing routine operations and maintenance activities are sufficient and no additional activities would be required under the project; thus, no operation-related visual impacts would occur. Similarly, at the new PG&E Thurman Switching Station with the new microwave communication tower and permanent secondary service line, the operations and maintenance activities would represent an incremental addition to ongoing activities at the adjacent LEU Industrial Substation.

Along the new PG&E 230 kV transmission line, operations and maintenance activities including routine inspections and emergency repair would require the periodic short-term use of vehicles and equipment that could be visible to the public. Typically, there are no operations and maintenance inspections

conducted on a new transmission line for the first 5 years following the in-service date. After 5 years, inspections are performed annually by either vehicle or helicopter. These activities would occur primarily on agricultural land at varying distances from roadways in areas where mechanized agricultural production activities typically employ the use of trucks and other equipment that is not unlike project maintenance equipment. Maintenance could include activities such as repairing conductors, replacing insulators, repairing or replacing other hardware components, tree trimming, brush and weed control, and access road maintenance. Given the existing presence of mechanized agricultural activities and the limited number of affected viewers, these short-term activities would not substantially degrade the existing visual character of the landscape and impacts would be less than significant.

LEU Potential Impact Discussion

LEU construction of LEU portion of the project would occur in the City of Lodi, including construction of a new LEU Guild Substation adjacent to the existing LEU Industrial Substation, and relocation of an existing 12 kV feeder line to an underground configuration. All of LEU's work would occur within the industrial-zoned district in the City of Lodi. Additional project details are included in the Project Description in Chapter 3 of this document. LEU portion of the project is located in a nonurbanized area and, therefore, the impact analysis focuses on substantial adverse impacts to the existing visual character or quality of public views of the site and its surroundings.

Temporary Construction Impacts

Construction-related visual impacts resulting from the temporary presence of equipment, materials, and work crews at LEU Industrial Substation, the proposed LEU Guild Substation site, and the 12 kV feeder reconfiguration would not substantially degrade the existing visual character or quality of the site and its surroundings. During construction, visual impacts would include the temporary presence of workers, temporary structures, construction equipment, and vehicles associated with the installation of substation components. The LEU substations and 12 kV feeder line are located in proximity to public roadways. Although construction activities would be visible to motorists at this location, BMP AES-1 calls for construction staging, material storage, and work areas to be located away from public view wherever possible. Where this is unavoidable, construction sites, and staging areas will be visually screened using temporary screening fencing.

Installation of LEU project structures would result in minor disturbance of land within the project site. As included in BMP AES-1, all areas that would be temporarily disturbed by construction would be restored to conditions as close to preconstruction as feasible, or to the conditions agreed upon between the landowner and LEU following the completion of construction. These measures would reduce visual contrast and potential visibility of land disturbance resulting from temporary construction activities. As a result, given the existing adjacent LEU substation and the limited number of affected viewers with close-range project views, temporary construction-related visual effects would be less than significant.

Permanent Construction Impacts

The LEU project would involve the relocation of an existing overhead 12 kV feeder line to underground, and construction of a new LEU Guild Substation on a vacant parcel adjacent to the existing LEU Industrial Substation within the City of Lodi. Figure 5.1-6a shows a view of the proposed LEU substation and PG&E switching station site from East Thurman Road, a public street located in an industrial district along Lodi's eastern perimeter. Looking toward South Guild Avenue, this motorist's view shows the undeveloped parcel adjacent to the existing LEU Industrial Substation against the backdrop of a large industrial warehouse on the right. On the far left, a corner of the existing LEU substation fencing is visible, with the majority of the substation equipment farther to the left and out of this view. Silhouetted against the sky near the center left of the view, existing PG&E power lines and LEU 12 kV lines situated along a rail corridor on the far side of the site can be seen above tree canopies near the warehouse; a larger stand of trees surrounds Memorial Park and Cemetery, located beyond South Guild Avenue.

The Figure 5.1-6b visual simulation depicts part of the new LEU Guild Substation on the left and the new PG&E Thurman Switching Station in the center. This close-range view of the project shows the new perimeter fence screens lower portions of substation and switching station components. Within the perimeter fence, taller support structures ranging in height from approximately 45 feet to 55 feet and an approximately 150-foot-tall PG&E communications tower adjacent to the facility on the left are seen against a sky backdrop. Located adjacent to existing substation facilities, the new LEU substation would be seen in the context of numerous similar electrical utility structures and substation components. Given its context, the new LEU facility, the modifications to LEU Industrial Substation, and the relocation of the 12 kV line to underground would represent an incremental visual effect in an industrial setting that includes adjacent built features of similar material, scale, and appearance. The LEU portion of the project would be seen by a limited number of viewers, who generally would be familiar with the surrounding industrial environment; the overall visual sensitivity at this location is considered low to moderate based on its location, industrial use, and zoning. As a result of conditions outlined previously, the LEU portion of the project would not substantially degrade the existing visual character of the landscape at this location and the impacts would be less than significant.

Operation Impacts

At the new LEU Guild Substation, modified LEU Industrial Substation, and relocated 12 kV feeder line, the operations and maintenance activities would represent an incremental addition to ongoing activities at LEU Industrial Substation and other existing LEU 12 kV lines on adjacent roadways. These activities would not substantially degrade the existing visual character of the landscape and impacts would be less than significant.

d) **Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?** ***Less-than-Significant Impact.***

PG&E Potential Impact Discussion

Glare exists when a high degree of contrast between bright and dark areas in a field of view make it difficult for the human eye to adjust to differences in brightness. At high levels, glare can make it difficult to see, such as when driving westward at sunset. APM AES-2, which calls for the use of a dulled galvanized finish on TSPs and non-specular conductors, would minimize the potential effect of glare.

Temporary Construction Impacts

The PG&E portion of the project, including the 230 kV transmission line and PG&E Lockeford Substation, are predominantly situated in a rural setting where lighting sources tend to be localized and associated with agricultural processing facilities, residences, and some roadway intersections. Street lighting and outdoor industrial facility lighting is widespread in the area around PG&E Thurman Switching Station and service line, 60 kV line and 230 kV line construction within the City of Lodi. Although PG&E project construction is expected to occur mostly during daylight hours, occasionally some nighttime work may be necessary that would require limited temporary lighting at some work areas. In addition, for the duration of construction, staging yards may require nighttime security lighting. Outside the City of Lodi, given the limited amount of night light sources in the area, construction lighting used along the PG&E transmission line alignments and in the PG&E Lockeford Substation area may create a new source of substantial temporary light in the area if lights are directed toward roadways or residences, which could be a significant impact. As specified in APM AES-1, these lighting sources would be directed onsite and away from potentially sensitive receptors. Therefore, impacts would be less than significant.

Permanent Construction Impacts

No new lighting is proposed along the new PG&E 230 kV transmission line. The project would include new nighttime lighting on some new structures at PG&E Lockeford Substation and PG&E Thurman Switching

Station; the new lighting would be operated as needed for safety, security, and emergency nighttime work, and would use nonglare or hooded fixtures and directional lighting. Impacts would be less than significant.

Glare from new PG&E 230 kV TSP structures and conductors has the potential to create a significant impact, particularly at roadway crossings and near residences. Use of non-specular conductors and a dulled galvanized finish on the new PG&E project poles would reduce potential glare of transmission components. Equipment at PG&E Lockeford Substation and the new PG&E Thurman Switching Station would be a nonreflective neutral gray color and galvanized steel structures would weather to a dull, nonreflective patina and would minimize the potential effect of glare. New fence material would be similar to the chain link fencing at the existing substations and would weather to a dull, nonreflective patina. Potential impacts from glare for the PG&E portion of the project would be less than significant.

Operation Impacts

While nighttime operation and maintenance work for the PG&E portion of the project is not planned, it may occur on an emergency basis as needed. Nighttime lighting for work would be infrequent if it occurs. The additional lighting would represent a minor incremental change to existing nighttime lighting conditions at the switching station and substation sites. The impact would be less than significant.

LEU Potential Impact Discussion

Temporary Construction Impacts

The project is predominantly situated in a rural setting where lighting sources tend to be localized and associated with agricultural processing facilities, residences, and some roadway intersections. Street lighting and outdoor industrial facility lighting is widespread in the area around LEU Industrial and Guild substations, and feeder line within the City of Lodi. Although LEU's project construction is expected to occur mostly during daylight hours, occasionally some nighttime work may be necessary that would require limited temporary lighting at some work areas. In addition, for the duration of construction, staging yards may require nighttime security lighting. As specified in BMP AES-1, lighting sources would be directed onsite and away from potentially sensitive receptors. Therefore, impacts would be less than significant.

Permanent Construction Impacts

The project would include new nighttime lighting on some new structures at LEU Guild Substation; the new lighting would be operated as needed for safety, security, and emergency nighttime work, and would use nonglare or hooded fixtures and directional lighting. Impacts would be less than significant.

Equipment at the new LEU Guild Substation would be a nonreflective neutral gray color and galvanized steel structures would weather to a dull, nonreflective patina that would minimize the potential effect of glare. New fence material would be similar to the chain link fencing at the existing substations and would weather to a dull, nonreflective patina. Potential impacts from glare for the LEU portion of the project would be less than significant.

Operation Impacts

While nighttime operation and maintenance work for the LEU portion of the project is not planned, it may occur on an emergency basis as needed. Nighttime lighting for work would be infrequent if it occurs. The additional lighting would represent a minor incremental change to existing nighttime lighting conditions at the substation sites. The impact would be less than significant.

5.1.4.4 Analysis of Selected Viewpoints

Selected to convey a general sense of the existing visual character of the landscape within the vicinity of the project, a set of 18 representative viewpoints was summarized previously in Table 5.1-1 and illustrated with a set of photographs presented on Figure 5.1-2. Four KOPs were selected to represent viewing locations where the project could be most visible to the public, including a County scenic route, a winery tasting room accessible to the public, a well-traveled public roadway near residences, and a close-range viewpoint within the City of Lodi. Using technical methods described in the following section, visual simulations were prepared to show the project from these KOPs and to document the visual change that would occur.

5.1.4.5 Visual Simulation

The set of visual simulations presented on Figures 5.1-3a through 5.1-6b documents the project-related visual changes that would occur at four KOPs and provides the basis for evaluating potential visual effects associated with the project from these key public views. The methodology employed for preparing the simulations includes site photography, computer modeling, and digital rendering techniques.

Photographs were taken using a full-frame digital camera with standard 50-millimeter lens, which represents an approximately 40-degree horizontal view angle. Photography viewpoint locations were documented systematically using photo log sheet notation, global positioning system recording, and base-map annotation. Digital aerial photographs and project design information supplied by PG&E and LEU provided the basis for developing a three-dimensional computer model of the new project components. For each viewpoint simulation, viewer location was input from global positioning system data, using 5.5 feet as the assumed eye level. Computer “wireframe” perspective plots were overlaid on the simulation photographs to verify scale and viewpoint location. Digital visual simulation images then were produced based on computer renderings of the three-dimensional model combined with the selected digital site photographs. The simulations are presented as figures with two full-page images designated “a” and “b,” with the existing views shown on the “a” figure and the post-project visual simulations shown on the “b” figure.

5.1.4.6 Analysis of Visual Change

This section includes a description of the visual changes associated with the project and an evaluation of potential visual effects on key public views, primarily as represented by the set of four KOP visual simulations. Key factors in determining the degree of visual change are visual contrast, project dominance, and view blockage brought about by project elements. Visual contrast is a measure of the degree of change in line, form, color, and texture that the project will create when compared to the existing landscape. Project dominance is a measure of the project element’s apparent size relative to other visible landscape features in the viewshed. View blockage is a measure of the degree to which project elements would obstruct or block views to landscape features based on the project’s position and/or scale.

The significance or degree of visual impact is determined based on evaluation of visual change in relation to visual sensitivity factors, including visual quality of the landscape, number and types of viewers, and degree of exposure of viewers. Table 5.1-3 presents an overview of the visual changes, including viewpoint location with corresponding visual sensitivity factor(s); approximate viewing distance; and summary of visible change and potential effect that would occur at each KOP location.

Table 5.1-3. Summary of Visual Change at KOPs

Photograph Number and Location (Figure number)	Visual Sensitivity Factor(s)	Approximate Viewing Distance	Visual Change and Effect
Landscape Unit 1			
KOP 5. North Jack Tone Road near East Kettleman Lane looking south (Figures 5.1-3a and 5.1-3b)	• Close-range view from a designated County scenic route • Viewers include motorists and a limited number of residents • Low to moderate visual sensitivity	465 feet	• New PG&E TSP supporting double-circuit transmission conductors is visible in foreground, near roadway edge. • New PG&E TSP is seen near multiple existing transmission structures and overhead lines, but does not appear dominant. • Dulled galvanized finish of PG&E TSPs lessens visual contrast of new structure when seen against the predominant backdrop of light sky. • Moderate level of incremental visual change would not affect existing landscape character substantially.
Landscape Unit 2			
KOP 12. Mettler Family Vineyards at East Harney Lane looking north (Figures 5.1-4a and 5.1-4b)	• View from commercial winery with public access tasting room • Viewers include tasting room visitors and winery employees • Moderate to high visual sensitivity	2,125 feet (0.4 mile)	• Two new PG&E TSPs supporting double-circuit transmission conductors are seen within a working vineyard. Grapevines screen lower portion of the new structures. • Dulled galvanized finish on PG&E TSPs lessens visual contrast of new structures seen against the light sky backdrop. • Project does not affect views of focal landscape elements seen in the foreground and does not dominate the overall view. • Incremental change would not alter overall character or quality of the existing landscape substantially.

Photograph Number and Location (Figure number)	Visual Sensitivity Factor(s)	Approximate Viewing Distance	Visual Change and Effect
KOP 14. East Kettleman Lane near North Curry Avenue looking northwest (Figures 5.1-5a and 5.1-5b)	• View from well-traveled public road • Near Lodi's urban perimeter • Viewers include motorists and a limited number of residents • Moderate visual sensitivity	1,125 feet (0.2 mile)	• Two new PG&E TSPs supporting 230 kV transmission line seen at the edge of a vineyard are visible against a backdrop of sky and industrial yards, warehouses, and railway infrastructure. Grapevines screen lower portions of the new structures. • Dulled galvanized finish of PG&E TSPs reduces visual contrast of new poles when seen against a backdrop of light-colored sky. • Given presence of existing warehouse and utility structures, new project structures would not dominate view and would not affect existing landscape character at this location substantially.
Landscape Unit 3			
KOP 18. East Thurman Road looking northeast (Figures 5.1-6a and 5.1-6b)	• Close-range view of project elements from a limited-use access road within Lodi's industrial district • Proximity to nearby commercial/industrial facilities • Viewers include a limited number of local motorists and employees of nearby industrial/commercial establishments • Low visual sensitivity	400 feet	• Introduction of new PG&E switching station and LEU substation facilities with perimeter fence, PG&E TSPs, and PG&E microwave tower on a previously vacant parcel as well as modifications to an existing LEU substation, PG&E 60 kV power lines, and LEU 12 kV lines. • New PG&E and LEU facilities are located adjacent to an existing substation and would be seen in the context of numerous existing electric utility structures and surrounding industrial infrastructure of similar material and scale. • Visual changes would appear consistent with nearby existing facilities and would not affect existing landscape character at this location substantially.

KOP 5 – North Jack Tone Road near East Kettleman Lane

Figure 5.1-3a is a perspective from southbound North Jack Tone Road, a County-designated scenic roadway with low to moderate traffic volumes. This unobstructed motorist view shows the characteristically developed agricultural landscape in the vicinity of the project crossing where irrigated covered row crops and adjacent open pasture, roadside drainage canals, and numerous farm utility buildings and accessory structures are partially screened by roadside vegetation. Prominently silhouetted against the sky are multiple lattice steel towers, wood utility poles, and sets of intersecting overhead conductors that both cross and parallel the roadway. Visual sensitivity at this location is considered low to moderate because of the brief duration of motorists' views and relatively low traffic volumes, as well as the presence of multiple existing transmission lines and a limited number of nearby residences.

The Figure 5.1-3b simulation, a view approximately 465 feet from the project's roadway crossing, shows the new PG&E 230 kV transmission line where it would be visible to passing motorists along North Jack Tone Road as well as from several adjacent residential properties. Visible in the foreground on the right, the new PG&E TSP supports a double-circuit 230 kV transmission line. Its narrow vertical form and short horizontal cross arms are similar to the form of existing wood utility poles supporting power and communication lines that parallel North Jack Tone Road. Although being somewhat taller than existing structures, the new PG&E TSP would not dominate the view, given the presence of numerous existing PG&E poles and multiple lattice towers seen at this location. Additionally, visual contrast of the new PG&E TSP against the sky is lessened by the light-colored, dulled galvanized surface. A comparison between the existing view and post-project simulation demonstrates that the moderate incremental level of visual change would not substantially affect the existing landscape character experienced at this location.

KOP 12 – Mettler Family Vineyards at East Harney Lane

Figure 5.1-4a is a view taken at standing eye-level from an outdoor terrace at the commercial winery located along East Harney Lane. Visitors at the outdoor seating terrace experience views across a flat landscape of mature vineyards framed in the foreground by the winery's building and a decorative masonry wall. Although stands of mature trees lining East Kettleman Lane, approximately 0.8 mile away, are slightly visible on the horizon, distant views are largely screened by rows of grapevines. Because the winery visitors are likely to be exposed to this view for a longer period of time as they enjoy the outdoor terrace, the visual sensitivity at this location is considered moderate to high.

The Figure 5.1-4b simulation shows the new PG&E 230 kV transmission line at a distance of approximately 0.4 mile, where upper portions of two new PG&E TSPs are visible against the sky on the left and right, beyond the grapevines seen in the foreground. Although the new project structures are noticeable, the project does not dominate this standing eye-level view, in part because the grapevines and decorative landscape and structural features are focal elements in the immediate foreground. In addition, the project is seen against a sky backdrop typically affected by atmospheric haze found in the area and potential visual contrast between the new PG&E transmission line and the sky is lessened by their light-colored dull surface. Note also that the new PG&E transmission line would not be visible to winery visitors seated at the outdoor tables because views would be screened by the approximately 6-foot-tall grapevines. As described previously, change associated with the project would not substantially degrade the existing visual character of the landscape experienced at this location.

KOP 14 – East Kettleman Lane near North Curry Avenue

Figure 5.1-5a is a motorist's view toward the project from a well-traveled public roadway approaching the eastern perimeter of Lodi's industrial zone. Seen in the foreground silhouetted against the sky, wood utility poles support numerous overhead power and telecommunication lines along North Curry Avenue, while several low-rise industrial warehouse structures also are partially visible in the background beyond an expanse of vineyard in the foreground. Given the brief duration of motorists' views and the small number of nearby residences, the visual sensitivity at this location is considered moderate.

The Figure 5.1-5b visual simulation shows two new PG&E 230 kV TSPs supporting multiple overhead transmission line conductors. Seen against a backdrop of sky, the project skirts the edge of an industrial complex that is partially visible beyond the vineyard in the foreground. The form of the new structures is not dissimilar to existing PG&E distribution wood poles seen within this view and extending the length of North Curry Avenue, in addition to those supporting power lines along East Kettleman Lane on either side of the North Curry Avenue intersection (not shown in this view). Although the new PG&E TSPs are noticeably taller and larger in diameter than existing wood poles seen nearby, they do not dominate the view, in part because of the presence of these existing poles and other backdrop structures. In addition, the light-colored, nonreflective surface of the poles lessens their visibility when seen against the sky under typical viewing conditions, compared with the darker existing wood poles. Overall, the introduction of the new project structures in this location represents an incremental visual change that, when seen in the context of the existing industrial backdrop and surrounding existing electrical utility infrastructure, would not substantially degrade the existing visual character of the landscape.

KOP 18 – East Thurman Road

Figure 5.1-6a shows the proposed PG&E Thurman Switching Station and LEU Guild Substation site from a public street located in an industrial district along Lodi's eastern perimeter. This motorist's view looks northeast across the undeveloped parcel toward South Guild Avenue. The view of a large industrial warehouse in the background is partially blocked by tractor-trailer rigs parked along the perimeter of the PG&E switching station site. The undeveloped parcel is adjacent to the existing LEU Industrial Substation and on the far left a corner of the existing substation fencing is seen, with the majority of the substation equipment farther to the left and out of this view. In the center of the view, existing LEU service lines can be seen along South Guild Avenue and on the left existing PG&E power lines are silhouetted against the sky above isolated tree canopies near the warehouse and the larger stand of trees surrounding Memorial Park and Cemetery. Given the sensitivity and relatively small number of viewers and the location's industrial use and zoning, the overall visual sensitivity of this site area is considered low.

The Figure 5.1-6b visual simulation shows a close-range view of part of the new LEU Guild Substation on the left and the new PG&E Thurman Switching Station in the center. A perimeter fence screens lower portions of the new facility components. Within the perimeter fence, taller support structures ranging in height from 45 feet to 55 feet and a new PG&E 150-foot-tall communications tower adjacent to the facility on the left are seen primarily against a backdrop of sky. New PG&E TSP structures ranging in height from 130 feet to 145 feet and supporting the new PG&E 230 kV transmission line are partially visible adjacent to the facility at South Guild Avenue, and also extend beyond the existing warehouse in the center of the view. Because of their location adjacent to existing substation facilities, the new LEU substation, PG&E switching station and associated structures would be seen in the context of numerous similar electrical utility structures and substation components. The new PG&E communication tower would appear similar to an existing tower located approximately one mile away to the east. As described previously, the change associated with the projects represents an incremental visual effect in an industrial setting that includes adjacent built structures of similar material and scale. Project components would be seen by a limited number of viewers who generally would be familiar with the surrounding industrial environment. As a result, the PG&E and the LEU portions of the project would not substantially degrade the existing visual character of the landscape at this location.

5.1.4.7 Lighting and Marking

New sources of permanent lighting are limited to security lighting for new and modified PG&E and LEU station facilities. FAA notifications were completed for PG&E's new transmission line structures and the PG&E microwave tower within Thurman Switching Station. A determination of no hazard to air navigation was provided by the FAA for all notifications. Supporting documentation is provided in Appendix G3, FAA Notice and Criteria Tool Results.

5.2 Agriculture and Forestry Resources

This section describes existing conditions and potential impacts on agriculture and forestry resources as a result of construction, operation, and maintenance of the project. Project description information and potential impacts are organized and discussed by each participating utility's portion of the project. The analysis concludes that impacts on agriculture and forestry resources will be less than significant; the measures described in Section 5.2.4.1 will further reduce the project's less-than-significant impacts. The project's potential effects on agriculture and forestry resources were evaluated using the significance criteria set forth in Appendix G of the CEQA Guidelines. The conclusions are summarized in Table 5.2-4 and discussed in more detail in Section 5.2.4.

5.2.1 Methodology and Environmental Setting

5.2.1.1 Methodology

Various sources were consulted to complete the analysis for agriculture and forestry resources, including the California Department of Conservation (DOC) Farmland Mapping & Monitoring Program (FMMP) data and maps; Williamson Act contract maps; aerial photographs; County general plans, zoning ordinances, and maps; and environmental impact reports for other projects in the area (DOC 2022). The mapped agricultural and forestry designations and contracted lands were compared with the project area, with focus on the proposed locations for installation of new PG&E transmission poles, which represent the locations with the greatest potential to impact these land uses. A quantitative analysis is provided to determine whether the project will have a substantial impact on Important Farmland or forest land. In addition, field visits to the site were conducted to gather relevant information pertaining to the land uses at the project site and surrounding areas.

5.2.1.2 Environmental Setting

The project would be located within unincorporated areas of northeastern San Joaquin County and partially within an industrial area of the City of Lodi (refer to Figure 3.1-1). The foothills of the Diablo Range define the southwest corner of the County and the foothills of the Sierra Nevada Range lie along the County's eastern boundary. Major geographic features in the project area include the Mokelumne River, Bear Creek, SR 99, SR 88, and SR 12. The topography in the area generally is flat with rolling hills rising to the east. Elevation ranges from approximately 135 feet above sea level at the eastern end of the project to approximately 60 feet above sea level at the western end of the project. Northeastern San Joaquin County is predominantly agricultural, with retail wineries, rural and semirural residential development outside of the City of Lodi, and small concentrated areas of industrial and commercial business along transportation corridors.

San Joaquin County is in the center of California's vast agricultural heartland, commonly known as the Central Valley. San Joaquin County encompasses approximately 921,600 acres (or about 1,440 square miles) of relatively level, agriculturally productive lands. Agriculture remains the economic base of the County and is a $6.6 billion industry that employs nearly 17% of the County's population (San Joaquin County 2016). San Joaquin County is the top producer, statewide, of asparagus with 24,000 acres of farmland dedicated to this single crop. In recent years, the leading crop in San Joaquin County has shifted to wine grapes (San Joaquin County 2022a). The project alignment would cross through agricultural resources, including grapes, cherries, forage hay, oats, walnut, corn and oats, almonds, and other crops as shown on Figure 5.2-1.

5.2.1.3 Agriculture Resources

Agricultural land is designated by the DOC under the Division of Land Resource Protection, identified in the 2018 FMMP, and defined by CEQA. The FMMP produces Important Farmland Maps, which combine soil quality, available irrigation, and land use information (DOC 2022).

"Agricultural land" is defined by California PRC Section 21060.1 as land that qualifies as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance:

- Prime Farmland has the best combination of physical and chemical characteristics able to sustain long-term agricultural production. This land has the soil quality, growing season, and moisture supply needed to produce sustained high yields. Land must have been used for irrigated agricultural production at some time during the 4 years prior to the mapping date.
- Unique Farmland consists of lesser-quality soils, but produces the state's leading agricultural crops. This land is usually irrigated, but includes non-irrigated orchards or vineyards as found in some climatic zones in California. Land must have been cropped at some time during the 4 years prior to the mapping date.
- Farmland of Statewide Importance is similar to Prime Farmland but with minor shortcomings, such as greater slopes or less ability to store soil moisture. Land must have been used for irrigated agricultural production at some time during the 4 years prior to the mapping date.

Additional categories, including Farmland of Local Importance, Grazing Land, Urban and Built-up Land, and Other Land, are identified within Important Farmland Maps. The Rural Land Mapping Project provides more detail on the distribution of various land uses within the Other Land category in nine FMMP counties, including San Joaquin County. For the purposes of this Proponent's Environmental Assessment (PEA), Important Farmland is defined consistent with the California PRC Section 21060.1 definition of "agricultural land," as well as the CEQA Environmental Checklist Form (Appendix G of the CEQA Guidelines), and includes areas designated as Prime Farmland, Unique Farmland, and Farmland of Statewide Importance.

PG&E's Lockeford Substation is located on two parcels (05126022 and 05126023) that primarily are surrounded by active agricultural land use on designated agricultural land. PG&E does not use its existing substation property outside of the existing fence line for agricultural purposes. A portion of the substation fence line expansion area on the northern portion of the substation property is in active agricultural use through direct encroachment onto PG&E substation property. The agricultural use on substation property is categorized as Prime Farmland on the western portion and Farmland of Statewide Importance on the eastern portion. The project's fence line expansion and the temporary construction work area on the eastern portion of the PG&E Lockeford Substation property is outside of active agricultural use. Portions of the new PG&E 230 kV transmission line (approximately 57 new tubular steel poles) and existing PG&E 60 kV lines are located on designated agricultural land. The portions of the PG&E project within the City of Lodi are not on agricultural land. PG&E project-related activities outside of San Joaquin County will occur within existing fenced station facilities, which are not designated agricultural land.

The LEU portion of the project is not on agricultural land, either its temporary construction phase work areas or permanent facilities.

Permanent PG&E 230 kV pole footprints are calculated using the upper end of the estimated diameter at base (approximately 3 to 7 feet) with a 10-foot vegetation clearance from the base of the pole. The permanent footprint of each new 230 kV pole is estimated to be between approximately 0.0095 acre (11.5-foot radius) and approximately 0.0131 acre (13.5-foot radius). Additionally, certain orchard trees that could grow to heights that may interfere with the PG&E line clearance required for safe operation, such as walnut and almond, may be excluded from being replanted or planted as part of the PG&E easement agreement.

The replaced PG&E 60 kV pole would be replaced in kind and there will be no net change to permanent area impacts for the pole adjacent to agricultural use in franchise along East Sargent Road. The expansion of PG&E's Lockeford Substation, and the relocation of the PG&E Rio Oso-Lockeford structure, will occur on existing PG&E substation property that does not have agricultural use. PG&E Thurman Switching Station and the 12 kV extension for secondary station service and the LEU portion of the project are not on agricultural land, either temporary construction phase work areas or permanent facilities.

Important Farmland Acreage

Temporary work areas and access to construct the PG&E portion of the project that intersect designated Important Farmland within unincorporated San Joaquin County total approximately 43.67 acres, as shown in Table 5.2-1 and shown on Figure 5.2-2. Permanent PG&E project components on designated Important Farmland will total approximately 1.41 acres. The proposed PG&E 230 kV transmission line footprint will permanently intersect approximately 0.44 acre of existing Prime Farmland, approximately 0.16 acre of Unique Farmland, and approximately 0.14 acre of existing Farmland of Statewide Importance. The expansion area of PG&E Lockeford Substation on PG&E property with existing direct encroachment agricultural use is mapped as Important Farmland. Approximately 0.67 acre of Important Farmland (0.49 acre of Prime Farmland and 0.18 acre of Farmland of Statewide Importance) would be permanently converted to accommodate the expanded footprint of the substation on PG&E property.

Table 5.2-1. Designated Important Farmland Intersecting the PG&E Portion of the Project

Important Farmland Designation	Approximate Acreage Within PG&E Areas
Prime Farmland	27.30 acres (temporary work areas and access)
	0.44 acre (permanent pole footprint)
	0.49 acre (permanent fenced substation expansion)
Unique Farmland	8.11 acres (temporary work areas and access)
	0.16 acre (permanent pole footprint)
Farmland of Statewide Importance	8.236 acres (temporary work areas and access)
	0.14 acre (permanent pole footprint)
	0.18 acre (permanent fenced substation expansion)
Temporary Ground Disturbance Total	43.67 acres
Permanent Ground Disturbance Total	1.41 acres

Source: California Department of Conservation 2018

Williamson Act Contracts

In San Joaquin County, land uses along the PG&E 230 kV transmission line consist primarily of agricultural areas. As shown on Figure 5.2-3, the proposed PG&E 230 kV alignment traverses Williamson Act parcels (refer to Section 5.2.2 for Williamson Act description) but does not include parcels that are in nonrenewal. Approximately 43.16 acres of the proposed PG&E 230 kV route and temporary work areas and access roads are within areas under Williamson Act contract. The LEU portion of the project is not on land under Williamson Act contract.

Agricultural-Related General Plan Land Use and Zoning Designations

Public utility facilities regulated by the CPUC, such as PG&E, are not subject to local land use and zoning regulations. However, the agricultural-related General Plan land use and zoning designations for land on which the proposed project is located are included for informational purposes and are described in Table 5.2-2 and Table 5.2-3. The City of Lodi is a local agency and must comply with its own local plans and policies.

A general plan establishes a broad range of land use designations for planned land uses and identifies appropriate development guidelines for each designation. General plan designations usually are broader than zoning designations; however, both designations typically are aligned. General plan land use and zoning designations are designed to protect and conserve the value of land use.

San Joaquin County and the City of Lodi incorporate agricultural land use designations within their respective jurisdictions; however, forestry land use designations have not been established in either jurisdiction. Table 5.2-2 identifies the *San Joaquin County General Plan* and *City of Lodi General Plan* land use designations related to agriculture.

Table 5.2-2. Local General Plan Land Use Designations Related to Agriculture

Jurisdiction	General Plan Land Use Designation
San Joaquin County	General Agriculture (A/G): This designation provides for large-scale agricultural production and associated processing, sales, and support uses. The General Agriculture designation typically applies to areas outside land planned for urban development where soils are capable of producing a wide variety of crops and/or supporting grazing. Typical building types include low-intensity structures associated with farming and agricultural processing and sales.
	Limited Agriculture (A/L): This designation provides for small-scale and specialty agricultural production and associated processing, sales, and support uses. The Limited Agriculture designation generally applies to areas outside land planned for urban development where soils are capable of producing a wide variety of crops or supporting grazing. The Limited Agriculture designation will be considered for small-scale agricultural operations where the parcels generally are between 5 and 10 acres in size outside land planned for urban development, and in areas zoned AL-5 and AL-10 as of the adoption of this General Plan. Typical building types include low-intensity structures associated with farming and agricultural processing.
	Agricultural-Urban Reserve (A/UR): This designation provides a reserve for urban development but is not necessary to accommodate development projected during the planning period of the General Plan (2035). The Agricultural-Urban Reserve designation generally applies to areas currently undeveloped or used for agricultural production that are in the logical path of development around an Urban Community or City Fringe Area. This designation may be applied to areas adjacent to cities and in City Fringe Areas if (1) the area identified is designated for urban development in a city general plan, and (2) the County determines that the area represents a reasonable expansion of a city.
	Rural Service Commercial (C/RS): This designation provides for retail and service uses that frequently are required by rural residents and the surrounding agricultural community. In rural communities, the areas may incorporate a mix of local retail uses, professional offices, and general commercial uses. Typical uses include grocery stores, pharmacies, hardware stores, banks, restaurants, and repair services, as well as uses that serve the agricultural community. This designation is permitted only in rural communities. Other development and locational criteria also apply.
City of Lodi	Armstrong Road Agricultural Cluster Study Area: This overlay designation is intended to maintain a clear distinction between Lodi and Stockton. In coordination with relevant public agencies and property owners, the City will continue to study this designation area to determine a strategy to meet this objective.

Sources: City of Lodi 2010, San Joaquin County 2016

Zoning establishes specific land use designations for planned land uses and identifies appropriate development standards for each designation. Zoning designations generally are more specific than an underlying general plan designation; however, both designations typically are aligned. As with general plan land use designations, zoning designations are designed to protect and conserve the value of land use.

San Joaquin County incorporates agricultural zoning designations within its jurisdiction; however, forestry zoning designations have not been established. The City of Lodi has not established agricultural or forestry zoning districts. Table 5.2-3 identifies the zoning designations related to agriculture.

Table 5.2-3. Local Zoning Designations Related to Agriculture

Jurisdiction	Zoning Land Use Designation
San Joaquin County	General Agriculture (20 Acres): Established to preserve agricultural lands for the continuation of commercial agriculture enterprises. Minimum parcel size within this zone is 20 acres.
	General Agriculture (40 Acres): Established to preserve agricultural lands for the continuation of commercial agriculture enterprises. Minimum parcel size within this zone is 40 acres.
	General Agriculture (80 Acres): Established to preserve agricultural lands for the continuation of commercial agriculture enterprises. Minimum parcel size within this zone is 80 acres.
	General Agriculture (160 Acres): Established to preserve agricultural lands for the continuation of commercial agriculture enterprises. Minimum parcel size within this zone is 160 acres.
	Limited Agriculture (5 Acres): Intended to recognize and preserve areas that contain existing concentrations of small-scale agricultural operations and dwellings. The minimum parcel size within this zone is 5 acres.
	Limited Agriculture (10 Acres): Intended to recognize and preserve areas that contain existing concentrations of small-scale agricultural operations and dwellings. The minimum parcel size within this zone is 10 acres.
	Agricultural-Urban Reserve: Intended to retain in agriculture those areas planned for future urban development to facilitate compact, orderly growth and to assure the proper timing and economical provision of services and utilities. The minimum parcel size within this zone is 20 acres.
City of Lodi	Not applicable.

Sources: City of Lodi 2010, San Joaquin County 2022b

Agricultural Land Use and Zoning Intersecting the Proposed Project

Within unincorporated San Joaquin County, the proposed PG&E 230 kV transmission line intersects the General Agriculture (A/G) General Plan land use designation and the General Agriculture 40 Acres zoning designation. PG&E Lockeford Substation and the existing PG&E Rio Oso-Lockeford transmission structure to be relocated are on PG&E property having an A/G County General Plan land use designation and a General Agricultural 40 Acres zoning designation. PG&E project-related activities outside of San Joaquin County will occur within existing fenced station facilities, which do not have agricultural land use or zoning.

Within the City of Lodi, PG&E and LEU project components do not intersect agricultural land use or zoning. Refer to Section 5.11, Land Use, for a detailed discussion on land use.

5.2.1.4 Forestry Resources

PRC Section 12220(g) defines “forest land” as land that can support 10% native tree cover of any species, including hardwoods, under natural conditions, and that allows for management of one or more forest resources, including timber, aesthetics, fish and wildlife, biodiversity, water quality, recreation, and other public benefits.

PRC Section 4526 defines "timberland" as land, other than land owned by the federal government and land designated by the board as experimental forest land, which is available for, and capable of, growing a crop of trees of a commercial species used to produce lumber and other forest products, including Christmas trees. Timberland Production Zone is land that can be used for growing and harvesting timber and for compatible uses.

San Joaquin County and the City of Lodi have not established lands zoned specifically for forest land, timberland, or timberland production. Furthermore, the proposed project does not intersect any forest land, as defined in PRC Section 12220(g), or timberland, as defined in PRC Section 4526.

PG&E project-related activities outside of San Joaquin County will occur within existing fenced station facilities, which are not forest land, timberland, or in timberland production.

5.2.2 Regulatory Setting

5.2.2.1 Federal

No federal regulations related to agriculture or forestry resources are applicable to the project.

5.2.2.2 State

Williamson Act

The California Land Conservation Act, better known as the Williamson Act (California Government Code [GC] Section 51200 et seq.), is designed to preserve agricultural and open space land. It establishes a program of private landowner contracts that voluntarily restrict land to agricultural and open space uses. In return, Williamson Act parcels receive a lower property tax rate consistent with their actual use instead of their market rate value. Lands under contract also may support uses that are "compatible with the agricultural, recreational, or open-space use of [the] land" subject to the contract (California GC Section 51201[e]). Under GC Section 51238, electric facilities are determined to be a compatible use. Under GC Section 51222, "agricultural land shall be presumed to be in parcels large enough to sustain their agricultural use if the land is…at least 10 acres in size in the case of prime agricultural land."

Farmland Mapping and Monitoring Program

The California DOC, under the Division of Land Resource Protection, has established the FMMP to monitor the conversion of the state's farmland to and from agricultural use (DOC 2020). The goal of the FMMP is to provide consistent and impartial data to decision makers for use in assessing current status, reviewing trends, and planning for the future of California's agricultural land resources. The FMMP maps agriculturally viable lands and designates specific categories.

Forest Taxation and Reform Act

Commercial timberlands are afforded protection through the state's Forest Taxation Reform Act of 1976, which mandates the creation of timberland preserve zones to restrict and protect commercial timber resources.

California Public Resources Code

The California PRC contains the following definitions:

- Agricultural Land: Section 21060.1 defines "agricultural land" as farmland, farmland of statewide importance, or unique farmland, as defined by the United States Department of Agriculture land inventory and monitoring criteria, as modified for California.

- Forest Land: Section 12220(g) defines "forest land" as land that can support 10% native tree cover of any species, including hardwoods, under natural conditions, and that allows for management of one or more forest resources, including timber, aesthetics, fish and wildlife, biodiversity, water quality, recreation, and other public benefits.
- Timberland: Section 4526 defines timberland as land—other than land owned by the federal government and land designated by the State Board of Forestry and Fire Protection as experimental forest land—that is available for, and capable of, growing a crop of trees of a commercial species used to produce lumber and other forest products, including Christmas trees.

5.2.2.3 Local

Because the CPUC has exclusive jurisdiction over project siting, design, and construction, PG&E's portion of the project is not subject to local (city and county) discretionary regulations except for air districts and CUPAs with respect to air quality and hazardous waste regulations. However, local plans and policies are considered for informational purposes and to assist with the CEQA review process.

The City of Lodi is a local agency and must comply with its own local plans and policies.

Agricultural-related San Joaquin County General Plan land use and zoning designations are provided in Tables 5.2-2 and 5.2-3, respectively. Within the City of Lodi, the proposed project does not intersect agricultural land use or zoning designations. Refer to Section 5.11, Land Use, for a detailed discussion on land use.

San Joaquin County General Plan

San Joaquin County General Plan policies that address agricultural land uses include the following:

San Joaquin General Plan Policy LU-1.7. The County shall consider information from the State Farmland Mapping and Monitoring Program when designating future growth areas in order to preserve prime farmland and limit the premature conversion of agricultural lands.

San Joaquin General Plan Policy LU-2.1. The County shall ensure that new development is compatible with adjacent uses and complements the surrounding natural or agricultural setting.

City of Lodi General Plan

The City of Lodi General Plan policies that address agricultural land uses include the following:

City of Lodi General Plan Policy C-G1. Promote preservation and economic viability of agricultural land surrounding Lodi.

City of Lodi General Plan Policy C-G2. Maintain the quality of the Planning Area's soil resources and reduce erosion to protect agricultural productivity.

City of Lodi General Plan Policy C-P1. Work with San Joaquin County and the City of Stockton to maintain land surrounding Lodi in agricultural use. Encourage the continuation of Flag City as a small freeway-oriented commercial node, with no residential uses.

5.2.3 Impact Questions

The project's potential effects on agriculture and forestry resources were evaluated using the significance criteria set forth in Appendix G of the CEQA Guidelines. The criteria and conclusions are summarized in Table 5.2-4 and discussed in more detail in Section 5.2.4.

Table 5.2-4. CEQA Checklist for Agriculture and Forestry Resources

Would the project:	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
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 land?	☐	☐	☒	☐
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☒	☐
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined by Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by GC Section 51104(g))?	☐	☐	☐	☒
d) Result in the loss of forest land or conversion of forest land to non-forest uses?	☐	☐	☐	☒
e) Involve other changes in the existing environment, which, due to their location or nature, could result in the conversion of farmland to nonagricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒

5.2.3.1 Additional CEQA Impact Questions

None.

5.2.4 Potential Impact Analysis

Project impacts related to agriculture and forestry resources were evaluated against the CEQA significance criteria and are discussed in the following subsections. The impact analysis evaluates potential project impacts during the construction phase and the operation and maintenance phase. The impact discussion is organized to describe the effects that each participating utility's portion of the project has on the environment.

5.2.4.1 Significance Criteria

According to Section 15002(g) of the CEQA Guidelines, "a significant effect on the environment is defined as a substantial adverse change in the physical conditions which exist in the area affected by the proposed project." As stated in Section 15064(b) of the CEQA Guidelines, the significance of an activity may vary with the setting. Per Appendix G of the CEQA Guidelines, the potential significance of project-related impacts on agricultural and forest resources were evaluated for each of the criteria listed in Table 5.2-4, as discussed in Section 5.2.4.

5.2.4.2 Applicant-Proposed Measures and Best Management Practices

PG&E will implement the following APM:

APM AGR-1: Minimize Impacts on Active Agricultural Areas.

- Prior to construction, PG&E will provide written notice to landowners outlining construction activities, preliminary schedule, and timing of restoration efforts.
- PG&E will coordinate with landowners to minimize construction-related disruptions to seasonal farming operations. To the extent reasonably feasible, PG&E will schedule construction activities to minimize disruptions to harvesting, planting, and crop maintenance activities, such as fertilizer application and crop dusting.
- PGE& will establish temporary overland access routes and work areas to minimize disruptions to agricultural infrastructure (including irrigation lines, wells, pumps, ditches, and drains) to the greatest extent reasonably feasible. If necessary, and upon agreement between PG&E and the landowners, agricultural infrastructure will be protected with temporary materials (for example, steel plates, blankets) to prevent inadvertent damage during construction. Where feasible, overland routes within orchards and vineyards will be aligned with the planting layout or otherwise to minimize tree and vine removal.
- If trees or other crops cannot be avoided by PG&E as specified previously, impacts will be limited to the minimum necessary to construct the project, and PG&E will provide the agricultural owner with fair market compensation for crops removed, crops unable to be harvested, lost planting cycles, and any damaged infrastructure.
- PG&E will restore agricultural land temporarily impacted by construction to pre-project conditions following completion of construction, including areas impacted by establishment of temporary staging, laydown and storage areas, overland access, guard structures, and pull sites. If grading occurs in actively planted agricultural areas, topsoil will be stockpiled and used to backfill excavations to pre-existing grade when construction is complete. Restoration of sites will involve removing any rock or material imported to stabilize the site, replacing topsoil, decompacting any soil that has been compacted by heavy equipment, and replanting agricultural crops. The responsibility of performing these various tasks may be stipulated in an agreement between PG&E and the landowner. If a landowner is better equipped or prefers to replant crops or perform other tasks themselves, then PG&E will provide just compensation for this work.

5.2.4.3 Potential Impacts

As described in Chapter 3, Project Description, the project will provide a new 230 kV transmission source in northern San Joaquin County, in central California. The project includes extending an existing PG&E 230 kV transmission line through PG&E Lockeford Substation to a new PG&E Thurman Switching Station in Lodi, California, by installing new tubular steel poles and conductors for approximately 11 miles. PG&E Lockeford Substation will be expanded on existing substation property to accommodate the new 230 kV facility. PG&E Thurman Switching Station will transfer the new 230 kV source to the new adjacent LEU 230/60 kV Guild Substation. LEU Guild Substation will transfer the 60 kV power to the existing adjacent LEU 60 kV Industrial Substation, which will be modified to receive the new LEU 60 kV lines (via the new 230 kV source) and to disconnect the existing PG&E 60 kV sources. When disconnected, the three existing PG&E 60 kV lines will be partially removed and reconfigured mainly within their existing alignments to continue operation between PG&E Lockeford and Lodi substations. LEU distribution and the third-party telecommunication underbuild on PG&E 60 kV line portions being removed will be relocated by the respective utility owner to within or adjacent to other existing alignments. An existing PG&E distribution line will be extended underground approximately 500 feet in franchise to provide a permanent secondary service line to PG&E Thurman Switching Station. PG&E project-related work to update communication between facilities and the protection scheme system also will occur within the existing fence lines of

remote-end substations Brighton, Bellota, Lodi, and Rio Oso, and a communication facility, Clayton Hill Repeater Station.

a) Would the project convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, as shown on the maps prepared pursuant to the FMMP, to nonagricultural use? *Less-than-Significant Impact*.

PG&E Potential Impact Discussion

The proposed PG&E project components have been designed to minimize impacts to agricultural resources. Impacts on Important Farmland were analyzed using 2018 FMMP data compared with the proposed project's preliminary engineering design and construction and maintenance work areas and access. For the purposes of this analysis, and as discussed in Section 5.2.1.3, Important Farmland is considered any land designated by 2018 FMMP data as Prime Farmland, Unique Farmland, and Farmland of Statewide Importance (DOC 2022). Acreage is calculated considering temporary and permanent ground disturbance rather than general ROW.

New or modified PG&E easements would be required between property owners and PG&E, allowing PG&E to construct, operate, and maintain the new infrastructure. Upon the completion of construction of PG&E project components, all temporary ground disturbance, estimated to be approximately 43.67 acres in Important Farmland, would be returned to preconstruction condition, unless otherwise requested by the landowners. APM AGR-1, presented previously, would provide the agricultural owner with fair market compensation for crops removed, crops unable to be harvested or replanted, lost planting cycles, and damaged infrastructure, and restoration of impacted agriculture land during PG&E construction activities. Therefore, temporary impacts are not considered a conversion of Farmland in this analysis.

Crops would be precluded from growing typically within 10 feet of the base of a new PG&E transmission structure. Additionally, certain orchard trees that could grow to heights that may interfere with the PG&E line clearance required for safe operation, such as walnut and almond, may be excluded from being replanted or planted as part of the PG&E easement agreement. However, the primary crop that would be temporarily and permanently removed by the proposed PG&E project components is grapes. Approximately 28 almond trees, approximately 17 walnut trees, approximately 73 cherry trees, approximately 154 apple trees, approximately 80 olive trees, and approximately 4,089 grape vines are estimated to be removed to establish work areas and access (refer to Table 3.5-5). Approximately 7 almond trees, approximately 42 walnut trees, approximately 37 cherry trees, approximately 94 apple trees, approximately 108 olive trees, and approximately 2,695 grape vines are estimated to be removed permanently with the installation and operation of the new PG&E 230 kV line (refer to Table 3.5-5).

The construction the new PG&E transmission lines (approximately 57 tubular steel pole structures in Important Farmland) would permanently convert approximately 0.44 acre of Prime Farmland, approximately 0.16 acre of Unique Farmland, and approximately 0.14 acre of Farmland of Statewide Importance to nonagricultural uses associated with electrical infrastructure (refer to Table 5.2-1). For the modification of the existing PG&E Lockeford Substation on PG&E property, approximately 0.49 acre of Prime Farmland and approximately 0.18 acre of Farmland of Statewide Importance would be permanently converted to accommodate the expanded footprint of the substation on the north side of the existing facilities fence line, where agricultural use occurs through direct encroachment. A total of approximately 1.41 acres of Important Farmland would be permanently impacted and permanently converted to nonagricultural use.

Operation and maintenance of PG&E project components would not convert Farmland to nonagricultural use. Where possible, existing access roads would be used for maintenance of the proposed PG&E project components, which would occur every 5 years over the 75-year transmission line life span. While there is the potential for maintenance overland access through active agricultural area, it is unlikely to occur given the project is installing new transmission line components that require infrequent ground-based inspection and that inspection is not likely to require a vehicle to be located at a structure base. Should

agricultural impacts occur during operation and maintenance, restoration and compensation will follow the terms of the property easement agreement between PG&E and the landowner.

Upon the completion of construction of PG&E project components, all temporary ground disturbance would be returned to preconstruction condition, unless otherwise requested by the landowners. APM AGR-1, presented previously, would provide the agricultural owner with fair market compensation for crops removed, crops unable to be harvested or replanted, lost planting cycles, and damaged infrastructure, and restoration of impacted agriculture land during PG&E construction activities. Therefore, temporary impacts are not considered a conversion of Farmland in this analysis. Operation and maintenance of PG&E project components would not convert Farmland to nonagricultural use.

As mentioned in Section 5.2.1.1, for the purposes of this impact analysis, Important Farmland is considered any land designated by 2018 FMMP data as Prime Farmland, Unique Farmland, and Farmland of Statewide Importance. Of the 1.41 acres of Important Farmland permanently impacted by the project, the acreage of Prime Farmland that will be permanently converted to nonagricultural land is 0.93 acre (0.44 acre from permanent pole footprint and 0.49 acre from permanent substation expansion), which is less than the significance threshold of 10 acres as noted in California GC Section 51222 as the size of a parcel large enough to sustain agricultural use in the case of prime agricultural land.

LEU Potential Impact Discussion

The LEU portion of the project would not temporarily impact or result in permanent conversion of Prime Farmland, Unique Farmland, and Farmland of Statewide Importance to nonagricultural uses associated with LEU's electrical infrastructure (refer to Table 5.2-1). Therefore, the LEU portion of the project would have no impact.

b) Would the project conflict with existing zoning for agricultural use, or a Williamson Act contract? *Less-than-Significant Impact*.

PG&E Potential Impact Discussion

The PG&E 230 kV transmission line installation, Lockeford Substation expansion, 60 kV line reconfiguration, and temporary construction areas (laydown yards, pull/tension sites, overland routes) will occur partially on lands zoned for agriculture and agricultural land under Williamson Act contracts (Figure 5.2-3). During project construction, portions of these areas totaling approximately 43.16 acres will be taken out of production to accommodate PG&E construction activities, delivery and staging of construction materials, installing poles and lines, and construction crew access. Approximately 0.55 acre of land under Williamson Act contracts will be permanently taken out of production for the footprint of the TSPs. The TSPs will not prevent ongoing use of the properties under the Williamson Act for agricultural use. Electric utility facility construction and maintenance activities are considered compatible uses of contracted Williamson Act lands under GC Section 51238. Given this consistency, that potential project construction and maintenance activities are temporary and will have minimal impacts on Williamson Act land, and the small amount of permanent conversion of land under Williamson Act contract, the impact will be less than significant.

LEU Potential Impact Discussion

The LEU portion of the project will not occur on lands zoned for agriculture and agricultural land under Williamson Act contracts. Therefore, no impact will occur.

c) Would the project conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))? *No Impact.*

PG&E Potential Impact Discussion

No areas of designated forest land (as defined in PRC Section 12220[g]), timberland (as defined by PRC Section 4526), or timberland zoned for timberland production (as defined by GC Section 51104[g]) would be impacted by the proposed project. Therefore, the proposed project would not conflict with the zoning or cause rezoning of forest or timberland.

LEU Potential Impact Discussion

No areas of designated forest land (as defined in PRC Section 12220[g]), timberland (as defined by PRC Section 4526), or timberland zoned for timberland production (as defined by GC Section 51104[g]) would be impacted by the proposed project. Therefore, the proposed project would not conflict with the zoning or cause rezoning of forest or timberland.

d) Would the project result in the loss of forest land or conversion of forest land to non-forest use? *No Impact*.

PG&E Potential Impact Discussion

No areas of designated forest land (as defined in PRC Section 12220[g]) would be impacted by the proposed project. Therefore, the proposed project would not result in the loss of forest land or conversion of forest land to non-forest use.

LEU Potential Impact Discussion

No areas of designated forest land (as defined in PRC Section 12220[g]) would be impacted by the proposed project. Therefore, the proposed project would not result in the loss of forest land or conversion of forest land to non-forest use.

e) Would the project 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? *No Impact.*

PG&E Potential Impact Discussion

Implementation of the project will not discourage the continued use of adjacent land for agricultural use. Rather, the project will improve power service reliability for existing customers in the area, including agricultural users, so that these uses can continue operating with a more reliable power source. The project will not induce growth that would result in the conversion of Important Farmland to nonagricultural or non-forest use; therefore, there will be no impact.

LEU Potential Impact Discussion

Implementation of the project will not discourage the continued use of adjacent land for agricultural use. Rather, the project will improve power service reliability for existing customers in the area, including agricultural users, so that these uses can continue operating with a more reliable power source. The project will not induce growth that would result in the conversion of Important Farmland to nonagricultural or non-forest use; therefore, there will be no impact.

5.3 Air Quality

This section discusses potential air quality issues associated with the project construction, operation, and maintenance, including both regional and site-specific concerns. Project description information and potential impacts are organized and discussed by each participating utility's portion of the project. Air quality emissions will occur within the San Joaquin Valley Air Basin (SJVAB) under the jurisdiction of the San Joaquin Valley Air Pollution Control District (SJVAPCD). This air quality impact assessment follows Appendix G of the CEQA Guidelines and the SJVAPCD *Guidance for Assessing and Mitigating Air Quality Impacts* (SJVAPCD 2015) for activities within its jurisdiction.

Primary air emissions from the project includes construction emissions associated with fugitive dust, heavy construction equipment and helicopter usage, haul trucks, and construction workers commuting to and from the project site. Air emissions evaluated include reactive organic gases (ROG), carbon monoxide (CO), nitrogen oxides (NO_X), particulate matter less than 10 micrometers in aerodynamic diameter (PM_{10}), particulate matter less than 2.5 micrometers in aerodynamic diameter ($PM_{2.5}$), sulfur dioxide (SO_2), and diesel particulate matter (DPM). Greenhouse gas (GHG) emissions are discussed separately in Section 5.8. The analysis concludes that impacts to air quality will be less than significant. Incorporation of the measures described in Section 5.3.4.2 will further minimize potential less-than-significant impacts.

In this section, the Regulatory Setting precedes the Environmental Setting to provide context for the air quality plans and standards environmental setting discussion.

5.3.1 Regulatory Setting

5.3.1.1 Federal

Clean Air Act and National Ambient Air Quality Standards

The federal Clean Air Act (CAA) establishes the statutory framework for regulation of air quality in the United States. Pursuant to this act, the U.S. Environmental Protection Agency (EPA) has established various regulations to achieve and maintain acceptable air quality, including the adoption of National Ambient Air Quality Standards (NAAQS), mandatory state implementation plan (SIP) or maintenance plan requirements to achieve and maintain NAAQS, and emission standards for both stationary and mobile sources of air pollution. NAAQS were first established in 1970 for six pollutants: CO, ozone (O_3), PM_{10} and $PM_{2.5}$, nitrogen dioxide (NO_2), SO_2, and lead. These pollutants are commonly referred to as criteria pollutants because they are considered the most prevalent air pollutants known to be hazardous to human health. The NAAQS contain primary standards that protect public health and secondary standards that protect public welfare. A summary of the NAAQS and the California Ambient Air Quality Standards (CAAQS) is provided in Table 5.3-1.

Table 5.3-1. National and California Ambient Air Quality Standards

Pollutant	Averaging Time	CAAQS[b]	NAAQS[a]	
			Primary[c]	Secondary[d]
Ozone	8 hours 1 hour	0.070 ppm 0.09 ppm	0.070 ppm –	0.070 ppm –
PM_{10}	Annual arithmetic mean 24 hours	20 µg/m^3 50 µg/m^3	– 150 µg/m^3	– 150 µg/m^3
$PM_{2.5}$	Annual arithmetic mean 24 hours	12 µg/m^3 –	12 µg/m^3 35 µg/m^3	15 µg/m^3 35 µg/m^3
CO	8 hours 1 hour	9 ppm 20 ppm	9 ppm 35 ppm	– –

Pollutant	Averaging Time	CAAQS[b]	NAAQS[a]	
			Primary[c]	Secondary[d]
NO_2	Annual arithmetic mean 1 hour	0.03 ppm 0.18 ppm	0.053 ppm 0.100 ppm	0.053 ppm –
SO_2	24 hours 3 hours 1 hour	0.04 ppm – 0.25 ppm	– – 0.075 ppm[e]	– 0.5 ppm –
Lead[f]	Calendar quarter Rolling 3-month average 30-day average	– – 1.5 µg/m^3	1.5 µg/m^3 (certain areas) 0.15 µg/m^3 –	1.5 µg/m^3 – –
Visibility-reducing particles	8 hours	[g]	–	–
Sulfates	24 hours	25 µg/m^3	–	–
Hydrogen sulfide	1 hour	0.03 ppm	–	–
Vinyl chloride[f]	24 hours	0.01 ppm	–	–

Source: California Air Resources Board (CARB), 2016a. https://ww2.arb.ca.gov/sites/default/files/2020-07/aaqs2.pdf

[a] NAAQS other than ozone, PM, and those based on annual averages or annual arithmetic means are not to be exceeded more than once per year. The ozone standard is attained when the fourth highest 8-hour concentration in a year, averaged over 3 years, is equal to or less than the standard. For PM_{10}, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m^3 is equal to or less than 1. For $PM_{2.5}$, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over 3 years, is equal to or less than the standard.

[b] CAAQS for ozone, CO (except Lake Tahoe), SO_2 (1-hour and 24-hour), NO_2, and suspended particulate matter (PM_{10}, $PM_{2.5}$, and visibility-reducing particles) are not to be exceeded. All others are not to be equaled or exceeded.

[c] NAAQS Primary Standards: The levels of air quality necessary, with an adequate margin of safety, to protect the public health.

[d] NAAQS Secondary Standards: The levels of air quality necessary to protect the public welfare from known or anticipated adverse effects of a pollutant.

[e] Final rule signed June 2, 2010. To attain this standard, the 3-year average of t^{he} 99th percentile of the daily maximum 1-hour average at each monitor within an area must not exceed 75 parts per billion.

[f] CARB has identified lead and vinyl chloride as toxic air contaminants with no threshold level of exposure for adverse health effects determined. CARB made this determination following the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

[g] In 1989, CARB converted both the general statewide 10-mile visibility standard and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are "extinction of 0.23 per kilometer" and "extinction of 0.07 per kilometer" for the statewide and Lake Tahoe Air Basin standards, respectively.

Notes:

µg/m^3 = microgram(s) per cubic meter
ppm = part(s) per million (by volume)

EPA classifies areas as being in attainment or nonattainment with the NAAQS for each criteria pollutant. A region that meets the NAAQS for a pollutant is designated as being in attainment for that pollutant. A region that does not meet the NAAQS for a pollutant is designated as being in nonattainment for that pollutant. An area that was previously designated as a nonattainment area but has met the standard and has been reclassified by EPA as in attainment with a maintenance plan is a maintenance area.

The 1977 CAA amendment requires each state to develop and maintain an SIP for each nonattainment criteria pollutant. The SIP serves as a tool to help avoid and minimize emissions of nonattainment criteria pollutants and their precursor pollutants and achieve compliance with the NAAQS. In 1990, the CAA was amended to strengthen regulation of both stationary and mobile emission sources.

Toxic Air Contaminant and Odorous Emissions

In addition to the criteria pollutants, EPA also regulates emissions of hazardous air pollutants (HAPs) or toxic air contaminants (TACs). TACs include airborne inorganic and organic compounds that can have both

short-term (acute) and long-term (carcinogenic, chronic, and mutagenic) impacts on human health. Odorous compounds include those that can be detected by the human olfactory system, such as hydrogen sulfide and other sulfurous compounds.

Controlling air toxic emissions became a national priority with the passage of the CAA amendments in 1990, when Congress mandated that EPA regulate 188 air toxics. Prior to the 1990 CAA amendments, national emission standards were established for benzene, vinyl chloride, radionuclides, mercury, asbestos, beryllium, inorganic arsenic, radon 222, and coke oven emissions. The 1990 CAA amendments require EPA to set standards for categories and subcategories of sources that emit HAPs, rather than for the pollutants themselves. EPA began issuing the new standards in November 1994. National emission standards set before 1991 remain applicable.

Odorous emissions typically are regulated by local air districts under nuisance prohibitory rules. Because odor generally is a subjective phenomenon that affects people differently, development of odor emissions standards has proven impractical. Therefore, regulators have relied on the nuisance standard to assist in enforcing control of odorous emissions. Determination of the presence of a nuisance emission is based on the number of odor complaints received by the air district during an odor episode.

5.3.1.2 State

California Clean Air Act and Air Quality Standards

The California Air Resources Board (CARB) is the state agency responsible for California air quality management, including establishment of CAAQS, mobile source emission standards, and GHG regulations, as well as oversight of regional air quality districts and preparation of implementation plans, including regulations for stationary sources of air pollution. The CAAQS generally are more stringent, except for the 1-hour NO_2 and SO_2 standards, and include more pollutants than the NAAQS (refer to Table 5.3-1). California specifies four additional criteria pollutants: visibility-reducing particles, sulfates, hydrogen sulfide, and vinyl chloride. Similar to the EPA, CARB designates counties in California as being in attainment or nonattainment for the CAAQS.

The California Clean Air Act, which was approved in 1988, requires each local air district, where ambient concentrations violate the CAAQS, to prepare an air quality management plan (AQMP) to achieve compliance with the CAAQS as a part of the SIP. CARB has ultimate responsibility for the SIP for nonattainment pollutants but relies on each local air district to adopt mandatory statewide programs and provide additional strategies for sources under its jurisdiction. The SIPs are a compilation of new and previously submitted plans, programs (monitoring, modeling, and permitting), district rules, state regulations, and federal controls. Local air districts and other agencies prepare SIP elements and submit them to CARB for approval. CARB forwards SIP revisions to EPA for approval and publication in the Federal Register. CARB adopted its latest SIP document in September 2022 that included the 2022 State SIP Strategy (CARB 2022a) with measures and commitments to reduce emissions from state-regulated sources to support attainment of the 70 parts per billion ozone standard in all nonattainment areas across California.

Sierra Club v. County of Fresno (The Friant Ranch Decision)

In *Sierra Club v. County of Fresno* 6 Cal.5th 502, the California Supreme Court held that portions of the air quality analysis in Fresno County's EIR for the 942-acre Friant Ranch Specific Plan violated CEQA (Supreme Court of California 2018). The case reviewed the regional air quality analysis contained in the EIR for the proposed Friant Ranch development in unincorporated Fresno County. Located in the San Joaquin Valley Air Basin, the project area is currently designated as nonattainment for multiple NAAQS and CAAQS, including O_3, $PM_{2.5}$, and PM_{10}. The Court ruled that the air quality analysis failed to adequately disclose the nature and magnitude of long-term air quality impacts from project-related emissions of criteria pollutants and precursors "in sufficient detail to enable those who did not participate in its preparation to understand and consider meaningfully the issues the proposed project raises." The Court noted that the air quality analysis did not provide a discussion of the foreseeable adverse effects of

project-generated emissions on Fresno County's likelihood of exceeding the NAAQS and CAAQS for criteria air pollutants, nor did it explain why it was not "scientifically possible" to determine such a connection.

Air Toxics

California's Air Toxic "Hot Spots" Information and Assessment Act (AB 2588) identifies toxic air contaminant hot spots where emissions from specific sources may expose individuals to an elevated risk of adverse health effects, particularly cancer or reproductive harm. Toxic air contaminants also are referred to as hazardous air pollutants (HAPs). AB 2588 requires that a business or other establishment identified as a significant source of toxic emissions provide the affected population with information about health risks posed by the emissions.

CARB has adopted the *Diesel Risk Reduction Plan* (CARB 2016b) and a series of airborne toxic control measures for mobile and stationary sources, which are intended to reduce overall diesel exhaust emissions in California.

CARB also adopted airborne toxic control measures for controlling naturally occurring asbestos and CARB and local air districts have authority to enforce the federal National Emission Standards for Hazardous Air Pollutants (NESHAP) regulations for asbestos.

5.3.1.3 Regional

Air District Regulations

The project is located within the jurisdiction of the SJVAPCD. The SJVAPCD is the regional agency charged with preparing, adopting, and implementing emission control measures and standards for stationary sources of air pollution pursuant to delegated state and federal authority. Because the project will not involve construction of new stationary sources, there are no permitting regulations relevant to the project.

Under the California Clean Air Act, the SJVAPCD is required to develop an air quality plan to achieve and maintain compliance with federal and state nonattainment criteria pollutants within the air district. Jurisdictions of nonattainment areas also are required to prepare an AQMP that includes strategies for achieving attainment. The SJVAPCD has approved AQMPs demonstrating how the SJVAB will reach attainment with the federal 1-hour and 8-hour ozone, PM_{10}, and $PM_{2.5}$ and California CO standards. SJVAPCD air quality plans are discussed in Section 5.3.2.3.

Regulation VIII, Fugitive PM_{10} Prohibition, contains rules developed pursuant to EPA guidance for serious PM_{10} nonattainment areas. Rules included under this regulation aim to reduce ambient concentration of PM_{10} by the following methods: preventing, reducing, or mitigating fugitive dust emissions from construction sites during excavation, demolition, and other earthmoving activities; regulating bulk material handling, storage, and transport; preventing carryout and trackout; and requiring construction crews to drive in paved and unpaved vehicle and equipment traffic areas. An SJVAPCD-approved Dust Control Plan is required for projects in which construction-related activities will disturb 5 or more acres of surface area. The total amount of area disturbed during project construction would be greater than 5 acres. The project will require a Dust Control Plan that identifies the fugitive dust sources at the construction site and describes all of the dust control measures to be implemented before, during, and after any dust-generating activity for the duration of the project.

The SJVAPCD regulates asbestos-containing materials (ACM) for demolition and renovations of regulated facilities. Regulated facilities are defined by the SJVAPCD as:

Regulated facilities (facilities subject to NESHAP) include all commercial buildings, residential buildings with more than four dwelling units, other structures, and non-portable equipment.

In addition, facilities are further defined as "all structures, installations, buildings and equipment." The SJVAPCD considers demolition to include the removal of any structural load-bearing member from a facility, or the separation of a structure from its foundation prior to relocation.

An Asbestos Notification Form is required for the following:

- Any regulated demolition, regardless of whether asbestos is present
- Any regulated renovation in which the following will be disturbed:
    - 160 square feet or more of regulated ACM, or
    - 260 linear feet or more of regulated asbestos-containing pipe insulation

For facilities subject to NESHAP, the SJVAPCD will issue a Demolition Permit Release Form when SJVAPCD has been properly noticed of the work that is to occur. For all demolitions, including facilities exempt from NESHAP, a Demolition Permit Release Form must be signed by the SJVAPCD before obtaining a building department demolition permit. The project will comply with the asbestos survey and notification requirements for its demolition activities.

Indirect Source Review

SJVAPCD adopted the Indirect Source Review Rule (ISR) (Rule 9510) to meet emission reduction commitments in the PM_{10} and ozone attainment plans (SJVAPCD 2017). The ISR applies to development projects where construction exhaust emissions equal or exceed 2.0 tons per year of NO_x or 2.0 tons of PM_{10}. Unless exempt, projects are subject to the ISR and must submit an Air Impact Assessment Application to the SJVAPCD, with commitments to reduce construction exhaust NO_x and PM_{10} emissions by 20% and 45%, respectively. If a project does not achieve the onsite reductions required by the ISR, the project must pay offsite mitigation fees (SJVAPCD 2017).

SJVAPCD CEQA Guidelines

The Guidance for Assessing and Mitigating Air Quality Impacts (GAMAQI) (SJVAPCD 2015a) assists lead agencies and project applicants in evaluating the potential air quality impacts of projects in the SJVAB. The GAMAQI recommends procedures for evaluating potential air quality impacts for the CEQA environmental review process and provided guidance on evaluating short-term (construction) and long-term (operational) air emissions. The GAMAQI provides recommended air quality emission thresholds for CEQA purposes and was used in the preparation of this PEA.

5.3.1.4 Local

Because the CPUC has exclusive jurisdiction over project siting, design, and construction, the PG&E portion of the project is not subject to local (city and county) discretionary regulations except for air districts with respect to air quality regulations.

City of Lodi

The City of Lodi is a local agency and must comply with its own local plans and policies. The City of Lodi has General Performance Standards under Regulation 17.14.040:

17.14.040 – General Performance Standards – All land uses activities, and processes shall be operated and maintained so as to not be injurious to public health, safety, or welfare, and to comply with the following standards: A. Air Emissions. No visible dust, gasses, or smoke shall be emitted, except as necessary for the heating or cooling of structures, and the operation of motor vehicles on the site.

Applicable policies from the Lodi General Plan include the following:

Policy C-G11: Support land use, transportation management, infrastructure, and environmental planning programs that reduce vehicle emissions and improve air quality.

Policy C-G12: Minimize the adverse effects of construction-related air quality emissions and Toxic Air Contaminants on human health.

Policy C-P48: Require all construction equipment to be maintained and tuned to meet appropriate EPA and CARB emission requirements and when new emission control devices or operational modifications are found to be effective, such devices or operational modifications are to be required on construction equipment.

Policy C-P50: Require contractors to implement dust suppression measures during excavation, grading, and site preparation activities. Techniques may include but are not limited to: site watering or application of dust suppressants; phasing or extension of grading operations; covering of stockpiles; suspension of grading activities during high wind periods (typically winds greater than 25 mph); and revegetation of graded areas.

San Joaquin County

San Joaquin County regulates air quality under Chapter 9-1025.3:

9-1025.3 – Air Quality. All emissions shall be subject to the rules and regulations of the San Joaquin Valley Air Pollution Control District.

5.3.1.5 Air Permits

SJVAPCD Rule 2010 requires stationary emission sources to obtain permits for the construction and operation unless exempt. Because no stationary sources of air pollution are being constructed as part of the project, no air permits are required.

5.3.2 Environmental Setting

5.3.2.1 Regional Setting

The project would be located in the SJVAB in the southern half of California's Central Valley. The SJVAB encompasses an area approximately 250 miles long that averages 35 miles wide, shaped like a narrow bowl. The SJVAB is bordered by the Sierra Nevada Mountains to the east (8,000 to more than 14,000 feet in elevation), the Coast Ranges to the west (averaging 3,000 feet in elevation), and the Tehachapi Mountains to the south (6,000 to 7,981 feet in elevation). There is a slight downward elevation gradient from Bakersfield in the southeast end (elevation 408 feet) to sea level at the northwest end where the Central Valley opens to San Francisco Bay at Carquinez Straits (SJVAPCD 2015a).

The SJVAB is in a Mediterranean climate zone. The SJVAB is typically arid in the summer; cool temperatures and tule fog (a dense ground fog) are prevalent in the winter and fall. Average high temperatures in the summer are in the mid 90°F range; average low temperatures in winter are in the high 40°F range. January is typically the wettest month of the year, with an average of approximately 2 inches of rain. Wind direction typically is from the northwest with speeds around 30 mph. The subtropical high-pressure cell is strongest during spring, summer, and fall and produces subsiding air that can result in temperature inversions in the Central Valley. Wintertime high-pressure events often last many weeks, with surface temperatures in the 30°F range. During these events, fog can be present, and inversions can be strong. Winter inversions can inhibit vertical mixing of pollutants to a few hundred feet (SJVAPCD 2015a).

5.3.2.2 Ambient Air Quality

CARB maintains ambient air monitoring stations for criteria pollutants throughout California. The air monitoring stations closest to the project area are at University Park and on Hazelton Street in Stockton.

Because the University Park Station only has data since 2021, the air monitoring data from the Hazelton Street Station are used in this study. Table 5.3-2 summarizes available data from the Hazelton Street Station during the last 3 years. As shown, multiple exceedances of the NAAQS and CAAQS, primarily for ozone and particulate matter, have recently been recorded (2019 to 2021).

Table 5.3-2. Ambient Criteria Pollutants Concentration Data at Stockton Hazelton Street

Pollutant	Metric	Maximum Concentrations and Frequencies of Exceeded Standards		
		2019	2020	2021
O_3	Maximum 1-Hour Concentration (ppm)	0.098	0.100	0.085
	Days > 0.090 ppm (CAAQS)	1	1	0
	Maximum 8-Hour Concentration (ppm)	0.077	0.074	0.073
	Days > 0.070 ppm (NAAQS/CAAQS)	2	2	1
CO	Maximum 1-Hour Concentration (ppm)	3.1	2.7	2.2
	Days > 20 ppm (CAAQS)	0	0	0
	Days > 35 ppm (NAAQS)	0	0	0
	Maximum 8-Hour Concentration (ppm)	1.4	2.2	1.6
	Days > 9.0 ppm (NAAQS/CAAQS)	0	0	0
NO_2	Maximum 1-Hour Concentration (ppm)	0.0723	0.0600	0.0584
	Days > 0.18 ppm (CAAQS)	0	0	0
	Days > 0.10 ppm (NAAQS)	0	0	0
	Annual Average Concentration (ppm)	0.011	0.011	NA
	> 0.030 ppm (CAAQS)	No	No	NA
PM_{10}	Maximum 24-Hour Concentration (µg/m^3)	89.1	148.5	199.1
	Days > 50 µg/m^3 (CAAQS)	7	12	41
	Days > 150 µg/m^3 (NAAQS)	0	0	1
	Annual Average Concentration (µg/m^3)	25.2	33.5	36.8
	> 20 µg/m^3 (CAAQS)	Yes	Yes	Yes
$PM_{2.5}$	Maximum 24-Hour Concentration (µg/m^3)	50.1	130.7	58.2
	Days > 35 µg/m^3 (NAAQS)	6	21	8
	Annual Average Concentration (µg/m^3)	9.3	14.0	NA
	> 12 µg/m^3 (NAAQS/CAAQS)	No	Yes	Yes

Source: CARB 2022b

Notes:
> = greater than
NA = data not available

Attainment status for the project area is summarized in Table 5.3-3. Under the NAAQS, the area is currently designated as nonattainment for the ozone and $PM_{2.5}$ standards. The SJVAB is a maintenance area for the federal PM_{10} standard. The area is in attainment for the federal CO and NO_2 standards and unclassified for SO_2 and lead. Under the CAAQS, the project area is currently designated as nonattainment for ozone, PM_{10}, and $PM_{2.5}$, and as attainment or unclassified for other pollutants.

Table 5.3-3. Attainment Status for the Project Area

Pollutant	NAAQS	CAAQS
Ozone	Nonattainment	Nonattainment
PM_{10}	Maintenance	Nonattainment
$PM_{2.5}$	Nonattainment	Nonattainment
CO	Maintenance	Attainment
NO_2	Attainment/Unclassified	Attainment
SO_2	Attainment/Unclassified	Attainment
Lead (particulate)	Attainment/Unclassified	Attainment
Hydrogen Sulfide	No Standard	Unclassified
Sulfates	No Standard	Attainment
Visibility-Reducing Particles	No Standard	Unclassified
Vinyl chloride	No Standard	Attainment

Sources:

CARB 2022c, https://www.arb.ca.gov/desig/changes.htm#summaries, accessed August 20, 2022.

EPA 2022, https://www3.epa.gov/airquality/greenbook/anayo_ca.html, accessed August 20, 2022.

5.3.2.3 Air Quality Plans

Air quality planning documents for pollutants for which the Program Area is classified as a federal nonattainment or maintenance area are developed by SJVAPCD and CARB and approved by EPA. The following is a summary of the current SJVAPCD air quality plans:

- Ozone Plans:
  - *2007 Ozone Plan for the San Joaquin Valley Air Basin* (SJVAPCD, 2007a): The plan was adopted by SJVAPCD in April 2007 and approved by CARB in June 2007. The plan addresses the NAAQS 1997 8-hour ozone standard of 84 parts per billion. The plan was revised in June 2011, and EPA approved the revised plan on March 1, 2012.
  - 2013 Ozone Plan (SJVAPCD, 2013): The plan was prepared for EPA's revoked 1997 1-hour ozone standard. The plan was approved by CARB on November 21, 2013.
  - *2016 Plan for the 2008 8-Hour Ozone Standard* (SJVAPCD, 2016a): CARB approved the plan on July 21, 2016, and submitted it to EPA for approval. The plan sets out the strategy to reduce NO_x emissions by more than 60 percent between 2012 and 2031 and to bring the San Joaquin Valley into attainment of the NAAQS 2008 8-hour ozone standard no later than December 31, 2031.
- PM_{10} Plan:
  - *2007 PM_{10} Maintenance Plan and Request for Redesignation* (SJVAPCD, 2007b): The plan provides verification of continued PM_{10} attainment, a contingency plan, an attainment emissions inventory, a maintenance demonstration, and a demonstration of California's monitoring network.
- $PM_{2.5}$ Plans:
  - *2008 $PM_{2.5}$ Plan for the San Joaquin Valley Air Basin* (SJVAPCD, 2008): CARB approved the plan on May 22, 2008. The plan sets out the strategy to attain the federal 1997 annual $PM_{2.5}$ standard by 2015. The plan was amended on April 28, 2011, and EPA approved the revised 2008 $PM_{2.5}$ Plan on November 9, 2011, except for the contingency measures.

- *2012 $PM_{2.5}$ Plan* (SJVAPCD, 2012): CARB approved the plan January 24, 2013. The plan sets out the strategy to attain the federal 2006 24-hour $PM_{2.5}$ standard of 35 µg/m^3 by 2019. SJVAPCD adopted a supplemental document to the *2012 $PM_{2.5}$ Plan* on September 18, 2014, which was approved by CARB on October 24, 2014.
- *2015 $PM_{2.5}$ State Implementation Plan* (SJVAPCD, 2015b): CARB approved the plan on May 21, 2015. The plan sets out the strategy to attain the federal 1997 24-hour $PM_{2.5}$ standard by 2018 and the 1997 annual $PM_{2.5}$ standard by 2020.
- *2016 Moderate Area Plan for the 2012 $PM_{2.5}$ Standard* (SJVAPCD, 2016b): SJVAPCD adopted the plan on September 15, 2016. The plan addresses the EPA federal annual $PM_{2.5}$ standard of 12 µg/m^3 established in 2012. The plan includes an attainment impracticability demonstration and request for reclassification of the Central Valley from moderate nonattainment to serious nonattainment.
- *2018 $PM_{2.5}$ Plan* (SJVAPCD): This is a single, comprehensive attainment plan integrates the 1997, 2006, and 2012 NAAQS $PM_{2.5}$ standards.

- CO Maintenance Plan:
  - *Final Carbon Monoxide Redesignation Request and Maintenance Plan for Ten Federal Planning Area*s (CARB, 1998): CARB approved the plan, which covers SJVAPCD as part of the SIP for CO. EPA approved the revision on June 1, 1998. On July 22, 2004, CARB approved an update to the SIP that (1) shows how the 10 areas will maintain the standard through 2018, (2) revises emission estimates, and (3) establishes new on-road motor vehicle emission budgets for transportation conformity purposes.

5.3.2.4 Sensitive Receptors

Sensitive receptors include hospitals, residences, schools, daycare facilities, elderly housing, and convalescent facilities. These are places where the occupants may be relatively more susceptible to the adverse effects of exposure to TAC emissions and other pollutants. The land uses along the new PG&E 230 kV lines within unincorporated San Joaquin County are mostly agricultural land and open space/resource conservation. The majority of the agricultural land is vineyard and associated support facilities. Within the City of Lodi, land uses along the new PG&E 230 kV lines, reconfigured 60 kV lines and the switching station are industrial and public/quasi-public. LEU's Industrial and Guild substations are bound by railroads and industrial facilities. The remainder of the proposed project within the City of Lodi is located on industrial-designated land.

The majority of the project area along the PG&E transmission line construction sites are open spaces in rural areas with sparsely located residences. There are approximately 92 residences located within 1,000 feet of the PG&E transmission line alignment. LEU's portion of the project is located approximately 760 feet from a residence where the eastern end of the 12 kV feeder line conversion to underground would occur. There are no non-residential receptors such as hospitals, schools, daycare centers within 1,000 feet from the project sites. Residential sensitive receptors within 1,000 feet of the project alignment are shown on Figure 5.3-1.

5.3.3 Impact Questions

5.3.3.1 CEQA Checklist

The project's potential effects related to air quality were evaluated using the significance criteria set forth in Appendix G of the CEQA Guidelines. The conclusions are summarized in Table 5.3-4 and discussed in more detail in Section 5.3.4.

Table 5.3-4. CEQA Checklist for Air Quality

Would the project:	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☒	☐
b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?	☐	☐	☒	☐
c) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐
d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	☐	☐	☒	☐

5.3.3.2 Additional CEQA Impact Questions

None.

5.3.4 Potential Impact Analysis

Project impacts related to air quality were evaluated against the CEQA significance criteria and are discussed in the following subsections. The impact analysis evaluates potential project impacts during the construction phase and the operation and maintenance phase. The impact discussion is organized to describe the effects that each participating utility's portion of the project has on the environment.

5.3.4.1 Methodology

Air quality impacts were assessed following based on Appendix G of the CEQA Guidelines and SJVAPCD's *Guidance for Assessing and Mitigating Air Quality Impacts* (SJVAPCD 2015). Construction and operation emissions were quantified and compared to the SJVAPCD CEQA thresholds to determine the level of impacts from the project.

Construction and Operation Emissions

Construction emissions of ROG, CO, NOx, SO_2, PM_{10}, and $PM_{2.5}$ were evaluated. Construction emissions from off-road construction equipment and fugitive dust for the PG&E portion of the project were estimated using the methodologies and emission factors described in California Emission Estimator Model (CalEEMod) User's Guide (CAPCOA 2022). On-road vehicle emission factors were obtained from EMFAC2021 (CARB 2022d). Helicopter emissions were estimated using emissions factors obtained from the Swiss Federal Office of Civil Aviation (FOCA) (FOCA 2009).

Construction of the project at PG&E sites would start in 2026 and complete in 2029. Projected construction emissions were estimated for each year based on the anticipated project schedule and activities at each of the project construction site. While the construction activities would occur in 2026 to 2029, equipment and vehicle emission factors of 2016 were used for all construction years to be conservative. Operation emissions from PG&E portion of the project were estimated for the O&M activities in 2030 and beyond using the same methodology as discussed previously, with 2030 emission factors.

Construction and operation emissions calculations for the PG&E portion of the project are provided in Appendix B1a. Potential fugitive dust control emissions would be reduced by approximately 55% with watering the unpaved roads twice a day as part of the implementation of APM AIR-1. No other quantifiable potential emissions reductions are expected to be achieved with the implementation of APM AIR-1.

Construction and operation emissions of LEU portion of the project were modeled using CalEEMod (Version 2020.4.0). Emission data for the construction and operation of the LEU portion in this study obtained from LEU as provided in Appendix B1b (City of Lodi 2022). The entire LEU portion of the project is labeled as "Lodi Substation" in the CalEEMod emission summary. This emission summary label does not refer to any project activity of PG&E at PG&E Lodi Substation.

Total construction and operation emissions from the PG&E and LEU portions were compared to the SJVAPCD CEQA emission thresholds to evaluate whether the project would cause significant impacts.

Screening Health Risk Assessment

A screening health risk assessment (HRA) of the project was performed with methodologies consistent with the Office of Environmental Health Hazard Assessment (OEHHA) guidance (OEHHA 2015). The HRA was performed for construction activities at locations lasting longer than 2 months in duration and in populated areas with sensitive receptors (OEHHA 2015). The HRA evaluated the health risks from TACs emissions from onsite diesel equipment, and the diesel particulate matter (DPM) emissions were used as a surrogate for the TACs emissions in the HRA. Currently, there are no approved acute risk values for DPM. Therefore, the HRA analyzed cancer and chronic health risks from DPM emissions. DPM was assumed to be best represented by PM_{10} emitted as a result of fuel combustion. Details on the methodology and calculations are included in the HRA technical memorandum provided in Appendix B2.

5.3.4.2 Significance Criteria

According to Section 15002(g) of the CEQA Guidelines, "a significant effect on the environment is defined as a substantial adverse change in the physical conditions which exist in the area affected by the proposed project." As stated in Section 15064(b) of the CEQA Guidelines, the significance of an activity may vary with the setting. Per Appendix G of the CEQA Guidelines, the potential significance of project-related impacts on air quality were evaluated for each of the criteria listed in Table 5.3-4, as discussed in Section 5.3.4.3.

CEQA Guidelines state that the significance criteria established by the air quality management or air pollution control district may be relied on to make impact determinations. The GAMAQI (SJVAPCD, 2015a) provides recommended air quality emission thresholds for CO, NO_x, ROG, SO_2, $PM_{10,}$ and $PM_{2.5}$ for evaluating the significance of project emissions. If the emissions are below the significance thresholds, impacts would be considered less than significant. If the construction- or operations-phase emissions are greater than the significance thresholds, impacts during that phase would be considered significant.

At this time, it is not scientifically possible to connect a pollutant's general health effects to the health impacts that would result from a project's criteria pollutant emissions. Accurate prediction and analysis of the specific health consequences associated with criteria pollutants from an individual project are not feasible. Unlike the predictive health risk assessments currently conducted using statewide guidance to evaluate human exposures to project-related TAC emissions, no proven approaches or guidance are available for this type of project-specific health study for criteria pollutant emissions.

In this project analysis, the comparison of estimated emissions to SJVAPCD's numerical thresholds for criteria pollutants is used as a surrogate for evaluation of potential health impacts. As described previously, the NAAQS and CAAQS are scientifically substantiated, numerical concentrations of criteria air pollutants considered to be protective of human health. SJVAPCD's air quality thresholds of significance for project-level CEQA evaluation are used to evaluate the extent to which a project's emissions of criteria air pollutants and precursors would contribute to regional degradation of ambient air quality. SJVAPCD has determined that projects that emit criteria air pollutants and ozone precursors at levels below the

thresholds would not impede the air basin's capacity to attain the NAAQS and CAAQS under the emissions inventory found in the applicable SIPs and air quality plans. As a result, the SJVAPCD thresholds are tied to achieving or maintaining attainment designations with the health-protective NAAQS and CAAQS.

Table 5.3-5 presents the SJVAPCD air quality significance thresholds applicable to the project (SJVAPCD 2015c):

Table 5.3-5. SJVAPCD Air Quality Thresholds of Significance – Criteria Pollutants

Alternative	Emissions (tons per year)					
	CO	NO_x	ROG	SO_2	PM_{10}	$PM_{2.5}$
Construction Emission Thresholds	100	10	10	27	15	15
Operation Emissions (Permitted Equipment and Activities)	100	10	10	27	15	15
Operation Emissions (Non-Permitted Equipment and Activities)	100	10	10	27	15	15

Source: SJVAPCD, 2015c

In addition, SJVAPCD recommends that an ambient air quality analysis be performed when the increase in onsite emissions from construction activities exceeds 100 pounds per day screening level of any criteria pollutant after implementing all enforceable mitigation measures (SJVAPCD, 2015a).

5.3.4.3 Applicant-Proposed Measures and Best Management Practices

The project will implement the following APMs and BMPs:

Construction

APM AIR-1: PG&E Dust Control During Construction

PG&E will implement measures to control fugitive dust in compliance with SJVAPCD standards. Dust control measures will include the following at a minimum:

- All exposed surfaces with the potential of dust-generating will be watered or covered with coarse rock to reduce the potential for airborne dust from leaving the site.
- The simultaneous occurrence of more than two ground disturbing construction phases on the same area at any one time will be limited. Activities will be phased to reduce the amount of disturbed surfaces at any one time.
- Cover all haul trucks entering/leaving the site and trim their loads as necessary.
- Use wet power vacuum street sweepers to sweep all paved access road, parking areas, staging areas, and public roads adjacent to project sites on a daily basis (at minimum) during construction. The use of dry power sweeping is prohibited.
- All trucks and equipment, including their tires, will be washed off prior to leaving project sites.
- Apply gravel or non-toxic soil stabilizers on all unpaved access roads, parking areas, and staging areas at project sites.
- Water and/or cover soil stockpiles daily.
- Vegetative ground cover will be planted in disturbed areas as soon as possible and watered appropriately until vegetation is established.
- All vehicle speeds will be limited to 15 mph or less on unpaved areas.
- Implement dust monitoring in compliance with the standards of the local air district.

- Halt construction during any periods when wind speeds are in excess of 50 mph.

BMP AIR-1: LEU Dust Control During Construction

LEU will implement measures to control fugitive dust in compliance with SJVAPCD standards. Dust control measures will include the following at a minimum:

- All exposed surfaces with the potential of dust-generating will be watered or covered with coarse rock to reduce the potential for airborne dust from leaving the site.
- The simultaneous occurrence of more than two ground disturbing construction phases on the same area at any one time will be limited. Activities will be phased to reduce the amount of disturbed surfaces at any one time.
- Cover all haul trucks entering/leaving the site and trim their loads as necessary.
- Use wet power vacuum street sweepers to sweep all paved access road, parking areas, staging areas, and public roads adjacent to project sites on a daily basis (at minimum) during construction. The use of dry power sweeping is prohibited.
- All trucks and equipment, including their tires, will be washed off prior to leaving project sites.
- Apply gravel or non-toxic soil stabilizers on all unpaved access roads, parking areas, and staging areas at project sites.
- Water and/or cover soil stockpiles daily.
- Vegetative ground cover will be planted in disturbed areas as soon as possible and watered appropriately until vegetation is established.
- All vehicle speeds will be limited to 15 mph or less on unpaved areas.
- Implement dust monitoring in compliance with the standards of the local air district.
- Halt construction during any periods when wind speeds are in excess of 50 mph.

Operation and Maintenance

PG&E and LEU will employ standard best practices —such as minimizing vehicle trips through proper planning of the O&M activities and keeping vehicles and equipment well maintained—during operation of the project.

5.3.4.4 Potential Impacts

Project impacts on air quality were evaluated against the CEQA significance criteria, as discussed in the following sections. This section evaluates potential project impacts from both the construction phase and operation and maintenance phase.

As described in Chapter 3, Project Description, the project will provide a new 230 kV transmission source in northern San Joaquin County, in central California. The project includes extending an existing PG&E 230 kV transmission line through PG&E Lockeford Substation to a new PG&E Thurman Switching Station in Lodi, California, by installing new tubular steel poles and conductors for approximately 11 miles. PG&E Lockeford Substation will be expanded on existing substation property to accommodate the new 230 kV facility. PG&E Thurman Switching Station will transfer the new 230 kV source to the new adjacent LEU 230/60 kV Guild Substation. LEU Guild Substation will transfer the 60 kV power to the existing adjacent LEU 60 kV Industrial Substation, which will be modified to receive the new LEU 60 kV lines (via the new 230 kV source) and to disconnect the existing PG&E 60 kV sources. When disconnected, the three existing PG&E 60 kV lines will be partially removed and reconfigured mainly within their existing alignments to continue operation between PG&E Lockeford and Lodi substations. LEU distribution and the third-party telecommunication underbuild on PG&E 60 kV line portions being removed will be relocated by the respective utility owner to within or adjacent to other existing alignments. An existing PG&E distribution

line will be extended underground approximately 500 feet in franchise to provide a permanent secondary service line to PG&E Thurman Switching Station. PG&E project-related work to update communication between facilities and the protection scheme system also will occur within the existing fence lines of remote-end substations Brighton, Bellota, Lodi, and Rio Oso, and a communication facility, Clayton Hill Repeater Station.

a) Conflict with or obstruct implementation of the applicable air quality plan? *Less-than-Significant Impact.*

Air quality plans provide an overview of the region's air quality and identify the pollution-control measures needed to expeditiously attain and maintain air quality standards. The air quality plans applicable to the area are listed in Section 5.3.2.3, and the applicable SJVAPCD air quality rules are discussed in Section 5.3.1.3. These air quality plans propose emission-reduction measures that are designed to bring the region into attainment of the CAAQS and NAAQS. Federal, state, and regional air quality regulations and rules were developed by incorporating the requirements from the air quality plans to ensure the implementation of these plans. Construction and operation of the project would comply with applicable federal, state, and local regulations described in Section 5.3.1, as further discussed in this section. Because the regional air regulations and rules are developed to ensure the implementation of the regional air quality plans, compliance with these regulations indicates that the Project's activities would not obstruct implementation of the air quality plans of the region.

In addition to the air quality regulations and rules, SJVAPCD adopted emission thresholds for CEQA evaluation to ensure that the project emissions would not conflict or hinder the implementation of the air quality plans. Therefore, consistency with the air quality plans and standards is also analyzed by evaluating whether the Project's emissions would exceed the SJVAPCD CEQA significance thresholds.

Annual Construction Emissions

PG&E Potential Impact Discussion

Construction activities would cause temporary air pollutant emissions. The project construction activities would occur at multiple PG&E sites from 2026 to 2029 and include the following activities:

- PG&E 230 kV Transmission Line
- PG&E Lockeford Substation expansion
- PG&E Thurman Switching Station construction with communication and secondary station service components
- PG&E remote-end substations and PG&E Clayton Hill Repeater Station modification
- PG&E 60 kV power lines reconfiguration

A summary of the annual construction emissions from PG&E portion of the construction are provided in Table 5.3-6. The emissions include those from the onsite offroad construction equipment, offsite onroad vehicles such as worker commute and haul trucks, and fugitive dust emissions associated with earthmoving activities and re-entrained road dust from pave and unpaved roads. Worst-case construction emissions would occur in 2027 when construction activities occur simultaneously at multiple sites. Anticipated construction schedule, equipment usage data, and emission calculation of each activity are in Appendix B1a.

Table 5.3-6. Construction Emissions from PG&E Construction Sites

PG&E Site	Total Annual Emissions (tons per year)					
	ROG	CO	NOx	SO_2	PM_{10}	$PM_{2.5}$
Construction Year 2026	0.19	1.95	2.51	0.01	3.72	0.46
Construction Year 2027	0.93	5.79	4.74	0.06	4.57	0.58
Construction Year 2028	0.11	1.37	1.00	0.00	0.63	0.08
Construction Year 2029	0.03	0.43	0.31	0.00	0.17	0.02

As shown, project construction emissions for the PG&E portion of the project would be lower than the SJVAPCD CEQA thresholds for all pollutants analyzed. In addition, implementation of the APM AIR-1 during project construction would further reduce or minimize the construction emissions from the project. Potential fugitive dust control emissions would be reduced by approximately 55% with watering the unpaved roads twice a day as part of the implementation of APM AIR-1. Therefore, the PG&E portion of the project would not conflict or obstruct implementation of the applicable air quality plan, thus would have less-than-significant impacts during construction.

LEU Potential Impact Discussion

Construction emissions for LEU portion of the project are in Appendix B1b and summarized in Table 5.3-7.

Table 5.3-7. Construction Emissions from LEU Construction Sites

LEU Site	Total Emissions with Multiple Projects (tons per year)					
	ROG	CO	NOx	SO_2	PM_{10}	$PM_{2.5}$
Construction Year 2027	0.20	1.37	1.45	0.01	1.30	0.26
Construction Year 2028	0.01	0.10	0.12	0.00	0.00	0.00

Source: City of Lodi 2022.

As shown, project construction emissions for the LEU portion of the project would be lower than the SJVAPCD CEQA thresholds for all pollutants analyzed. In addition, implementation of BMP AIR-1 during project construction would further reduce or minimize the construction emissions from the project and provide compliance with the City of Lodi air quality regulation. Therefore, the LEU portion of the project would not conflict or obstruct implementation of the applicable air quality plan, thus would have less-than-significant impacts during construction.

Total Project Potential Impact Discussion

Total project construction emissions from the PG&E project portions and LEU project portions are summarized in Table 5.3-8 and compared to the SJVAPCD CEQA thresholds for construction.

Table 5.3-8. Total Project Construction Emissions

Total Project	Total Construction Emissions (tons per year)					
	ROG	CO	NOx	SO_2	PM_{10}	$PM_{2.5}$
Construction Year 2026	0.19	1.95	2.51	0.01	3.72	0.46
Construction Year 2027	1.12	7.16	6.10	0.06	5.87	0.84
Construction Year 2028	0.12	1.46	1.12	0.00	0.64	0.09
Construction Year 2029	0.03	0.43	0.31	0.00	0.17	0.02
SJVAPCD Annual Construction Emission Thresholds	10	100	10	27	15	15
Exceed Threshold?	No	No	No	No	No	No

As shown, total project construction emissions would be lower than the SJVAPCD CEQA thresholds for all pollutants analyzed. In addition, implementation of APM AIR-1 and BMP AIR-1 during project construction would further reduce or minimize the construction emissions from the project. Therefore, the project would not conflict or obstruct implementation of the applicable air quality plan, and would have less-than-significant impacts during construction.

Construction emissions from the project is estimated to exceed 2 tons per year in 2026 and 2027 for NOx and PM_{10}. Therefore, construction of the project will be subject to SJVAPCD Rule 9510 ISR requirements. The project will comply with Rule 9510 requirements to reduce the NO_x and PM_{10} construction emissions by 20 percent and 45 percent, respectively, as required by Rule 9510. Emissions would be reduced through either onsite emission reduction, offsite emission offset, or a combination of the two.

Daily Onsite Construction Emissions and Localized Impacts

Emissions occurring at or near the project area have the potential to create a localized impact also referred to as an air pollutant hotspot. Localized emissions are considered significant if, when combined with background emissions, they would result in exceedance of an air quality standard. The SJVAPCD has provided guidance for screening localized impacts in the *Guidance for Assessing and Mitigating Air Quality Impacts* that establishes a screening threshold of 100 pounds per day of any criteria pollutant. If a project exceeds this screening threshold, then ambient air quality modeling would be necessary. If the project does not exceed 100 pounds per day of any criteria pollutant, then it can be assumed that it will not cause a violation of an ambient air quality standard.

PG&E Potential Impact Discussion

Maximum daily onsite construction emissions from each PG&E site were estimated based on the construction schedules and the anticipated overlapping construction activities that would potentially occur on a same day. Onsite emissions include only those from the offroad construction equipment and water trucks that would be operating at a construction site. Emissions from worker commute, pickup trucks, and haul trucks are not included in the onsite emissions. The worst-case daily emissions from all PG&E construction sites were summarized in in Table 5.3-9. As shown in the table, worst-case daily emissions of the criteria pollutants from the PG&E construction sites would be below the 100 lbs/day screening level.

Table 5.3-9. Onsite Daily Construction Emissions from PG&E Construction Sites

PG&E Site	Onsite Daily Emissions (lbs/day)					
	ROG	CO	NOx	SO_2	PM_{10}	$PM_{2.5}$
Construction Year 2026	6.95	65.35	62.19	0.14	3.04	2.35
Construction Year 2027	25.62	86.47	55.56	1.59	3.37	2.06
Construction Year 2028	1.55	19.76	13.57	0.04	1.03	0.53
Construction Year 2029	1.55	19.76	13.57	0.04	0.57	0.53
SJVAPCD Air Quality Screening Thresholds	100	100	100	100	100	100

Localized PG&E construction impacts will be short-term in nature lasting only during the duration of construction. The onsite construction emissions will be less than 100 lbs/day for each of the criteria pollutants from the PG&E construction sites. Therefore, further analysis of localized air quality impacts using air dispersion modeling is not needed. Air quality impacts associated with PG&E's portion of the project will be less than significant.

LEU Potential Impact Discussion

Maximum daily emissions from the LEU construction site were obtained from the LEU (refer to Appendix B1b) and are summarized in Table 5.3-10.

Table 5.3-10. Onsite Daily Construction Emissions from LEU Construction Site

LEU Site	Onsite Daily Emissions (lbs/day)					
	ROG	CO	NOx	SO_2	PM_{10}	$PM_{2.5}$
Construction Year 2027	6.01	41.53	44.35	0.15	9.92	6.06
Construction Year 2028	1.96	12.10	16.21	0.04	0.62	0.57
SJVAPCD Air Quality Screening Thresholds	100	100	100	100	100	100

Source: City of Lodi 2022.

Localized LEU construction impacts will be short-term in nature lasting only during the duration of construction. The onsite construction emissions will be less than 100 pounds per day (lbs/day) for each of the criteria pollutants from the LEU construction sites. Additionally, LEU's portion of the project would comply with the City of Lodi and San Joaquin County regulations. Therefore, further analysis of localized air quality impacts using air dispersion modeling is not needed. Air quality impacts associated with LEU's portion of the project will be less than significant.

Total Project Potential Impact Discussion

The PG&E's Thurman Switching Station construction site and the LEU's Guild Substation construction site are adjacent sites in the City of Lodi. In addition, construction activities of PG&E's Thurman Switching Station microwave tower and part of the construction activities of the PG&E12 kV service line extension also would occur at PG&E Thurman Switching station. Therefore, onsite emissions from PG&E Thurman Switching Station and LEU Guild Substation, microwave tower at Thurman Switching Station, 12 kV service line, and the LEU Guild Substation constructions were combined and compared with the SJVAPCD screening emission levels. The combined emissions are shown in Table 5.3-11. The combined daily emissions from these two sites would be below the 100 lbs/day screening level.

Table 5.3-11. Onsite Daily Construction Emissions from Combined PG&E Thurman Switching Station and LEU Guild Substation Sites

	Onsite Emissions (lbs/day)					
	ROG	CO	NOx	SO_2	PM_{10}	$PM_{2.5}$
Construction Year 2026	2.87	28.26	26.16	0.05	1.11	1.04
Construction Year 2027	6.89	67.93	54.12	0.17	9.92	6.06
Construction Year 2028	1.96	12.10	16.21	0.04	0.62	0.57
Construction Year 2029	0.00	0.00	0.00	0.00	0.00	0.00
SJVAPCD Air Quality Screening Thresholds	100	100	100	100	100	100

Localized construction impacts will be short-term in nature lasting only during the duration of construction. The onsite construction emissions will be less than 100 lbs/day for each of the criteria pollutants from the PG&E construction sites and the LEU construction site. Therefore, further analysis of localized air quality impacts using air dispersion modeling is not needed. Air quality impacts will be less than significant.

Operation and Maintenance

PG&E Potential Impact Discussion

O&M activities at PG&E sites are infrequent, typically occur once or twice a month, and involve the use of offsite construction equipment, onroad vehicles, and helicopters. PG&E O&M activities may include work at:

- PG&E 230 kV Transmission Lines (72 structures)

- PG&E Thurman Switching Station PG&E modified Lockeford Substation

Emissions from O&M activities were quantified using methodologies described in Section 5.3.4.1. A summary of the emissions is provided in Table 5.3-12. Details of the emission calculations are in Appendix B1a.

Emissions from PG&E's performance of O&M activities on its portion of the project would be lower than the SJVAPCD significance thresholds. Operation of the project would comply with applicable federal, state, and local rules and regulations discussed in Section 5.3.1. Therefore, the project would not conflict with or obstruct implementation of the applicable air quality plan, and there would be a less-than-significant impact for PG&E's portion of the project.

LEU Potential Impact Discussion

LEU O&M emissions would be from equipment and vehicles used for routine equipment testing, monitoring, and repair. Emissions are anticipated to be minimal as evaluated in the CalEEMod emission summary provided in Appendix B1b (City of Lodi 2022) and summarized in Table 5.3-12.

Emissions from LEU's performance of O&M activities on its portion of the project would be lower than the SJVAPCD significance thresholds. Operation of the project would and comply with applicable federal, state, and local rules and regulations discussed in Section 5.3.1. Therefore, the project would not conflict with or obstruct implementation of the applicable air quality plan, and there would be a less-than-significant impact for LEU's portion of the project.

Total Project Potential Impact Discussion

Total emissions from O&M activities at PG&E and LEU sites, as shown in Table 5.3-12, would be below the SJVAPCD CEQA thresholds for project operation.

Table 5.3-12. Total Project Operation and Maintenance Activities Emissions

	Annual Emissions (ton/year)					
Sites	ROG	CO	NOx	SOx	PM_{10}	$PM_{2.5}$
PG&E Sites	0.017	0.035	0.020	0.001	0.005	0.002
LEU Sites	0.530	0.110	0.130	0.001	0.009	0.009
Total	0.547	0.145	0.153	0.002	0.014	0.011
SJVAPCD CEQA Thresholds	10	100	10	27	15	15

In summary, the project would have construction and operation emissions lower than the SJVAPCD air emissions significance thresholds. Construction and operation of the project would implement measures and comply with applicable federal, state, and local rules and regulations. Therefore, the project would not conflict with or obstruct implementation of the applicable air quality plan, and there would be a less-than-significant impact.

b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard? *Less-than-Significant Impact.*

PG&E Potential Impact Discussion

Under federal standards, SJVAB has been designated by the EPA as nonattainment for O_3 and $PM_{2.5}$ under NAAQS. Under state standards, SJVAB has been designated as nonattainment for O_3, PM_{10}, and $PM_{2.5}$. As shown in Tables 5.3.6 and 5.3-12, the project construction and operation emissions of the nonattainment pollutants of PM_{10}, $PM_{2.5}$, and O_3 precursors, VOCs and NOx, would not exceed the SJVAPCD CEQA emission thresholds.

The SJVAPCD (2015) has determined that any project that would individually have a significant air quality impact would also be considered to have a significant cumulative air quality impact. As shown in Table 5.3-9, construction of the PG&E portion of the project will lead to a temporary increase in criteria air pollutants; however, these short-term construction emissions will not exceed the applicable significance thresholds for any criteria pollutant for which the region is non-attainment. To reduce fugitive dust emissions, PG&E will implement APM AIR-1, which includes applying water to exposed areas, as needed, and reducing vehicle speeds on unpaved areas. Potential fugitive dust control emissions would be reduced by approximately 55% with watering the unpaved roads twice a day as part of the implementation of APM AIR-1. Even before implementation of APM AIR-1, all criteria air pollutant emissions will be below the applicable SJVAPCD thresholds. Operation emissions of the PG&E portion of the project would be minimal as shown in Table 5.3-12. Therefore, the PG&E portion of the project would not result in a cumulatively considerable net increase of any pollutants for which the region is in nonattainment under NAAQS and CAAQS, and there would be a less-than-significant impact.

LEU Potential Impact Discussion

Under federal standards, SJVAB has been designated by the EPA as nonattainment for O_3 and $PM_{2.5}$ under NAAQS. Under state standards, SJVAB has been designated as nonattainment for O_3, PM_{10}, and $PM_{2.5}$. As shown in Table 5.3.7 and Table 5.3-12, the project construction and operation emissions of the nonattainment pollutants of PM_{10}, $PM_{2.5}$, and ozone precursors, VOCs and NOx, would not exceed the SJVAPCD CEQA emission thresholds.

The SJVAPCD (2015) has determined that any project that would individually have a significant air quality impact would also be considered to have a significant cumulative air quality impact. As shown in Table 5.3-10, construction of the LEU portion of the project will lead to a temporary increase in criteria air pollutants; however, these short-term construction emissions will not exceed the applicable significance thresholds for any criteria pollutant for which the region is non-attainment. To reduce fugitive dust emissions and be compliant with the City of Lodi air quality regulation, LEU will implement BMP AIR-1, which includes applying water to exposed areas, as needed, and reducing vehicle speeds on unpaved areas. Even before implementation of BMP AIR-1, all criteria air pollutant emissions will be below the applicable SJVAPCD thresholds. Operation emissions of the LEU portion of the project would be minimal as shown in Table 5.3-12. Therefore, the LEU portion of the project would not result in a cumulatively considerable net increase of any pollutants for which the region is in nonattainment under NAAQS and CAAQS, and there would be a less-than-significant impact.

Project Potential Impact Discussion

The project would not result in a cumulatively considerable net increase of any pollutants for which the region is in nonattainment under NAAQS and CAAQS, and there would be a less-than-significant impact.

c) Expose sensitive receptors to substantial pollutant concentrations? *Less-than-Significant Impact.*

Potential Pollutant Concentrations

The project will not expose sensitive receptors to substantial pollutant concentrations. Construction activities will involve the operation of heavy equipment and activities that will temporarily produce additional dust and air emissions.

PG&E Potential Impact Discussion

Construction will be spread across the approximately 10.6-mile transmission line alignment and adjacent stations. Most of the project area is within rural agricultural areas and open spaces with few sensitive receptors. As described in Section 5.13, Noise, approximately a total of 92 residential properties are located within 1,000 feet of the project area (refer to Figure 5.3-1). These sensitive receptors could be affected by construction-generated air emissions depending on location, distance, and duration of construction activities; however, exposure will be periodic and temporary.

Residences located near the helicopter landing zones and laydown yards may experience increased dust during helicopter take-off and landing activities. However, helicopter activities will be limited (where access or local terrain conditions prohibit the work from being conducted by ground-based crews and equipment, or during conductor installation and removal activities), and will occur for about 50 days for the 230 kV transmission line construction during the 2026 to 2029 construction period. In addition, the implementation of APM AIR-1 will control fugitive dust in the area through watering or use of a soil stabilizer.

In addition, as shown in Tables 5.3-10 and 5.3-11, criteria pollutants from the PG&E construction sites and the combined PG&E Thurman Switching Station and LEU's Guild Substation would be below the 100 lbs/day screening level, indicating that the project is unlikely to cause violations to the ambient air quality standards that were developed to protect public health. Therefore, the PG&E portion of the project would not expose sensitive receptors to substantial criteria pollutants concentrations.

LEU Potential Impact Discussion

There are no schools, hospitals, daycare centers within 1,000 feet from the LEU portion of the project (refer to Figure 5.3-1 and Figure 5.13-1). One residence is located approximately 760 feet from the eastern most LEU construction work area. Implementation of BMP AIR-1 will control fugitive dust associated with the HDD excavation through watering. As shown in Table 5.3-11, criteria pollutants from the combined PG&E Thurman Switching Station and LEU Guild Substation would be below the 100 lbs/day screening level, indicating that the project is unlikely to cause violations to the ambient air quality standards that were developed to protect public health. Because construction emissions from the Project will be short term and will not exceed SJVAPCD construction thresholds, no sensitive receptors will be exposed to substantial pollutant concentrations. Operation of the Project will be unmanned with periodic site visits for maintenance. Minimal emissions from operation and maintenance will not expose sensitive receptors to substantial pollutant concentrations. Therefore, the LEU portion of the project would not expose sensitive receptors to substantial criteria pollutants concentrations.

Valley Fever

PG&E Potential Impact Discussion

Construction activities have the potential to generate fugitive dust that may suspend Coccidioides spores and expose sensitive receptors. The project is not expected to result in significant Valley Fever-related impacts because construction will occur mostly in areas where soils have been regularly disturbed by agricultural activities and urban development. Further, employers in California are required to provide their workers National Institute for Occupational Safety and Health (NIOSH)-approved respiratory protection with particulate filters rated as N95, N99, N100, P100, or high-efficiency particulate air (HEPA) (Cal/OSHA 2017). Fugitive dust control measures implemented by APM AIR-1, such as wetting the soil, will reduce fugitive dust minimizing exposure of Coccidioides spores to workers and receptors. Therefore, impacts related to Valley Fever exposure on PG&E's portion of the project will be less than significant.

LEU Potential Impact Discussion

Construction activities have the potential to generate fugitive dust that may suspend Coccidioides spores and expose sensitive receptors. The project is not expected to result in significant Valley Fever-related impacts because construction will occur mostly in areas where soils have been regularly disturbed by agricultural activities and urban development. Further, employers in California are required to provide their workers NIOSH-approved respiratory protection with particulate filters rated as N95, N99, N100, P100, or HEPA (Cal/OSHA 2017). Fugitive dust control measures implemented by BMP AIR-1, such as wetting the soil, will reduce fugitive dust minimizing exposure of Coccidioides spores to workers and receptors. Therefore, impacts related to Valley Fever exposure on LEU's portion of the project will be less than significant.

CO Hot Spots

CO concentrations tend to be higher at congested intersections because of the accumulation of CO emissions during vehicle idling. The project would not cause additional vehicle traffic during its operation to worsen traffic conditions at intersections in the project area. Therefore, the project is not expected to have CO hot spot impacts that cause violations to CO NAAQS or CAAQS.

Toxic Air Contaminants

Toxic air contaminants from project construction will generally be associated with DPM from diesel-fueled engines. Toxic air contaminants can result in health risks associated with exposure to DPMs from diesel vehicles and generators (CARB 1998). Although construction will involve the use of diesel-fueled vehicles, the PG&E and LEU construction phases will occur over a limited duration and will be spread over the 10.6-mile transmission line alignment and adjacent stations and project areas in the City of Lodi.

An HRA of the project was performed using methodologies consistent with the OEHHA guidance (OEHHA 2015). The HRA was performed for construction activities at locations lasting longer than 2 months in duration (OEHHA 2015). Two locations were selected for the HRA where sensitive receptors are proximate to construction activities occurring at the location for more than 2 consecutive months: (1) PG&E's Lockeford Substation, and (2) the parcel at East Thurman Road and South Guild Avenue in Lodi, which includes PG&E Thurman Switching Station and LEU Industrial and Guild substations.

The HRA evaluated the health risks from onsite diesel equipment emissions and particulate matter (DPM) emissions were used as the surrogate for the toxic air contaminant emitted during construction. Offsite emissions resulting from material haul truck trips, worker commute trips, short haul dump truck trips, long haul dump truck trips, inspector vehicle trips, and mechanics truck trips were not included in the HRA, as they are not expected to significantly contribute to localized health impacts from the two construction locations being evaluated.

The results of the screening HRA for construction activities associated with the two locations described previously are shown in Table 5.3-13. The excess cancer risks are less than the significance threshold of 20 in 1 million. The chronic hazard indices are less than the significance threshold of 1.0. The MEIR for both the cancer risk and chronic hazard index for PG&E Thurman Switching Station and LEU Guild Substation is located approximately 1,145 feet west of the northwest corner fence line of PG&E Thurman Switching station project site. The MEIR for both the cancer risk and chronic hazard index for PG&E Lockeford Substation is located approximately 100 feet south of PG&E Lockeford Substation project area. Therefore, predicted impacts associated with these construction activities are less than significant. Detailed HRA methodologies and descriptions of the results are in Appendix B2.

Table 5.3-13. Health Risk Assessment Results

Construction Location	Risk	MEIR	MEIW	Maximum Exposed Sensitive Receptor
PG&E Thurman Switching Station	Cancer Risk (in a million) Significance Threshold = 20 in 1 million	1.23	0.18	0.40
	Chronic Hazard Index Significance Threshold = 1.0	0.0018	0.0144	0.0006
LEU Guild Substation	Cancer Risk (in a million) Significance Threshold = 20 in 1 million	1.23	0.13	0.37
	Chronic Hazard Index Significance Threshold = 1.0	0.0018	0.0102	0.0005
PG&E Thurman Switching Station &	Cancer Risk (in a million) Significance Threshold = 20 in 1 million	2.46	0.28	0.77

Construction Location	Risk	MEIR	MEIW	Maximum Exposed Sensitive Receptor
LEU Guild Substation Combined	Chronic Hazard Index Significance Threshold = 1.0	0.035	0.0227	0.0011
PG&E Lockeford Substation	Cancer Risk (in a million) Significance Threshold = 20 in 1 million	7.43	0.19	0.07
	Chronic Hazard Index Significance Threshold = 1.0	0.0047	0.0053	0.00005

MEIR = Maximally Exposed Individual Resident

MEIW = Maximally Exposed Individual Worker

Maximum Exposed Sensitive Receptor is a preschool, K-12 school, or medical facility.

d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people? *Less-than-Significant Impact.*

PG&E Potential Impact Discussion

PG&E construction of its portion of the project will not result in other emissions including those leading to odors that will adversely affect a substantial number of people. Typical odor nuisances include hydrogen sulfide, ammonia, chlorine, and other sulfide-related emissions. However, no significant sources of these pollutants will be used during construction. Construction of the project will require use of diesel-based equipment that will result in emissions of diesel fumes. Diesel odors from construction may be perceived as objectionable in lower concentrations than required to cause a health risk. However, any odors from construction will be periodic and temporary in nature. Therefore, impacts related to odors and other emissions during construction will be less than significant for PG&E's portion of the project.

LEU Potential Impact Discussion

LEU construction of its portion of the project will not result in other emissions including those leading to odors that will adversely affect a substantial number of people. Typical odor nuisances include hydrogen sulfide, ammonia, chlorine, and other sulfide-related emissions. However, no significant sources of these pollutants will be used during construction. Construction of the project will require use of diesel-based equipment that will result in emissions of diesel fumes. Diesel odors from construction may be perceived as objectionable in lower concentrations than required to cause a health risk. However, any odors from construction will be periodic and temporary in nature. LEU will be compliant with the City of Lodi air quality regulation. Therefore, impacts related to odors and other emissions during construction will be less than significant for LEU's portion of the project.

5.4 Biological Resources

This section describes biological resources (vegetation, wildlife, and aquatic resources) in the biological study area (BSA), identifies potential impacts on sensitive habitats and species that could result from the implementation of the project, and concludes that impacts on biological resources will be less than significant.

Incorporation of the measures described in Section 5.4.4.2 will further minimize potential less-than-significant project impacts to biological resources. The project's potential effects on biological resources were evaluated using the significance criteria set forth in Appendix G of the CEQA Guidelines. Project description information and potential impacts are organized and discussed by each participating utility's portion of the project. The conclusions are summarized in Table 5.4-4 and are discussed in more detail in Section 5.4.4. Figure 5.4-1 identifies project components and the BSA for the project.

5.4.1 Methodology and Environmental Setting

5.4.1.1 Methodology

This section summarizes the methods used to identify biological resources, including waters, wetlands, and special-status plants and wildlife species, and analyze potential impacts.

The project footprint is defined as the area that may be directly affected by the proposed project, including temporary and permanent impacts, and represents the maximum extent of ground-disturbing activities at potential work areas (including new proposed structure locations, staging areas, and new proposed substations). The BSA covers approximately 387 acres and includes a 250-foot-wide buffer around the proposed project facilities and potential work areas, and a 50-foot-wide buffer around proposed access roads to the work areas. Based on CPUC guidelines, the BSA should include a 1,000-foot-wide buffer around project facilities. Following a desktop review of aerial imagery up to 1,000 feet from project facilities, this BSA was reduced in size during focused field surveys because there is minimal natural or undisturbed land cover types within 1,000 feet; there are limited ground-disturbing activities in defined work areas; the surrounding landscape generally is flat, which limits potential for erosion, sedimentation, and other indirect effects; the project footprint will be restored to pre-existing conditions; the majority of upland habitat observed throughout the BSA is either hardscaped (pavement and sidewalks) or otherwise developed/landscaped, agriculture, or disturbed habitat; and there is constrained access because of surrounding private property along the project's ROW. Each participating utility's portion of the project is identified where sensitive biological resources within the BSA are nearby.

Special-status plants include species meeting one or more of the following criteria:

- Listed, proposed for listing, or candidate for listing as threatened or endangered under the federal Endangered Species Act (ESA; 50 CFR 17.11 for wildlife; 50 CFR 17.12 for plants; 67 Federal Register [FR] 40658 for candidate species, and various notices in the Federal Register for proposed species).
- Listed under the California Endangered Species Act (CESA) as threatened or endangered, or proposed or candidates for listing.
- Designated as rare under the Native Plant Protection Act.
- Species that otherwise meet the definition of rare, threatened, or endangered species under CEQA Guidelines Section 15380. This includes species listed by the California Native Plant Society (CNPS) in the online version of its Inventory of Rare, Threatened, and Endangered Plants of California (CNPS 2022) as List 1A, 1B, 2A, 2B, 3, or 4.

Special-status wildlife includes species that meet one or more of the following criteria:

- Listed, proposed for listing, or candidate for listing as threatened or endangered under ESA
- Listed or candidate for listing as threatened or endangered under CESA
- Designated as a Species of Special Concern (SSC) or a Fully Protected (FP) species by the California Department of Fish and Wildlife (CDFW)
- Designated as Birds of Conservation Concern (BCC) by the U.S. Fish and Wildlife Service (USFWS)
- Species that otherwise meet the definition of rare, threatened, or endangered species under CEQA Guidelines Section 15380

Bird species protected under the federal Bald and Golden Eagle Protection Act (BGEPA) and bat species considered by the Western Bat Working Group to be "high" or "medium" priority (Western Bat Working Group 2017) also are considered and are deemed special status where they meet criteria as listed previously.

Natural communities are considered to be special status if they are identified on the CDFW List of Vegetation Alliances and Associations as being highly imperiled, also classified by CDFW as ranks S1 to S3 in the California Natural Diversity Database (CNDDB; CDFW 2023) and natural communities of special concern.

Database and Literature Review

The following biological databases were queried for records of special-status plants, natural communities, and wildlife that might have potential to occur in the project footprint:

- USFWS Information for Planning and Consultation (IPaC) list of federally listed and proposed endangered, threatened, and candidate species and their designated critical habitat (USFWS 2023a, 2023b)
- National Marine Fisheries Service (NMFS) list of federally listed and proposed endangered, threatened, and candidate species and their designated critical habitat (NMFS 2023)
- CNPS online Inventory of Rare, Threatened, and Endangered Plants of California (CNPS 2023)
- CNDDB (CDFW 2023)

A CNDDB and CNPS search for special-status species typically includes nine U.S. Geological Survey (USGS) 7.5-minute quadrangle maps for a project located within a single quadrangle—the quadrangle that covers the project footprint, and the eight quadrangles that surround the project quadrangle. However, in this case, the project footprint spanned four quadrangles; therefore, the CNDDB and CNPS species lists were generated for additional quadrangles to account for all the areas surrounding the four project quadrangles, including Linden, Lockeford, Waterloo, Lodi North, Clay, Goose Creek, Clements, Wallace, Valley Springs SW, Farmington, Peters, Stockton East, Stockton West, Lodi South, Galt, Bruceville, Thornton, and Terminous. The CNDDB search was further refined to a 5-mile buffer around the project footprint. The USFWS IPaC species list was generated for the project BSA. The NMFS species list was generated for the Linden, Waterloo, and Lodi North quadrangles.

Other information sources consulted to determine which special-status species could potentially occur in the project footprint included:

- Natural Resources Conservation Service (NRCS) Web Soil Survey, to obtain information about soils in the BSA (NRCS 2022)
- *San Joaquin County Multi-Species Habitat Conservation and Open Space Plan* (SJMSCP), to obtain information about special-status species in the BSA (San Joaquin County 2000)

- *San Joaquin Valley Operation & Maintenance Habitat Conservation Plan* (SJVHCP), to obtain information about covered activities and covered species (PG&E 2006)
- Aerial photographs
- *Jepson Manual: Vascular Plants of California* (Baldwin et al. 2012)

Field Surveys

Biologists surveyed all undeveloped areas in the BSA that might include habitat for sensitive biological resources. The surveys described in the following subsections were conducted for the project.

Reconnaissance Surveys

A general biological reconnaissance survey was conducted on December 11, 2019, by Jacobs biologists, Mia Marek and Kyle Brown. It entailed walking meandering transects in the BSA and surveying areas with potential to support special-status fauna, flora, and other sensitive biological resources as identified in desktop-level reviews. The following tasks were conducted during the reconnaissance-level survey:

- Vegetation communities and habitat types were identified and characterized in the BSA and evaluated for special-status plant suitability.
- Baseline data were collected for special-status wildlife species. Potential habitat for various special status species was observed and recorded. Uplands and aquatic features in the biological resources survey area were evaluated to determine habitat suitability.

A follow-up biological reconnaissance survey was conducted on August 11, 2022, by Jacobs biologists, Mia Marek and Stephanie Owens to assess the BSA where it was expanded to encompass additional proposed work areas associated with refined PG&E new 230 kV structure locations and 60 kV line reconfiguration and extension along the PG&E Lockeford-Industrial, PG&E Lodi-Industrial, PG&E Industrial Tap, and PG&E Lockeford-Lodi No. 2.

Botanical Surveys

Prior to conducting the botanical surveys, a desktop review of special-status species' occurrences in the vicinity of the BSA was conducted. Habitat types were identified in the BSA and evaluated for special-status plant suitability.

Botanical surveys using CDFW and CNPS protocols were conducted by Jacobs biologists Mia Marek, Kyle Brown, and Stephanie Owens and ATS wetland scientist, Russell Huddleston, on April 27 and 28, May 11, June 15, and August 6, 2021, within the BSA. The survey timing was suitable to identify special-status plant species that had potential to occur in the BSA. The surveys consisted of driving the project alignment and walking meandering transects in the BSA where potential habitat for special-status plants was present (excluding developed and residential/commercial landscaped areas). Botanical surveys were conducted in accordance with standard protocols for surveying special-status plants (CDFW 2018; USFWS 2000). The methods used and detailed results of the botanical surveys for the project are presented in the Northern San Joaquin 230 kV Transmission Project Rare Plant Report (Appendix C1).

The August 11, 2022, biological reconnaissance survey focused on potential new PG&E 230 kV structure location refinement and existing PG&E 60 kV lines reconfiguration. The survey was conducted outside of the blooming season for special-status plants with potential to occur within the BSA, but included a rare plant habitat assessment.

Aquatic Resources Delineation

Potentially jurisdictional aquatic resources within the BSA were surveyed and delineated in accordance with the U.S. Army Corps of Engineers (USACE) methods by Mia Marek, Kyle Brown, Stephanie Owens, and

Russell Huddleston on April 27 and 28, 2021, and May 11, 2021. The biological reconnaissance survey on August 11, 2022, included a survey for potentially jurisdictional aquatic resources within the additional work areas. A desktop review of the National Wetlands Inventory, National Hydrography Dataset, and California Aquatic Resource Inventory mapping databases and current and historic aerial imagery (USFWS 2022c; USGS 2021; SFEI 2020) was performed before the surveys occurred. The methods used and detailed results of the aquatic resources delineation for the project are presented in the *Northern San Joaquin 230 kV Transmission Project Aquatic Resources Delineation Report* (Appendix C2).

Likelihood of Presence of Special-Status Species

Using the information generated from literature reviews and field surveys, the list of special-status species with the potential to occur was further refined to reflect the species that may occur within the project footprint. The likelihood of special-status species occurrence was determined based on natural history parameters and the species' range, habitat, foraging needs, migration routes, and reproductive requirements using the following general categories:

- Present—Reconnaissance-level, focused, or protocol-level surveys documented the occurrence or observation of a species in the project footprint.
- Seasonally present—Individuals were observed in the project footprint, but it is only present in the area during certain times of the year.
- Likely to occur (onsite or offsite where the species may be affected by the project from noise, dust, lighting, hydrological modifications, and so on)—The species has a strong likelihood to be found in the project footprint prior to or during construction, but it has not been directly observed to date during project surveys. The likelihood that a species may occur is based on the following considerations: (1) suitable habitat that meets the life history requirements of the species is present on or near the project footprint; (2) migration routes or corridors are near or within the project footprint; (3) records of sighting are documented on or near the project footprint; and (4) there is an absence of invasive predators (for example, bullfrogs). The main assumption is that records of occurrence have been documented within or near the project footprint, the project footprint falls within the range of the species, and suitable habitat is present, but it is undetermined whether the habitat is currently occupied.
- Potential to occur—There is a possibility that the species can be found in the project footprint prior to or during construction, but it has not been directly observed to date. The likelihood that a species may occur is based on the following conditions: (1) suitable habitat that meets the life history requirements of the species is present on or near the project footprint; (2) migration routes or corridors are near or within the project footprint; and (3) there is an absence of invasive predators (for example, bullfrogs). The main assumption is that the project footprint falls within the range of the species, suitable habitat is present, but no records of sighting are located within or near the project footprint and it is undetermined whether the habitat is currently occupied.
- Unlikely to occur—The species is not likely to occur in the project footprint based on the following considerations: (1) lack of suitable habitat and features that are required to satisfy the life history requirements of the species (for example, absence of foraging habitat, lack of reproductive areas, and lack of sheltering areas); (2) presence of barriers to migration/dispersal; (3) presence of predators or invasive species that inhibit survival or occupation (for example, the presence of bullfrogs or invasive fish); (4) lack of hibernacula, hibernation areas, or estivation areas onsite.
- Absent—Suitable habitat does not exist in the project footprint, the species is restricted to or known to be present only within a specific area outside of the project footprint or focused or protocol-level surveys did not detect the species.

Unless otherwise noted, the methodology and environmental information presented in this section are summarized from the *Draft Biological Resources Technical Memorandum for the Northern San Joaquin 230 kV Transmission Project,* which is included as Appendix C3.

5.4.1.2 Environmental Setting

Regional Setting

This project is located within the Great Valley Section of the California Dry Steppe Province. The project is within the Hardpan Terraces and Sodic Claypan Terraces subsections (Miles and Goudey 1997). Geomorphology within the Hardpan Terraces subsection is described as very gently to gently sloping terraces and small areas of floodplain and alluvial fans along streams that cross from mountains to reach the Sacramento and San Joaquin rivers. The Sodic Claypan Terraces are described as nearly level to gently sloping lace Pleistocene and recent alluvial fans from the southern end of the northern California Coast Ranges (Miles and Goudey 1997).

The regional topography generally is flat with rolling hills rising to the east. Elevation ranges from approximately 135 feet above sea level at the eastern end of the project to approximately 60 feet above sea level at the western end of the project.

Regionally, streams drain to the Sacramento or San Joaquin rivers or to closed basins in the San Joaquin Valley. All but the larger streams are dry during the summer. There are no lakes in the vicinity of the BSA, but temporary ponding in vernal pools on older Pleistocene terraces or on older alluvial fans was historically common (Miles and Goudey 1997). Much of the natural hydrology in the vicinity of the project has been altered by channel realignments, diversions for irrigation, and other water control measures. In addition, the expansion of developed and agricultural land uses and associated grading have greatly altered the distribution and function of seasonal wetlands and swales.

Local Setting

The main project components are located within and to the east of the City of Lodi, California, and south of the Mokelumne River. Associated project work at PG&E remote-end substations will be entirely within existing fenced or paved substation yards and is not included in the BSA. The BSA is primarily hardscaped (pavement and sidewalks) or otherwise developed/landscaped agricultural land, or is previously disturbed, as shown on Figure 5.4-2. Surrounding these work areas are agricultural and rural residential areas. Agricultural land use is primarily wine grapes with some fruit and nut orchards, grain fields, and cattle grazing.

The dominant hydrologic features within the BSA include intermittent Paddy Creek and perennial Bear Creek, as well as constructed irrigation canals and ditches along the proposed PG&E 230 kV transmission line. Surface hydrology within the BSA primarily is influenced by stormwater runoff into drainage channels, some of which then drain to larger linear features. Paddy Creek drains westward to Bear Creek, which continues flowing to the southwest. Bear Creek outlets into Pixley Slough approximately 9 miles southwest of the project BSA, which then drains to the San Joaquin River.

Land Cover, Vegetation, and Wildlife Habitats

As discussed previously, the majority of upland habitat observed throughout the BSA is either hardscaped or otherwise developed/landscaped, agricultural land, or is disturbed habitat consisting of primarily ruderal or non-native species. Representative vegetation alliances from the *Manual of California Vegetation, Second Edition* (Sawyer et al. 2009) are referenced and discussed in the following subsections and land cover types within the BSA are shown on Figure 5.4-2. No sensitive vegetation communities or habitats identified in local plans, policies, or regulations, or as designated by CDFW or USFWS, are present within the BSA; however, sensitive vegetation communities and habitats defined by the CPUC, including wetlands and riparian habitat, are present in the BSA as discussed in the following sections. The acreages of land cover types within the BSA are shown in Table 5.4-1.

Table 5.4-1. Land Cover within the BSA

Land Cover	Acres within BSA
Tree Cover	1.97
Other Waters	1.38
Wetlands	0.20
Riparian	0.90
Grassland	59.35
Agriculture	264.53
Ruderal	2.44
Developed/Disturbed	56.28
Total	387.06

Tree Cover

Tree cover is not included in the description sections that follow because this land cover type does not correlate with representative vegetation alliances from the *Manual of California Vegetation, Second Edition* (Sawyer et al. 2009). However, this land cover type is included on Figure 5.4-2, pages 3 and 7. Tree cover, where mapped, includes planted, ornamental, or landscaped overstory trees that are not associated with agricultural land cover types.

Wetlands

Eight depressional seasonal wetlands were delineated within the BSA along the proposed PG&E 230 kV transmission line. Vegetation within the wetlands consisted of seaside barley (*Hordeum marinum*), sparse popcornflower (*Plagiobothrys* sp.), annual hairgrass (*Deschampsia danthonioides*), spikerush (*Eleocharis* sp.), and tall flatsedge (*Cyperus eragrostis*). More details on these wetlands can be found in Section 5.4.1.3.

Other Waters

Other waters within the BSA include natural watercourses such as Bear Creek and Paddy Creek, constructed watercourses, and drainage and irrigation ditches. Where emergent vegetation exists, the predominant natural plant communities are *Schoenoplectus* (*acutus*, *californicus*) Herbaceous Alliance (hardstem and California bulrush marshes), *Juncus* (*oxymeris, xiphioides*) Provisional Herbaceous Alliance (irisleaf rush seeps), and *Lolium perenne* Herbaceous Semi-Natural Alliance (perennial rye grass fields). Vegetation within the creeks and along the creek banks is variable, but predominantly includes species such as bulrush (*Schoenoplectus* ssp.), perennial ryegrass (*Festuca perennis* [*Lolium perenne*]), irisleaf rush (*Juncus xiphioides*), and curly dock (*Rumex crispus*). More details on these aquatic features can be found in Section 5.4.1.3.

Riparian

Sparse riparian vegetation occurs along the banks of Bear Creek, Paddy Creek, and a realigned tributary to Paddy Creek, where these features bisect the proposed PG&E 230 kV transmission line. Figure 5.4-2, pages 3 and 4, depict riparian habitat associated with the riverine features within the BSA. In general, the riparian corridors within the BSA are narrow, confined by steep slopes, and sparsely vegetated. Riparian vegetation within the BSA consists mostly of non-native grasses, sparse willows (*Salix* ssp.) along Bear and Paddy Creeks, and a few small, planted oaks (*Quercus agrifolia*) and black walnut trees (*Juglans* sp.) along the realigned tributary to Paddy Creek. These narrow riparian areas provide only very marginal-quality riparian corridors for terrestrial wildlife movement.

Grassland

Annual grasslands occur throughout the BSA, in pastures, along roadsides, and in other undeveloped, disturbed areas. Annual grassland can be classified most readily as annual brome grasslands, within the *Bromus* (*diandrus*, *hordeaceus*)-*Brachypodium distachyon* Herbaceous Semi-Natural Alliance and *Avena* spp.-*Bromus* spp. Herbaceous Semi-Natural Alliance, and *Lolium perenne* (*Festuca perennis*) Herbaceous Semi-Natural Alliance (perennial rye grass fields). Where these alliances occur, rip-gut brome (*Bromus diandrus)*, seaside barley, foxtail barley (*Hordeum murinum*), soft chess (*Bromus hordeaceus*), and perennial ryegrass are dominant or codominant with other non-natives such as black mustard (*Brassica nigra*), fennel (*Foeniculum vulgare*), and bristly ox-tongue (*Helminthotheca echioides*) in the herbaceous layer. Additionally, *Brassica nigra-Centaurea* (*solstitialis*, *melitensis*) Herbaceous Semi-Natural Alliance occurs within annual grasslands in low cover, most commonly near roads and other developed areas.

Agriculture

Agricultural monocultures of almond, cherry, and peach (*Prunus* spp.), as well as walnuts (*Juglans* spp.), vineyards, and corn (*Zea mays*), are dominant in the developed agricultural land throughout the BSA.

Ruderal

Ruderal habitat is common in highly disturbed areas, including along roadways, at the edges of hardscape development, and at other infrastructure areas such as levees and railroads. Ruderal habitat is characterized by a lack of vegetation or is dominated by non-native or invasive plant species such as Italian thistles (*Carduus* spp.), yellow starthistle (*Centaurea solstitialis*), black mustard, foxtail barley, filaree (*Erodium botrys*), perennial pepperweed (*Lepidium latifolium*), and stinkwort (*Dittrichia graveolens*), among others.

Brassica nigra-Centaurea (*solstitialis*, *melitensis*) Herbaceous Semi-Natural Alliance (upland mustards or starthistle fields) also is prevalent around the ruderal margins of the concrete hardscapes along creek banks and levees.

Developed/Disturbed

Developed areas include existing paved roadways and parking lots; railroad areas; residential, commercial, and industrial development; and areas where vegetation is regularly cleared. These areas lack vegetation entirely or have only scattered weedy grasses and forbs. The developed area also includes a portion of the Lodi Memorial Park and Cemetery located northeast of the intersection of East Lodi Avenue and South Guild Avenue that consists of gravestones, mowed grass, and a large stand of trees.

5.4.1.3 Wetlands and Aquatic Resources

Aquatic resources were only observed along the proposed PG&E 230 kV transmission line (Figure 5.4-3 and Appendix C2). No aquatic resources were observed within or adjacent to the LEU portion of the project. The aquatic resource delineation identified eight seasonal wetlands comprising approximately 0.200 acre, approximately 0.247 acre (approximately 359 linear feet) of natural watercourses (one perennial and one intermittent stream), approximately 0.545 acre (approximately 2,775 linear feet) of constructed watercourses, approximately 0.127 acre (approximately 1,805 linear feet) of drainage ditches, and approximately 0.152 acre (approximately 1,654 linear feet) of irrigation ditch within the BSA. The irrigation ditch was observed during the biological reconnaissance survey on August 11, 2022, at which time it was being used to irrigate a corn crop. The irrigation ditch appears to be seasonally graded and filled, along with the adjacent crop fields when not in use. The irrigation ditch was not apparent during the 2021 aquatic resource delineation surveys; however, the faint signature of the ditch is intermittently visible in aerial images going back several years (Google Earth 2022).

Wetlands

Eight depressional seasonal wetlands were delineated within the BSA along the proposed PG&E 230 kV transmission line. These wetlands are shallowly concave basins that may fill with water during wet winter months and are dry for the remainder of the year. These eight seasonal wetlands were dry at the time of the field survey. Their basins were moderately to very degraded or disturbed as a result of adjacent land use, and none represent vernal pool habitat.

Other Aquatic Features

Natural watercourses within the BSA were observed along the proposed PG&E 230 kV transmission line, including Bear Creek and Paddy Creek. Bear Creek was mostly dry during all of the field surveys, with areas of standing water. Paddy Creek was entirely dry. Only small portions of these waterways occur within the BSA, totaling approximately 0.247 acre and approximately 359 linear feet.

Three constructed watercourses were delineated within the BSA along the proposed PG&E 230 kV transmission line, including two realigned tributaries to Paddy Creek and an irrigation canal constructed in uplands. Constructed watercourses delineated within the BSA total approximately 0.545 acre and approximately 2,775 linear feet. The realigned tributaries to Paddy Creek had some standing water during the April and May 2021 surveys.

Seven drainage ditches were observed within the BSA along the proposed PG&E 230 kV transmission line and appear to flow or convey water in direct response to storm events. These features are not associated with existing streams or realigned tributaries. These drainages do not appear to convey a protracted water supply from groundwater, seepage, or other sources. Geomorphic indicators used in the delineation of drainage ditches included break in slope and debris deposits.

One irrigation ditch (ID-1) was observed within the BSA along the proposed PG&E 230 kV transmission line. The irrigation ditch is an earthen feature that appears to be maintained (excavated) annually during the growing season and is not readily apparent the remainder of the year. The irrigation ditch appears to convey flow from constructed watercourse 3 (CW-3) to cornfields (Figure 5.4-3). No indicators of active surface hydrology or of an ordinary high water mark (OHWM) were apparent during the 2021 aquatic resource delineation surveys. A constructed (excavated) OHWM and flowing surface water was apparent during the August 11, 2022, survey, demonstrating the seasonally excavated nature of the ditch. Similarly, the feature is only intermittently visible in historic aerial imagery (Google Earth 2022).

5.4.1.4 Special-Status Species

This section describes special-status species observed (present) during field surveys and any species considered to be likely to occur, have potential to occur, or that are seasonally present in the BSA. Special-status species that are unlikely to be found in the project footprint or otherwise be affected by the project are not discussed in this section and are included in Appendix C4.

The CNDDB, CNPS, NMFS, and USFWS database searches identified 71 special-status species within approximately 15 miles of the project, including 39 special-status plant species and 32 special-status wildlife species (Section 5.4.1.1, Methods; Appendix C5). There is no designated critical habitat within the vicinity of the project.

Special-status Plant Species

In the CNDDB, USFWS, and CNPS records searches, 39 special-status plant species were identified. Only two species—succulent owl's-clover (*Castilleja campestris var. succulenta*) and Sanford's arrowhead (*Sagittaria sanfordii*)—were determined to have potential to occur in and adjacent to the BSA based on the presence of potentially suitable habitat and known occurrences in the vicinity. Potentially suitable habitat for special-status plant species was observed only along the proposed PG&E 230 kV transmission line in association with delineated aquatic resources. These species are presented in Table 5.4-2 and

described in further detail in the following subsections. None of these species or other special-status plant species were observed or detected in the project footprint during the 2021 botanical surveys, and no suitable habitat was observed within the BSA of additional work areas surveyed in August 2022. The remaining species identified from the database queries were determined to be absent because the BSA (and adjacent areas that may be potentially indirectly impacted) lacks suitable habitat, and they were not observed within areas of suitable habitat during appropriately timed botanical surveys within the BSA. These species are included in Appendix C4.

Succulent Owl's-Clover

Succulent owl's-clover (*Castilleja campestris var. succulenta*) is a CNPS List 1B.2 plant that is listed as federally threatened and state endangered in California (CNPS 2023). It blooms from March or April through May and is found primarily in vernal pools along the lower foothills of the eastern San Joaquin Valley. However, it can be found in small and large pools, bowl-shaped pools and swales, shallow and deep pools, and pools with short and long inundation periods (CNPS 2023). This species also is found in valley grasslands, foothill grasslands, freshwater wetlands, poorly drained agricultural developments, and wetland-riparian areas.

There is potential for this species to occur within the BSA because there is marginally suitable habitat, including ponded areas in Bear Creek and constructed watercourses and grasslands. There are no CNDDB occurrences within 5 miles of the BSA; however, a reconnaissance survey conducted in early December of 2019 and the aquatic resources delineation conducted in April and May of 2021 indicated the presence of wetland features in portions of the BSA that could provide suitable habitat for this species. Suitable habitat for this species is not present within the project footprint, and it was not observed within areas of suitable habitat within the BSA during appropriately timed botanical surveys.

Sanford's Arrowhead

Sanford's arrowhead (*Sagittaria sanfordii*) is a CNPS List 1B.2 plant that blooms from May through October or November and occurs below elevations of approximately 650 meters (approximately 2,133 feet). It grows in slow-moving or standing freshwater ponds, ditches, wetlands, marshes, swamps, and other assorted willow freshwater resources (CNPS 2023). This species can be found associated with water plantain (*Alisma plantago-aquatica*), water primrose (*Ludwigia peploides*), and various species of cattail (*Typha* spp.).

There is potential for this species to occur within the BSA because there are marginally suitable freshwater resources, including ponded areas in Bear Creek and constructed watercourses, drainage ditches, and seasonal wetlands. There is one CNDDB occurrence within 5 miles of the BSA based on a collection from 1940 that is presumed extant. However, this species was not observed within areas of suitable habitat within the BSA during appropriately timed botanical surveys.

Special-status Wildlife Species

In the records search, 32 special-status wildlife species were identified. However, suitable habitat for only 7 of the 32 species was identified in the BSA. These species are presented in Table 5.4-3 and described further in the following subsections. The remaining species that are identified to be absent or are unlikely to occur are discussed in Appendix C4.

Valley Elderberry Longhorn Beetle

Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*; VELB) is listed as threatened under the ESA. This subspecies of longhorn beetle is strongly associated with its host plant, elderberry (*Sambucus* spp.), where it is nearly always found on or in close proximity to the plant. Elderberry species can be found along creek banks, places of organic waste disposal, farms, homesteads, and aquatic-riparian

resource areas. Exit holes on elderberry branches from larval galleries can be evident on host plants during post-mating periods.

There are five CNDDB occurrences within 5 miles of the BSA and two large elderberry shrubs were found within the BSA along the proposed PG&E 230 kV transmission line during the 2021 botanical surveys. One shrub is located just within the project footprint, next to the proposed guard structure and pull site between PG&E proposed structures W1 and W2. The other shrub is located within the fence line of PG&E Lockeford Substation, surrounded by a small patch of grassland on the eastern side of the substation's general construction yard and outside of the project footprint. Stems ranges from approximately 0.5 to up to approximately 4 inches in diameter. No exit holes were noted on the observed shrubs. No elderberry shrubs were observed adjacent to the LEU portion of the project. The VELB and its various life stages have the potential to occur in the BSA wherever elderberry is found.

Tricolored Blackbird

The tricolored blackbird (*Agelaius tricolor*) is listed as threatened under the CESA and is a CDFW SSC and a USFWS BCC. This species nests in wetlands, in triticale fields, near stock ponds, and in irrigated pastures. Foraging habitats include cultivated fields, feedlots associated with dairy farms, and wetlands. They now nest almost exclusively in triticale fields, especially those with invasive mustard or mallow plants. Females select the nesting site within a male's territory, typically close to freshwater with plenty of concealing vegetation. Females build nests in vegetation from just above ground level up to approximately 8 feet. Tricolored blackbirds typically have a 3- to 4-egg clutch size and 1 to 2 broods each breeding season. They form dense breeding colonies and defend only their nesting patch (Beedy et al. 2017). A significant decline in breeding populations is largely attributed to habitat loss and degradation (Zeiner et al. 1988-1990).

There is suitable nesting habitat in emergent vegetation along Paddy Creek and Bear Creek where these features bisect the BSA, along the proposed PG&E 230 kV transmission line. There is suitable foraging habitat throughout undeveloped grassland or pasture areas within the BSA. There are four CNDDB occurrences of tricolored blackbird within 5 miles of the BSA.

Burrowing Owl

The burrowing owl (*Athene cunicularia*) is a CDFW SSC that is primarily a grassland species, but it is known to persist and occasionally thrive in some landscapes that are altered by human activity (Rosenberg and Haley 2004). Suitable habitat characteristics include burrows for roosting and nesting and relatively short vegetation with only sparse shrubs and taller vegetation (Haug et al. 1993). Nest and roost burrows are most commonly dug by ground squirrels (*Spermophilus beecheyi*; Trulio 1997), but they may use other mammal burrows or built environment structures such as culverts, piles of concrete rubble, and pipes (Ronan 2002). Most California populations are nonmigratory and these habitat types serve for breeding, foraging, and overwintering.

Although there are no CNDDB occurrences of this species within 5 miles of the BSA, there is low potential for this species to occur in the vicinity of the proposed PG&E and LEU project footprints year-round as there are burrows within grassland or pasture areas, along the margins of vineyards, orchards, and other agricultural developments that could potentially provide nesting habitat. Suitable foraging habitat also is present in grassland or pasture areas. No burrowing owl sign (white-wash, pellets) was observed within the BSA during biological surveys. Potential nesting and foraging habitat, where it occurs, is fragmented, highly disturbed, and/or actively cultivated for agricultural use, indicating marginal or low habitat quality.

Table 5.4-2. Special-Status Plant Species with Potential to Occur in the BSA

Scientific Name/ Common Name	Status[a]			Habitat	Blooming Period	Potential for Occurrence within the BSA
	Federal	State	CNPS			
Castilleja campestris var. succulenta/ succulent owl's-clover	T	E	1B.2	Usually occurs in wetlands, occasionally occurs in non-wetlands. Habitat is vernal pools (often acidic). Occurs in vernal pools with a variety of characteristics, including small and large pools, bowl-shaped pools and swales, willow and deep pools, and pools with short and long inundation periods. Vegetation communities include valley grassland, foothill grassland, freshwater wetlands, wetland-riparian.	(Mar) Apr-May	**Potential to occur**. Although there are no CNDDB occurrences within 5 miles of the BSA, a reconnaissance survey conducted in early December of 2019 and an aquatic resources delineation conducted in April and May of 2021 indicated the presence of wetland features in portions of the BSA that could provide suitable habitat for this species. This species was not found within areas of suitable habitat during the appropriately timed botanical surveys.
Sagittaria sanfordii/ Sanford's arrowhead	—	—	1B.2	Occurs in wetlands, marshes, and swamps (assorted willow freshwater). Vegetation communities include freshwater wetlands, wetland-riparian.	May-Oct (Nov)	**Potential to occur**. Marginally suitable habitat is present in the BSA adjacent to aquatic resources such as creeks, canals, and ditches. There is one CNDDB occurrence within 5 miles of the BSA. This species was not found within areas of suitable habitat during the appropriately timed botanical surveys.

[a] Status designations are as follows:
Federal Designation:
(T) Federally Threatened
State Designation:
(E) State Endangered

CNPS California Rare Plant Rank (CRPR):
(1B) Rare, threatened, or endangered in California and elsewhere

Threat Rank:
0.2 Fairly threatened in California (20% to 80% of occurrences threatened/moderate degree and immediacy of threat)

Sources:
USFWS 2023a; CDFW 2023; CNPS 2023

Table 5.4-3. Special-Status Wildlife Species

Scientific Name/ Common Name	Status[a]			Habitat	Potential for Occurrence within the BSA
	Federal	State	CDFW		
Desmocerus californicus dimorphus/ Valley elderberry longhorn beetle	T	—	—	Valley elderberry longhorn beetles are found in riparian habitat only in the vicinity of their host plant, the elderberry (*Sambucus* species).	**Potential to occur.** Host plant, elderberry (*Sambucus* sp.), occurs in the BSA. There are five CNDDB occurrences within 5 miles of the BSA.
Agelaius tricolor/ Tricolored blackbird	BCC	T	SSC	Found in areas near water, such as marshes, grasslands, and wetlands. They require some sort of substrate nearby to build nests. This substrate is often in the form of aquatic vegetation. They also need foraging areas, which can consist of grassland or agricultural pastures such as rice, grain, or alfalfa.	**Potential to occur.** There is suitable nesting habitat present along canals and creeks within the BSA, and suitable foraging habitat in grassland habitats and agricultural areas. There are four CNDDB occurrences within 5 miles of the BSA.
Athene cunicularia/ Burrowing owl	BCC	—	SSC	Open, dry annual or perennial grasslands with low growing vegetation and on the margins of disturbed/developed habitats. Subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel.	**Potential to occur.** Suitable habitat is present in the BSA, including burrows along the margins of vineyards, orchards, and other agricultural developments. There are no CNDDB occurrences within 5 miles of the BSA.
Buteo swainsoni/ Swainson's hawk	BCC	T	—	Suitable foraging habitat includes a variety of agriculture crops, grassland, and pasture. Alfalfa fields are more routinely used by foraging Swainson's hawks than any other crop type. Suitable nesting habitat includes trees within mature riparian forest or corridors, lone oak trees and oak groves, and mature roadside trees.	**Likely to occur.** There is suitable nesting and foraging habitat within the BSA in tall emergent trees and throughout agriculture areas. There are 38 CNDDB occurrences within 5 miles of the BSA.

Scientific Name/ Common Name	Status[a]			Habitat	Potential for Occurrence within the BSA
	Federal	State	CDFW		
Elanus leucurus/ White-tailed kite	—	—	FP	Rolling foothills and valley margins with scattered oaks and river bottomlands or marshes next to deciduous woodland. Open grasslands, meadows for foraging close to isolated, dense-topped trees for nesting and perching.	**Potential to occur.** There is suitable foraging and nesting habitat present within the BSA. There are no CNDDB occurrences within 5 miles of the BSA; however, this species is often not reported to CNDDB.
Riparia riparia/ Bank swallow	BCC	T	—	Nesting colonies dug into the sides of sandy cliffs or banks or pick them out of mixed swallow flocks as they catch insects over the water.	**Potential to occur.** Suitable foraging habitat is present within the BSA along natural and constructed watercourses. There is one CNDDB occurrence within 5 miles of the BSA.
Setophaga petechia/ Yellow warbler	—	—	SSC	Breed in shrubby thickets and woods, particularly along watercourses and in wetlands. Common trees include willows, alders, and cottonwoods across North America.	**Potential to occur.** Suitable foraging and nesting habitat are present within the BSA. There is one CNDDB occurrence within 5 miles of the BSA.

[a] Status designations are as follows:
Federal Designations:
(BCC) Bird of Conservation Concern
(T) Federally Threatened

State Designations:
(T) State Threatened
(CE) Candidate Endangered

CDFW Designations:
(SSC) Species of Special Concern
(FP) Fully Protected

Sources:
CDFW 2023; NMFS 2023; USFWS 2023a

Swainson's Hawk

The Swainson's hawk (*Buteo swainsoni*) is listed as threatened under the CESA and is a USFWS BCC. This species is highly gregarious, forming colonies that number in the thousands (Brown and Amadon 1970). This species winters principally in South America and less commonly in Mexico and the southern tip of the United States (Fuller et al. 1998). The Swainson's hawk arrives in California as early as March, where adults reach breeding areas in the Central Valley. This species prefers large prairies, pastures, and narrow bands of riparian vegetation along watercourses, and small, isolated stands of valley oak (*Quercus lobata*) for nesting. However, the Swainson's hawk has been found in urban neighborhoods and agricultural developments (England et al. 1995). Rapid urbanization or crop changes near cities could cause the long-term decline of Swainson's hawks in existing urban neighborhoods. Mating pairs often return to their previous nest location or within proximity to it for recurring breeding seasons (Brown and Amadon 1970).

There are 38 CNDDB occurrences within 5 miles of the BSA. There is potential for this species to occur in the vicinity of the proposed PG&E and LEU BSAs because there is suitable nesting and marginally suitable foraging habitat within and adjacent to the BSA. Suitable nesting habitat occurs in large trees that are common along roadways, in residential and agricultural areas, and along watercourses such as Bear Creek and Paddy Creek. Foraging habitat is marginal within the BSA, primarily in areas of fragmented grassland or pastureland. The dominant agriculture uses within the BSA (vineyard, cherry and walnut trees) are not preferred by Swainson's hawk and, therefore, provide low-quality foraging habitat.

White-tailed Kite

The white-tailed kite (*Elanus leucurus*) is a California FP species. This species inhabits rolling foothills and valley margins with scattered oaks and river bottomlands or marshes next to deciduous woodland. This species forages in grasslands, marshes, riparian edges, and cultivated fields where prey species (mainly small mammals) are relatively abundant (Kaufman 1996). Kites typically nest on the tops of trees close to good foraging locations.

There is marginally suitable nesting and foraging habitat for the species in the vicinity of the proposed PG&E and LEU BSAs, where the BSAs include or are in proximity to grasslands, pastures, and agricultural areas that may support small mammal prey. There is no suitable nesting habitat for this species within either the PG&E or LEU project footprints, but there is suitable nesting habitat in the form of dense-top trees along roadways, in residential and agricultural areas, and along watercourses such as Bear Creek and Paddy Creek, within and near the BSAs for these utilities. There is potential for the species to forage in undeveloped areas in the vicinity of all work locations. There are no CNDDB occurrences within 5 miles of the BSA; however, this species is often not reported to CNDDB.

Bank Swallow

The bank swallow (*Riparia riparia*) is listed as threatened under the CESA and is a USFWS BCC. This species is sociable with its nesting habits, and nesting colonies often contain from a dozen to many hundreds of breeding pairs. (Beyer 1938). It winters in eastern and southern Africa, South America, and the Indian subcontinent and returns to the United States for breeding toward the end of March. It leaves breeding ranges by the end of September.

Bank swallows build nests, often in large colonies, in vertical banks and bluffs (Beyer 1938). These colonies usually are made in loose soils into which the birds can burrow easily. Each individual Bank swallow chooses first a colony, according to its location, and then a nest site within the colony area. The male begins to dig a burrow into the bank before he has a mate; the female then hovers in front of burrows to choose a mate and his nest site (Petersen 1955). The nests usually are located mostly in the upper third of the bank to avoid ground predators. Increasing urbanization and loss of nesting habitat has caused a rapid decline of Bank swallows in their existing Californian ranges.

There is one CNDDB occurrence within 5 miles of the BSA. There is potential nesting and foraging habitat within the BSA, along the creek banks of Bear Creek and Paddy Creek. No suitable habitat occurs within or adjacent to the LEU portion of the project. Mixed swallow flocks were observed during the reconnaissance-level survey conducted in December of 2019.

Yellow Warbler

The yellow warbler (*Setophaga petechia*) is a CDFW SSC. Nest preference of this species is shrubby thickets and woods along watercourses (CDFW 2023). Common trees that are used for nesting locations are willows, alders (*Alnus* ssp.), and cottonwoods (*Populus* spp.) (CDFW 2023).

There is one CNDDB occurrence within 5 miles of the BSA. Sparse willows along the banks of Bear Creek, Paddy Creek and associated drainages within the BSA may provide marginally suitable nesting habitat, however these areas do not constitute 'dense thickets', and are considered low quality. Potential foraging habitat includes deciduous trees and shrubs that support insect prey and could occur throughout the BSA along the proposed PG&E 230 kV transmission line. No suitable habitat occurs within or adjacent to LEU portion of the project.

5.4.1.5 Habitat Conservation Plans

The SJMSCP provides compensation for the conservation of open space to non-open space uses that affect the plant, fish, and wildlife species covered by the SJMSCP for permitted activities. The project is considered a permitted activity because it is a utility installation, but it does not result in the conversion of open space into non-open space. However, based on the project design, biological resources APMs and BMPs, and avoidance and minimization measures (AMMs), the project will avoid take of special-status species covered under the SJMSCP and, therefore, coverage under the SJMSCP will not be needed.

PG&E has a Habitat Conservation Plan (HCP), the SJVHCP (PG&E 2006), for its O&M activities in the San Joaquin Valley. The SJVHCP authorizes incidental take of 23 wildlife and 42 plant species for 33 routine O&M activities for PG&E's electric and gas transmission and distribution systems within nine counties of the San Joaquin Valley, including San Joaquin County. This project is included within the boundaries of the SJVHCP. Although construction of the proposed project itself is not a covered activity under the SJVHCP, following construction, O&M activities for the electrical system, including Inspections (O&M activity E2) and Electrical System Tower Replacement or Repair (O&M activity E6), would be covered activities (PG&E 2008). At this time, surveys indicate that the project will avoid take of special-status species covered under the SJVHCP. Should conditions change or potential impacts to special-status species become apparent during future O&M activities, those activities will be reevaluated for coverage provided by the SJVHCP.

Construction practices and APMs are designed to be compatible with the PG&E SJVHCP AMMs, which have been reviewed and approved previously by USFWS and CDFW.

5.4.2 Regulatory Setting

5.4.2.1 Federal

Endangered Species Act

The federal ESA (16 United States Code [USC] 1531–1544), as amended, protects plants, fish, and wildlife that are listed as endangered or threatened by the USFWS or the NMFS. Section 9 of the ESA prohibits the "take" of listed fish and wildlife, where "take" is defined as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in such conduct" (50 CFR 17.3). For plants, this statute prohibits removing, possessing, maliciously damaging, or destroying any listed plant *under federal jurisdiction* and removing, cutting, digging up, damaging, or destroying any listed plant in knowing violation of state law (16 USC 1538).

The ESA allows for issuance of incidental take permits to private parties either in conjunction with an HCP or as part of a Section 7 consultation (which is discussed in the following paragraph). Under Section 10 of the ESA, a private party may obtain incidental take coverage by preparing an HCP to cover target species within the project footprint, identifying impacts to the covered species, and presenting the measures that will be undertaken to avoid, minimize, and mitigate these impacts.

Under Section 7 of the ESA, federal agencies are required to consult with USFWS and NMFS, as applicable, if their actions—including permit approvals or funding—may affect a federally listed species (including plants) or designated critical habitat. If the project is likely to adversely affect a species, the federal agency will initiate formal consultation with the USFWS or NMFS, which will issue a biological opinion as to whether the proposed agency action(s) is likely to jeopardize the continued existence of a listed species (jeopardy) or adversely modify critical habitat (adverse modification). As part of the biological opinion, the USFWS may issue an incidental take statement allowing take of the species that is incidental to an otherwise authorized activity, provided that the action will not jeopardize the continued existence of the species or adversely modify designated critical habitat.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) of 1918 (16 USC 703–711) protects all migratory birds, including active nests and eggs. Birds protected under the MBTA include all native waterfowl, shorebirds, hawks, eagles, owls, doves, and other common birds such as ravens, crows, sparrows, finches, swallows, and others, including their body parts (for example feathers and plumes), active nests, and eggs. A complete list of protected species can be found in 50 CFR 10.13. Enforcement of the provisions of the federal MBTA is the responsibility of USFWS.

Bald and Golden Eagle Protection Act

The BGEPA (16 USC 668) prohibits anyone, without a permit issued by the Secretary of the Interior, from "taking" Bald Eagles, including their parts, nests, or eggs. The Act provides criminal and civil penalties for persons who "take, possess, sell, purchase, barter, offer to sell, purchase or barter, transport, export or import, at any time or any manner, any Bald Eagle ... [or any Golden Eagle], alive or dead, or any part, nest, or egg thereof." The Act defines "take" as "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb." "Disturb" is defined as "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."

Waters and Wetlands: Clean Water Act Sections 401 and 404

The purpose of the Clean Water Act (CWA) (33 USC 1251 et seq.) is to "restore and maintain the chemical, physical, and biological integrity of the nation's waters." Waters of the United States include rivers, streams, estuaries, the territorial seas, ponds, lakes, and wetlands. Wetlands are defined as those areas "that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (33 CFR 328.3).

The USACE issues permits for work in wetlands and other waters of the United States based on guidelines established under Section 404 of the CWA. This regulation prohibits the discharge of dredged or fill material into waters of the United States, including wetlands, without a permit from the USACE. The EPA also has authority over wetlands and may, under Section 404(c), veto a USACE permit.

Section 401 of the CWA requires all Section 404 permit actions to obtain a state Water Quality Certification or waiver, as described in more detail in Section 5.10, Hydrology and Water Quality.

5.4.2.2 State

California Endangered Species Act

Sections 2050–2098 of the California Fish and Game Code (CESA) prohibit the take of state-listed endangered and threatened species unless specifically authorized by the CDFW. The state definition of "take" is to hunt, pursue, catch, capture, or kill a member of a listed species or attempt to do so. CDFW administers CESA and authorizes take through permits or memorandums of understanding issued under Section 2081 of CESA, or through a consistency determination issued under Section 2080.1. Section 2090 of CESA requires state agencies to comply with threatened and endangered species protection and recovery and to promote conservation of these species.

Protection for Lakes and Streams: Fish and Game Code

CDFW requires a Lake or Streambed Alteration Notification, pursuant to Fish and Game Code Section 1600 et seq., for project activities affecting lakes or streams and associated riparian habitat. Notification is required for any activity that may substantially divert or obstruct the natural flow; change or use material from the bed, channel, or bank, including associated riparian or wetland resources; or deposit or dispose of material where it may pass into a river, lake, or stream.

Fully Protected Species: Fish and Game Code

The Fish and Game Code designates certain fish and wildlife species as "fully protected" under sections 3511 (birds), 4700 (mammals), 5050 (reptiles and amphibians), and 5515 (fish). Fully protected species may not be taken or possessed at any time, and no permits may be issued for the project for incidental take of these species.[13]

Protection for Birds: Fish and Game Code

Fish and Game Code Section 3503 et seq. state that it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by this code or any regulation made pursuant thereto. Section 3503.5 makes it unlawful to take, possess, or destroy any birds in the orders of *Falconiformes* or *Strigiformes* (birds of prey) or to take, possess, or destroy the nest or eggs of any such bird.

Native Plant Protection Act of 1973

The Native Plant Protection Act of 1973 (Fish and Game Code Sections 1900 to 1913) includes provisions that prohibit the taking of endangered or rare native plants. CDFW administers the Native Plant Protection Act and generally regards as rare many plant species included on the California Rare Plant Rank (CRPR) 1A, 1B, 2A, and 2B of the CNPS *Inventory of Rare, Threatened, and Endangered Plants of California*. In addition, sometimes CRPR 3 and 4 plants are considered if the population has local significance in the area and is impacted by the project.

Section 1913(b) includes a specific provision to allow for the incidental removal of endangered or rare plant species, if not otherwise salvaged by CDFW, within a ROW to allow a public utility to fulfill its obligation to provide service to the public.

California Species of Special Concern

"Species of Special Concern" is a category conferred by CDFW to fish and wildlife species that meet the state definition of threatened or endangered, but have not been formally listed (for example, federally or state-listed species), or are considered at risk of qualifying for threatened or endangered status in the

[13] While take of fully protected species may be authorized by CDFW under an NCCP, the PG&E project is not covered by an NCCP, so this permitting option is not available.

future based on known threats. SSC is an administrative classification only, but these species should be considered “special status” for the purposes of the CEQA analysis (refer to Section 5.4.4.1 of this document).

Porter-Cologne Water Quality Control Act

The SWRCB and the nine Regional Water Quality Control Boards (RWQCBs) have jurisdiction over all surface water and groundwater in California, including wetlands, headwaters, and riparian areas. The SWRCB or applicable RWQCB must issue waste discharge requirements for any activity that discharges waste that could affect the quality of waters of the state, as described in more detail in Section 5.10, Hydrology and Water Quality.

5.4.2.3 Local

Because the CPUC has exclusive jurisdiction over the siting, design, and construction of the project, the project is not subject to local (city and county) discretionary regulations except for air districts and CUPAs with respect to air quality and hazardous waste regulations. However, local plans and policies are considered for informational purposes and to assist with the CEQA review process. This section includes a summary of local or regional plans, policies, or regulations that identify sensitive or special-status species in the project footprint, as well as local policies or ordinances that protect biological resources.

The City of Lodi is a local agency and must comply with its own local plans and policies.

San Joaquin County General Plan

Per the *San Joaquin County General Plan*, the County will protect significant biological and ecological resources, including wetlands; riparian areas; vernal pools; significant oak woodlands and heritage trees; and rare, threatened, and endangered species and their habitats. The General Plan addresses and provides a framework for the County's environmental resources preservation. The General Plan includes goals, objectives, and policies that pertain to the comprehensive long-range management, preservation, and conservation of open-space lands. All development decisions must be consistent with the General Plan (San Joaquin County 2016).

Williamson Act

The California Land Conservation Act of 1965, Sections 51200 et seq. of the California GC, commonly referred to as the Williamson Act, enables local governments to restrict the use of specific parcels of land to agricultural or related open-space use. Landowners enter into contracts with participating cities and counties and agree to restrict their land to agriculture or open-space use for a minimum of 10 years.

San Joaquin County Multi-Species Habitat Conservation and Open Space Plan

The key purpose of the SJMSCP is to provide a strategy for balancing the need to conserve open space and the need to convert open space to nonopen space uses while protecting the region's agricultural economy; preserving landowner property rights; providing for the long-term management of plant, fish, and wildlife species, especially those that are currently listed, or may be listed in the future, under the ESA or CESA; providing and maintaining multiple-use open spaces that contribute to the quality of life of the residents of San Joaquin County; and accommodating a growing population while minimizing costs to project proponents and society at large. The SJMSCP covers all of San Joaquin County except for federally owned lands (San Joaquin County 2000).

Permitted activities covered under the SJMSCP include urban development, mining, expansion of existing urban boundaries, nonagricultural activities occurring outside of urban boundaries, levee maintenance undertaken by the San Joaquin Area Flood Control Agency, transportation projects, school expansions, nonfederal flood control projects, new parks and trails, maintenance of existing facilities for nonfederal

irrigation district projects, utility installation, maintenance activities, managing preserves, and similar public agency projects.

Based on the project design, biological resources APMs, and PG&E SJVHCP AMMs, the project will avoid take of special-status species covered under the SJMSCP and, therefore, coverage under the SJMSCP will not be needed.

San Joaquin County Riparian Habitat Ordinance

San Joaquin County's natural resources regulations contain provisions to preserve County riparian habitat resources (San Joaquin County 2016). A Riparian Habitat Mitigation Plan would be required when an action is proposed that has the potential to destroy, eliminate, or degrade riparian habitat in the County.

San Joaquin County Tree Ordinance

San Joaquin County's natural resources regulations contain provisions to preserve County tree resources (San Joaquin County 2016). The removal of a native oak tree, heritage oak tree, or historical tree requires an approved improvement plan application, which requires replacement of the tree. Removals by a public utility that are necessary to protect electric power lines are not subject to the regulations (MuniCode 2023).

City of Lodi General Plan

The Conservation Element of the *City of Lodi General Plan* establishes policies for the conservation of natural resources in Lodi. Topics addressed include agricultural and soil resources; biological resources; cultural and historic resources; hydrology and water quality; energy and climate change; and air quality. The General Plan supports the protection, preservation, restoration, and enhancement of habitats of state or federally listed rare, threatened, endangered, and other sensitive and special-status species, and favors enhancement of contiguous areas over small, segmented remainder parcels (City of Lodi 2010).

5.4.3 Impact Questions

The project's potential effects on biological resources were evaluated using the significance criteria set forth in Appendix G of the CEQA Guidelines. The criteria and conclusions are summarized in Table 5.4-4 and discussed in more detail in Section 5.4.4.

Table 5.4-4. CEQA Checklist for Biological Resources

Would the project:	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or the U.S. Fish and Wildlife Service?	☐	☐	☒	☐
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the	☐	☐	☐	☒

Would the project:	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?				
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including marsh, vernal pool, coastal, and others) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☒	☐
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☒	☐
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☒	☐
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☒

5.4.3.1 Additional CEQA Impact Questions

The project's potential effects on biological resources also were evaluated using the California Public Utility Commission's Additional CEQA Impact Questions for Transportation in the *Guidelines for Energy Project Applications Requiring CEQA Compliance: Pre-filing and Proponent's Environmental Assessments* (CPUC 2019). These additional impact questions are evaluated using the significance criteria set forth in Appendix G of the CEQA Guidelines. The conclusions are summarized in Table 5.4-5 and discussed in more detail in Section 5.4.4.

Table 5.4-5. Additional CEQA Impact Questions for Biological Resources

Would the project:	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Create a substantial collision or electrocution risk for birds or bats?	☐	☐	☒	☐

5.4.4 Potential Impact Analysis

The following sections describe significance criteria for impacts related to biological resources derived from Appendix G of the CEQA Guidelines, provide APMs and BMPs, and assess potential project-related construction and operational impacts on biological resources. The impact discussion is organized to describe the effects of each participating utility's portion of the project on the environment.

5.4.4.1 Significance Criteria

According to Section 15002(g) of the CEQA Guidelines, "… a significant effect on the environment is defined as a substantial adverse change in the physical conditions which exist in the area affected by the proposed project." As stated in Section 15064(b) of the CEQA Guidelines, the significance of an activity may vary with the setting. Per Appendix G of the CEQA Guidelines, the potential significance of project-related impacts on biological resources were evaluated for each of the criteria listed in Tables 5.4-4 and 5.4-5, as discussed in Section 5.4.4.3.

5.4.4.2 Applicant-Proposed Measures and Best Management Practices

PG&E and LEU will implement their respective APMs and BMPs. These include measures developed specifically for this project (APM/BMP BIO-1 through APM/BMP BIO-10) and required measures under the PG&E SJVHCP (PG&E SJVHCP AMM-1 through AMM-11). Refer to Appendix C6 for the PG&E Nesting Birds: Species-Specific Buffers.

APM BIO-1: Develop and implement a PG&E Worker Environmental Awareness Program. A PG&E biologist familiar with resources in the area and with delivering Worker Environmental Awareness Programs will conduct an environmental awareness program for all onsite construction personnel before they begin work on the project. Training will include a discussion of the avoidance and minimization measures that are being implemented to protect biological resources as well as the terms and conditions of project permits. Training will include information about the federal and state Endangered Species Acts and the consequences of noncompliance with these acts. Under this program, workers will be informed of the presence, life history, and habitat requirements of all special-status species that may be affected by the PG&E portion of the project, and about state and federal laws protecting nesting birds, wetlands, and other water resources. An educational brochure will be produced for construction crews working on the project. Color photos of special-status species will be included, as well as a discussion of relevant APMs and specific avoidance or minimization measures for special-status species and habitats.

BMP BIO-1: Develop and implement an LEU Worker Environmental Awareness Program. A biologist for the LEU portion of the project who is familiar with resources in the area and with delivering Worker Environmental Awareness Programs will conduct an environmental awareness program for all onsite construction personnel before they begin work on the project. Training will include a discussion of the avoidance and minimization measures that are being implemented to protect biological resources as well as the terms and conditions of project permits. Training will include information about the federal and state Endangered Species Acts and the consequences of noncompliance with these acts. Under this program, workers will be informed of the presence, life history, and habitat requirements of all special-status species that may be affected by the LEU portion of the project, and about state and federal laws protecting nesting birds, wetlands, and other water resources. An educational brochure will be produced for construction crews working on the project. Color photos of special-status species will be included, as well as a discussion of relevant BMPs and specific avoidance or minimization measures for special-status species and habitats.

APM BIO-2: Avoid and protect nesting birds from PG&E impact. If construction is to occur during the avian nesting season (March 1 through August 15), a preconstruction migratory bird and raptor nesting survey will be performed by a PG&E biologist who is familiar with local avian species and nesting birds. Surveys will occur only in publicly accessible areas and areas where PG&E has existing access; private property will not be accessed and will instead be observed from adjacent accessible areas.

Preconstruction nesting bird surveys will be performed in accordance with PG&E's Nesting Bird Management Plan. The preconstruction survey will cover a radius of 200 feet for nonlisted raptors and 100 feet for nonlisted passerines from project locations that will be actively worked at in the near term. Surveys for Swainson's hawk will cover a 0.25-mile radius from the project footprint. The survey will cover all affected areas where ground disturbance or vegetation clearing is required in the near term. Subsequent surveys will be conducted in advance of other project locations becoming active. If any active nests containing eggs or young are found, an appropriate nest exclusion zone will be established by the PG&E biologist in accordance with PG&E's Nesting Bird Management Plan. No heavy equipment will be operated in this exclusion zone until the biologist has determined that the nest is no longer active and the young have fledged. If it is not practicable to avoid work in an exclusion zone around an active nest, work activities will be modified to minimize disturbance of nesting birds but may proceed in these zones at the discretion of the biologist. As appropriate, the biologist will monitor work activities in these zones daily or periodically when construction is occurring and assess their effect on the nesting birds. If the biologist determines that particular activities pose a high risk of disturbing an active nest, the biologist will recommend additional, feasible measures to minimize the risk of nest disturbance. If work cannot proceed without disturbing the nesting birds, or signs of disturbance are observed by the monitor, work may need to be halted or redirected to other areas until the nesting and fledging is completed or the nest has otherwise failed for reasons not related to construction.

BMP BIO-2: Avoid and protect nesting birds from LEU impact. If construction is to occur during the avian nesting season (March 1 through August 15), a preconstruction migratory bird and raptor nesting survey will be performed by a biologist for the LEU portion of the project who is familiar with local avian species and nesting birds. Surveys will occur only in publicly accessible areas and areas where LEU has existing access; private property will not be accessed and will instead be observed from adjacent accessible areas.

The preconstruction survey will cover a radius of 200 feet for nonlisted raptors and 100 feet for nonlisted passerines from project locations that will be actively worked at in the near term. Surveys for Swainson's hawk will cover a 0.25-mile radius from the LEU project footprint. The survey will cover all affected areas where ground disturbance or vegetation clearing is required in the near term. Subsequent surveys will be conducted in advance of other project locations becoming active. If any active nests containing eggs or young are found, an appropriate nest exclusion zone will be established by the biologist. No heavy equipment will be operated in this exclusion zone until the biologist has determined that the nest is no longer active and the young have fledged. If it is not practicable to avoid work in an exclusion zone around an active nest, work activities will be modified to minimize disturbance of nesting birds but may proceed in these zones at the discretion of the biologist. As appropriate, the biologist will monitor work activities in these zones daily or periodically when construction is occurring and assess their effect on the nesting birds. If the biologist determines that particular activities pose a high risk of disturbing an active nest, the biologist will recommend additional, feasible measures to minimize the risk of nest disturbance. If work cannot proceed without disturbing the nesting birds, or signs of disturbance are observed by the monitor, work may need to be halted or redirected to other areas until the nesting and fledging is completed or the nest has otherwise failed for reasons not related to construction.

APM BIO-3: Identify and mark sensitive biological resource areas near PG&E portion of the project. Sensitive biological resources (for example, aquatic resources and nesting birds) in or adjacent to PG&E construction work areas identified during the preconstruction surveys will be clearly marked in the field and on project maps as appropriate. Such areas will be avoided during construction to the greatest extent feasible.

BMP BIO-3: Identify and mark sensitive biological resource areas near LEU portion of the project. Sensitive biological resources (for example, nesting birds) in or adjacent to LEU construction work areas identified during the preconstruction surveys will be clearly marked in the field and on project maps as appropriate. Such areas will be avoided during construction to the greatest extent feasible.

APM BIO-4: Install exclusion fencing near PG&E portion of the project. At the discretion of the PG&E biologist, prior to any ground-disturbing work in proximity to suitable habitat for special-status species or adjacent to wetlands or waters, exclusion fence will be installed around PG&E workspaces as appropriate.

Exclusion fencing will be routinely inspected during project activities and any damage, such as holes or gaps, will be promptly repaired.

BMP BIO-4: Install exclusion fencing near LEU portion of the project. At the discretion of the LEU biologist, prior to any ground-disturbing work in proximity to suitable habitat for special-status species, exclusion fence will be installed around LEU workspaces as appropriate. Exclusion fencing will be routinely inspected during project activities and any damage, such as holes or gaps, will be promptly repaired.

APM BIO-5: Allow biological monitor onsite during PG&E construction activities in sensitive biological resource areas. At the discretion of the PG&E biologist, a qualified biologist will be onsite during construction activities in sensitive biological resource areas identified in APM BIO-4 unless the area has been protected by barrier fencing to protect sensitive biological resources and previously cleared by the qualified biologist and the PG&E biologist. The qualified biologist will ensure implementation and compliance with all avoidance and mitigation measures and have the authority to stop or redirect work if construction activities are likely to affect sensitive biological resources.

BMP BIO-5: Allow biological monitor onsite during LEU construction activities in sensitive biological resource areas. At the discretion of the biologist for the LEU portion of project, a qualified biologist will be onsite during construction activities in sensitive biological resource areas identified in BMP BIO-4 unless the area has been protected by barrier fencing to protect sensitive biological resources and previously cleared by the qualified biologist and the biologist for the LEU portion of project. The qualified biologist will ensure implementation and compliance with all avoidance and mitigation measures and have the authority to stop or redirect work if construction activities are likely to affect sensitive biological resources.

APM BIO-6: Avoid and protect special-status amphibians from PG&E impact. During wet weather or the rainy season, all open holes, pits, and trenches at PG&E work areas will be protected to ensure that wildlife does not become entrapped. Protective fencing, coverings, or ramps will be installed to either prevent wildlife from falling into excavations or to allow for escape if they do. At the end of each workday, steep-walled holes or trenches more than approximately 6 inches deep will be covered or provided with one or more escape ramps and/or fenced. Open excavations will be inspected, prior to the start of construction activities, to ensure that no wildlife is trapped. Construction personnel also will check underneath vehicles and within materials to be moved (that is, tires, tracks, pipes) for the presence of frogs when parked or placed near suitable aquatic or upland dispersal habitat.

APM BIO-7: Implement general protection measures for wetlands and other waters near PG&E portion of the project. PG&E will implement the following general measures to minimize or avoid impacts on wetlands and other waters:

- Avoid wetlands and other waters during construction activities.
- Do not refuel vehicles within approximately 100 feet of a wetland, stream, or other waterway unless a bermed and lined refueling area is constructed.
- Implement an SWPPP to minimize construction-related erosion and sediments from entering nearby waterways (refer to APM HYD-1).

APM BIO-8: Implement general resource protection measures for PG&E portion of the project. This APM consists of the following components:

- ***Hazardous materials spills.*** Emergency spill response and cleanup kits will be readily available for immediate containment and cleanup of an accidental spill. Construction crews will be trained in safe handling of hazardous materials and cleanup responsibilities. Any inadvertent spills into aquatic habitat will be reported to the applicable resource agencies within 24 hours.
- ***Reporting and communication.*** The PG&E biologist will be responsible for immediately reporting any capture and relocation, or inadvertent harm, entrapment, or death, of a federally or state-listed species under ESA or CESA to the applicable resource agencies.

- ***Restoring temporarily disturbed habitats.*** All habitat areas for special-status species that are temporarily disturbed as a result of project activities will be restored upon completion of construction. Disturbed areas will be restored and revegetated in coordination with landowners. Many areas are actively cultivated or grazed and landowners may request replanting of similar crops or plant species as existed previously. These may not necessarily be native plant species. For PG&E-owned parcels, revegetation would be accomplished through application of a habitat-appropriate native seed mix. Restoration is anticipated to be completed within approximately 6 to 9 months after the project, depending on landowner requests and the season in which disturbance activities and subsequent restoration activities will take place.
- ***Erosion control materials.*** Only tightly woven netting or similar material will be used for all geosynthetic erosion control materials such as coir rolls and geotextiles. No plastic monofilament matting will be used. Sod may be used when restoring landscaped areas.
- ***Minimizing grading and vegetation removal along access roads and construction work areas.*** PG&E will only trim, clear, or remove vegetation as necessary to establish the access routes and allow equipment use. Trees will be directionally felled away from sensitive biological resource areas and, if that is not possible, they will be removed in sections. Damage to adjacent trees will be avoided to the greatest extent possible.
- ***Weed management.*** Vehicles and construction equipment will be cleaned of mud and dirt as needed to minimize transport of weed plant parts or seed. Vehicles also will be cleaned at the completion of the project or when off-road use for that vehicle has been completed.

BMP BIO-8: Implement general resource protection measures for LEU portion of the project. This BMP consists of the following components:

- ***Hazardous materials spills.*** Emergency spill response and cleanup kits will be readily available for immediate containment and cleanup of an accidental spill. Construction crews will be trained in safe handling of hazardous materials and cleanup responsibilities. Any inadvertent spills into aquatic habitat will be reported to the applicable resource agencies within 24 hours.
- ***Reporting and communication.*** The LEU biologist will be responsible for immediately reporting any capture and relocation, or inadvertent harm, entrapment, or death, of a federally or state-listed species under ESA or CESA to the applicable resource agencies.
- ***Erosion control materials.*** Only tightly woven netting or similar material will be used for all geosynthetic erosion control materials such as coir rolls and geotextiles. No plastic monofilament matting will be used.
- ***Minimizing grading and vegetation removal along access roads and construction work areas.*** LEU will only trim, clear, or remove vegetation as necessary to establish the access routes and allow equipment use. Trees will be directionally felled away from sensitive biological resource areas and, if that is not possible, they will be removed in sections. Damage to adjacent trees will be avoided to the greatest extent possible.
- ***Weed management.*** Vehicles and construction equipment will be cleaned of mud and dirt as needed to minimize transport of weed plant parts or seed. Vehicles also will be cleaned at the completion of the project or when off-road use for that vehicle has been completed.

APM BIO-9: Prevent avian electrocution from PG&E project facilities. PG&E conductors and ground wires would be spaced sufficiently apart, as feasible, so that raptors cannot contact two conductors or one conductor and a ground wire, causing electrocution (APLIC 2006).

BMP BIO-9: Prevent avian electrocution from LEU project facilities. LEU conductors and ground wires would be spaced sufficiently apart, as feasible, so that raptors cannot contact two conductors or one conductor and a ground wire, causing electrocution (APLIC 2006).

APM BIO-10: Protect birds on PG&E power lines. All PG&E transmission and power lines and PG&E switching station and substation facilities for the project will be designed to be avian-safe as appropriate and feasible, following the intent of *Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006* (APLIC 2006, 2012).

BMP BIO-10: Protect birds on LEU power lines. All LEU transmission and power lines and LEU substation facilities for the project will be designed to be avian-safe as appropriate and feasible, following the intent of *Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006* (APLIC 2006, 2012).

PG&E SJVHCP Required Measures

PG&E SJVHCP AMM-1: Employees and contractors performing O&M activities will receive ongoing environmental education. Training will include review of environmental laws and guidelines that must be followed by all personnel to reduce or avoid effects on covered species during O&M activities.

PG&E SJVHCP AMM-2: Vehicles and equipment will be parked on pavement, existing roads, and previously disturbed areas to the extent practicable.

PG&E SJVHCP AMM-3: The development of new access and ROW roads by PG&E will be minimized and clearing vegetation and blading for temporary vehicle access will be avoided to the extent practicable.

PG&E SJVHCP AMM-4: Vehicles will not exceed a speed limit of 15 mph in the ROWs or on unpaved roads within sensitive land-cover types.

PG&E SJVHCP AMM-5: Trash dumping, firearms, open fires (such as barbecues) not required by the O&M activity, hunting, and pets (except for safety in remote locations) will be prohibited in O&M work activity sites.

PG&E SJVHCP AMM-6: No vehicles will be refueled within 100 feet of a wetland, stream, or other waterway unless a bermed and lined refueling area is constructed.

PG&E SJVHCP AMM-7: During any reconstruction of existing overhead electric facilities in areas with a high risk of wildlife electrocution (e.g., nut/fruit orchards, riparian corridors, areas along canal or creek banks, PG&E's raptor concentration zone), PG&E will use insulated jumper wires and bird/animal guards for equipment insulator bushings or will construct lines to conform to the latest revision of PG&E's Bird and Wildlife Protection Standards.

PG&E SJVHCP AMM-8: During fire season in designated State Responsibility Areas, all motorized equipment will have federal or state approved spark arrestors; a backpack pump filled with water and a shovel will be carried on all vehicles; and fire-resistant mats and/or windscreens will be used when welding. In addition, during fire "red flag" conditions as determined by CDF, welding will be curtailed, each fuel truck will carry a large fire extinguisher with a minimum rating of 40 B:C, and all equipment parking and storage areas will be cleared of all flammable materials.

PG&E SJVHCP AMM-9: Erosion control measures will be implemented where necessary to reduce erosion and sedimentation in wetlands, waters of the United States, and waters of the state, and habitat occupied by covered animal and plant species when O&M activities are the source of potential erosion problems.

PG&E SJVHCP AMM-10: If an activity disturbs more than 0.25 acre in a grassland, and the landowner approves or it is within PG&E rights and standard practices, the area should be returned to pre-existing conditions and broadcast-seeded using a commercial seed mix. Seed mixtures/straw used for erosion control on projects of all sizes within grasslands will be certified weed-free. PG&E shall not broadcast-seed (or apply in other manner) any commercial seed or seed-mix to disturbance sites within other natural land-cover types, within any vernal pool community, or within occupied habitat for any plant covered species.

PG&E SJVHCP AMM-11: When routine O&M activities are conducted in an area of potential VELB habitat, a qualified individual will survey for the presence of elderberry plants within a minimum of 20 feet from the work site. If elderberry plants have one or more stems measuring 1 inch or more in diameter at ground level, the qualified individual will flag those areas to avoid or minimize potential impacts on elderberry plants. If impacts (pruning/trimming, removal, ground disturbance, or damage) are unavoidable or occur, then additional measures identified in the VELB conservation plan and compliance brochure will be implemented. The VELB compliance brochure must be carried in all vehicles performing O&M activities within the potential range of VELB.

5.4.4.3 Potential Impacts

The significance criteria used for determining standards of significance for biological resources were derived from Appendix G of the CEQA Guidelines. Potential impacts to vegetation and wildlife are discussed in the following sections. The impact analysis evaluates potential project impacts during the construction phase and the operation and maintenance phase. The impact discussion is organized to describe the effects of each participating utility's portion of the project on the environment.

As described in Chapter 3, Project Description, the project will provide a new PG&E 230 kV transmission source in northern San Joaquin County, in central California. The project includes extending an existing PG&E 230 kV transmission line through PG&E's Lockeford Substation to a new PG&E Thurman Switching Station in Lodi, California, by installing new tubular steel poles and conductors for nearly 11 miles. PG&E's Lockeford Substation will be expanded on existing substation property to accommodate the new 230 kV facility. PG&E's Thurman Switching Station will transfer the new 230 kV source to the new adjacent LEU 230/60 kV Guild Substation. LEU's Guild Substation will transfer the 60 kV power to the existing adjacent LEU 60 kV Industrial Substation, which will be modified to receive the new 60 kV lines (via the new PG&E 230 kV source) and to disconnect the existing PG&E 60 kV sources. When disconnected, the three existing PG&E 60 kV lines will be partially removed and reconfigured mainly within their existing alignments to continue operation between PG&E's Lockeford and Lodi substations. LEU distribution and third-party telecommunication underbuild on a PG&E 60 kV line portion being removed will be relocated by the respective utility owner to within or adjacent to other existing alignments. An existing PG&E distribution line will be extended underground approximately 500 feet in franchise to provide a permanent secondary service line to PG&E Thurman Switching Station. PG&E project-related work to update communication between facilities and the protection scheme system also will occur within the existing fence lines of remote-end substations Brighton, Bellota, Lodi, and Rio Oso, and a communication facility, Clayton Hill Repeater Station. Table 5.4-6 shows the temporary and permanent impacts to land cover types within the BSA associated with this project. Note that "agriculture" refers to a vegetation cover, not land use designations such as prime farmland. There will be no impacts to wetlands, other waters, or riparian habitat.

Table 5.4-6. Impacts to Land Cover within the Biological Study Area

Land Cover	Total Acres within BSA	Temporary Impacts (acres)	Permanent Impacts (acres)
Tree Cover	1.97	0.07	0.07
Other Waters	1.38	-	-
Wetlands	0.20	-	-
Riparian	0.90	-	-
Grassland	59.35	25.32	10.20
Agriculture	264.53	28.39	0.73
Ruderal	2.44	0.18	-
Developed/Disturbed	56.28	2.52	0.16
Total	**387.06**	**56.48**	**11.17**

a) Would the project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service? *Less-than-Significant Impact.*

PG&E Potential Impact Discussion

The PG&E portion of the project would have a less-than-significant impact to any candidate, sensitive, or special-status species populations and the incorporation of APMs and PG&E SJVHCP AMMs further minimizes the potential for impact.

There is low potential for direct and indirect effects to occur during project implementation. The project would not result in significant impacts to candidate, sensitive, or special-status species, and no reduction in the distribution of these species would occur. The majority of the project's habitat impacts would be temporary and would be restored to pre-existing conditions following project activities. The only permanent impacts would be associated with foundations for the tubular steel poles, the station facilities, and 60 kV poles replaced during reconfiguration of existing 60 kV lines.

Special-Status Plant Species

Special-status plants can be damaged or killed as a result of vegetation removal or trimming activities before construction by project vehicles traveling on access roads and/or by staging project vehicles and equipment in construction work areas. Special-status plants also can be indirectly affected by soil compaction and the spread of non-native invasive species from project vehicle and equipment travel and staging.

While succulent owl's clover and Sanford's arrowhead were determined to have the potential to occur within the BSA, they were not observed within areas of suitable habitat during appropriately timed botanical surveys, and the mesic habitats that they are associated with will not be impacted during project construction. As such, they are not expected to be present or adversely affected during project activities.

Special-Status Wildlife Species

Valley Elderberry Longhorn Beetle

The VELB and its various life stages have the potential to occur in the BSA wherever elderberry is found. Project activities, including removal of elderberry plants, could result in direct injury and mortality of VELBs. Elderberry stems that are at least 1 inch in diameter may contain one or more VELB eggs, larvae, pupae, or pre-emergent adults, and damage to or removal of these stems could impact the VELB. In these life stages within the elderberry host plant, individuals could be crushed and killed or eventually die as a result of the death and decay of the host plant material subsequent to damage or its removal from the growing host plant. During adult emergence, feeding, or dispersal, beetles could be injured or killed by vehicles or equipment during project activities. Potential indirect impacts on VELBs from elderberry plant removal include habitat fragmentation and alteration of the habitat structure and microclimate of the surrounding environment. Changes in habitat structure (vertical and horizontal distribution of plant life) and microclimate (such as solar radiation, temperature, relative humidity, and soil moisture) could negatively affect the behavior of the VELB in response to these changes in unforeseen ways. With implementation of APM BIO-3 and PG&E SJVHCP AMM-11, a focused survey will be conducted prior to construction to identify all elderberry shrubs within the project footprint. Two large elderberry shrubs with stems up to approximately 4-inches in diameter were identified during the 2021 botanical surveys. One shrub is located just within the project footprint, next to the proposed guard structure and pull site between PG&E proposed structures W1 and W2. The other shrub is located within the fence line of PG&E Lockeford Substation, surrounded by a small patch of grassland on the eastern side of the substation's general construction yard and outside of the project footprint. Elderberry shrubs will be marked and avoided, as feasible, during construction, which will avoid or minimize potential impact.

Tricolored blackbird, burrowing owl, Swainson's hawk, white-tailed kite, bank swallow, yellow warbler, and birds Protected under the MBTA and Fish and Game Code Section 3503

Suitable foraging habitat for these species is present in the vicinity of all the work locations and there is suitable nesting habitat for the tricolored blackbird, Swainson's hawk, bank swallow, and yellow warbler in the vicinity of the project footprint associated with the PG&E portion of the project. Project activities have the potential to impact nesting individuals of these and other species protected under the MBTA. Potential temporary impacts could include nest abandonment and degradation of foraging habitat. APM BIO-2 will be implemented to minimize the less-than significant potential to adversely affect these species and other nesting birds. APM BIO-1, APM BIO-3, and APM BIO-5 will be implemented to further minimize the potential to adversely affect these species and other nesting birds. Given the limited size of the work areas relative to the surrounding expanse of adjacent suitable foraging habitat areas, and the existing disturbed nature of the work areas, the temporary loss of foraging habitat is not expected to adversely affect these or other bird species.

LEU Potential Impact Discussion

The LEU portion of the project would have a less-than-significant impact to candidate, sensitive, or special-status species populations and the incorporation of BMPs further minimizes the potential for impact.

There is low potential for direct and indirect effects to sensitive biological resources to occur during the LEU portion of project implementation. The LEU portion of the project would not result in significant impacts to candidate, sensitive, or special-status species, and no reduction in the distribution of these species would occur. The majority of the LEU habitat impacts would be temporary and would be restored to pre-existing conditions following project activities. The only permanent impacts would be associated with the LEU Guild Substation facility, which is located in highly disturbed, ruderal grassland that is surrounded by industrial development. BMP BIO-1, BMP BIO-2, BMP BIO-3, BMP BIO-5, and BMP BIO-8 will be implemented to further minimize the less-than-significant potential to adversely affect these species and other nesting birds.

Burrowing Owl, Swainson's Hawk, White-tailed Kite, and Birds Protected under the MBTA and Fish and Game Code Section 3503

Suitable foraging habitat for these species is present in the vicinity of LEU Industrial and Guild Substations within annual grassland habitat, and there is suitable nesting habitat for burrowing owl and Swainson's hawk in the vicinity of the project footprint near the LEU portion of the project. Project activities have the potential to impact nesting individuals of these and other species protected under the MBTA. Potential temporary impacts could include nest abandonment and degradation of foraging habitat. BMP BIO-1, BMP BIO-2, BMP BIO-3, BMP BIO-5, and BMP BIO-8 will be implemented to further minimize the less-than-significant potential to adversely affect these species and other nesting birds. Given the limited size of the work areas relative to the surrounding expanse of adjacent suitable foraging habitat areas, and the existing disturbed nature of these work areas, the temporary loss of foraging habitat is not expected to adversely affect these or other bird species.

b) Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service? *No Impact.*

PG&E Potential Impact Discussion

Within the PG&E portion of the project, riparian vegetation exists within the BSA (Figure 5.4-2, pages 3 and 4); however, it is not present within the project footprint. The majority of potential impacts associated with the PG&E portion of the project would occur within annual grasslands, agricultural land, and existing disturbed or developed areas, and no impacts to riparian habitat or other sensitive natural communities

would occur. All temporarily disturbed natural vegetation would be restored to pre-project or better conditions following construction.

There are work activities in proximity to riparian habitats, including free spans over several creeks; however, with implementation of APM BIO-1, APM BIO-3, APM BIO-4, APM BIO-5, APM BIO-7, and APM BIO-8, the potential for indirect impacts to riparian corridors and other sensitive natural communities will not occur. Therefore, there will be no impact to riparian habitats.

LEU Potential Impact Discussion

Within the LEU portion of the project, there is no riparian vegetation present. The majority of potential impacts associated with the LEU portion of the project would occur within annual grasslands and existing disturbed or developed areas, and no impacts to riparian habitat or other sensitive natural communities would occur. Therefore, there will be no impact.

c) Would the project have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means? *No Impact.*

PG&E Potential Impact Discussion

Within the PG&E portion of the project, there are eight seasonal wetlands comprising approximately 0.200 acre, approximately 0.247 acre (approximately 359 linear feet) of natural watercourses (one perennial and one intermittent stream), approximately 0.545 acre (approximately 2,775 linear feet) of constructed watercourses, approximately 0.127 acre (approximately 1,805 linear feet) of drainage ditches in the BSA; however, none are within the project footprint, and none will be impacted (Figure 5.4-3). The access route to the work area at structure E18 from North Jack Tone Road and the access route to the staging area at PG&E Lockeford Substation from East Kettleman Lane will use established overland routes, such as driveways, that will avoid drainage ditches and constructed watercourses culverted beneath the access routes.

An irrigation ditch comprising approximately 0.152 acre (approximately 1,654 linear feet) within the BSA runs parallel to the access route and partially intersects the project footprint at structure W9. Based on historic aerial imagery and multiple field reviews of the area, this ditch appears to be excavated on a seasonal basis to water adjacent crops, and is then graded or filled after the growing season is completed. It has no natural or persistent OHWM (the limits of the ditch are the result of seasonal excavation), and is devoid of vegetation, and as such is presumed to be non-jurisdictional under the CWA and California Fish and Game Code. While this ditch is presumed to be non-jurisdictional, if it is present during construction, it will be avoided. Placement of this structure will be coordinated with the landowner during final design and construction planning to ensure impacts to this ditch are avoided.

With implementation of APM BIO-3, APM BIO-4, APM BIO-5, APM BIO-7, and APM BIO-8, these features will be avoided during all work activities and there will be no impact to state or federally protected wetlands.

LEU Potential Impact Discussion

Within the LEU portion of the project, there are no state or federally protected wetlands present. Therefore, there will be no impact.

d) Would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites? *Less-than-Significant Impact.*

PG&E Potential Impact Discussion

Within the PG&E portion of the project, discrete portions of the project footprint are located within potential dispersal range for terrestrial wildlife, including amphibians, and if work activities occur during dispersal, it may impede movement. Aquatic and riparian habitat in the vicinity of the project footprint is low quality disturbed wetland and stream features that dry out seasonally, managed irrigation ditches, and the associated sparse riparian habitat, which makes for low-quality migratory wildlife corridors. The portions of the work area in the vicinity of aquatic habitat are surrounded by low-quality upland habitat largely characterized by developed and actively cultivated areas. In the unlikely event amphibians or other terrestrial wildlife species make overland movements during construction activities, fenced work areas, per APM BIO-4, would not impede their movements between the nearest breeding habitat and upland habitat given the amount of surrounding habitat and the limited size of the project footprint at each work location. Additionally, with implementation of APM BIO-6, wildlife species entrapment as a result of construction activities would be avoided. Disturbed areas would be restored to pre-existing conditions and there would be no migratory barriers present after completion of the project. Therefore, potential impacts would be less than significant.

During times of high flow and hydrological connectivity within Paddy Creek, Bear Creek, and their tributaries, these creeks could potentially provide migratory pathways for aquatic species. However, there will be no impacts to Bear Creek or Paddy Creek and, therefore, no impacts to migratory pathways for aquatic species. There are no known nesting rookeries for birds, spawning areas for native fish, fawning areas for deer, or maternal roosts for bats within the PG&E portion of the project.

Migratory birds may move through the PG&E portion of the BSA during work activities and may nest in the vicinity. Construction activities may temporarily degrade nesting habitat within the immediate vicinity of the work locations; however, any potential effect is expected to be minimal based on the disturbed nature of the work locations and the large amount of surrounding habitat. APM BIO-2 also will be implemented to minimize any potential impacts to nesting birds.

LEU Potential Impact Discussion

Within the LEU portion of the project, migratory birds may move through the BSA during work activities and may nest in the vicinity. Construction activities may temporarily degrade nesting habitat within the immediate vicinity of the work locations; however, any potential effect is expected to be minimal based on the disturbed nature of the work locations and the large amount of surrounding habitat. BMP BIO-2 also will be implemented to minimize any potential impacts to nesting birds. There are no known nesting rookeries for birds, spawning areas for native fish, fawning areas for deer, or maternal roosts for bats within the LEU portion of the project. Therefore, potential impacts to migratory birds and nursery sites would be less than significant.

e) Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance? *Less-than-Significant Impact.*

PG&E Potential Impact Discussion

Although not subject to local regulation, PG&E strives to be consistent with local requirements for the protection of biological resources, where feasible, while remaining consistent with safety considerations. According to the San Joaquin County natural resources regulation (Chapter 9-1505.3), the removal of a Native Oak Tree, Heritage Oak Tree, or Historical Tree requires an approved Improvement Plan application, which requires replacement of the tree. However, removals by a public utility that are necessary to protect electric power lines are not subject to the provisions of this chapter and, therefore, this project is not subject to preparing an Improvement Plan application. The project will be consistent with the County regulation. Trimming or removal of oaks may be necessary for construction access and would be conducted by a certified arborist to avoid impacting tree health or to make the decision to remove the tree if trimming is not feasible. In addition, APMs and AMMs (Section 5.4.4.2) would be implemented as part of

the project in accordance with agency permit conditions. Therefore, potential impacts would be less than significant.

LEU Potential Impact Discussion

LEU is subject to local regulation and strives to be consistent with local requirements for the protection of biological resources, where feasible, while remaining consistent with safety considerations. Project activities are not anticipated to conflict with any local policies or ordinances protecting biological resources. In addition, BMPs (Section 5.4.4.2) would be implemented as part of the project in accordance with agency permit conditions, so no impacts are anticipated.

f) Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan? *No Impact.*

PG&E Potential Impact Discussion

The PG&E portion of the project is located within the boundaries of the SJMSCP and PG&E SJVHCP (PG&E 2006). Although the project is a permitted activity under the SJMSCP, based on the project design, biological resources, APMs, and AMMs, the project will avoid take of special-status species covered under the SJMSCP and, therefore, coverage under the SJMSCP is not expected to be obtained. Following construction, O&M activities associated with the project would be covered under the PG&E SJVHCP. PG&E SJVHCP AMM-1 through PG&E SJVHCP AMM-11 are consistent with the measures in the SJVHCP. SJVHCP is administered by PG&E to provide suitable coverage levels for all covered species throughout its term. Therefore, there would be no impact.

LEU Potential Impact Discussion

The LEU portion of the project is located within the boundaries of the SJMSCP. Although the project is a permitted activity under the SJMSCP, based on the project design, biological resources, and BMPs, the project will avoid take of special-status species covered under the SJMSCP and, therefore, coverage under the SJMSCP is not expected to be obtained. Therefore, there would be no impact.

5.4.4.4 Additional Impact Question

Would the project create a substantial collision or electrocution risk for birds or bats? *Less-than-Significant Impact.*

PG&E Potential Impact Discussion

During construction within the PG&E portion of the project, there is the potential for vehicle and equipment collisions with wildlife; however, PG&E would restrict vehicles and equipment use to designated work areas and approved access roads and would enforce speed limits for vehicles and equipment on the ROW and access roads (PG&E SJVHCP AMM-4). There also is potential for avian interactions with PG&E power lines and structures, including collisions and electrocutions. Species of birds reported to be susceptible to collisions generally have a large body size, long wingspan, heavy body, and poor maneuverability. Collisions and electrocutions are known to occur more during spring and autumn migrations among medium- and large-sized birds (APLIC 2012). PG&E would minimize the potential for electrocution or accidental line collision by constructing electrical lines in accordance with avian-safe construction standards.

As presented in APM BIO-9 and APM BIO-10, conductors and ground wires would be spaced sufficiently apart so that raptors would not be electrocuted and all transmission, power, and station facilities for the project will be designed to be avian-safe, as appropriate and feasible, following the intent of *Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006* (APLIC 2006, 2012). Through

project design, potential impacts would be less than significant, and potential impacts would be further minimized with implementation of these AMMs and APMs.

LEU Potential Impact Discussion

During construction within the LEU portion of the project, there is the potential for vehicle and equipment collisions with wildlife; however, LEU would restrict vehicles and equipment use to designated work areas and approved access roads and would enforce speed limits for vehicles and equipment on the ROW and access roads. There also is potential for avian interactions with LEU transmission and power lines and structures, including collisions and electrocutions. Species of birds reported to be susceptible to collisions generally have a large body size, long wingspan, heavy body, and poor maneuverability. Collisions and electrocutions are known to occur more during spring and autumn migrations among medium- and large-sized birds (APLIC 2012). LEU would minimize the potential for electrocution or accidental line collision by constructing electrical lines in accordance with avian-safe construction standards.

As presented in BMP BIO-9 and BMP BIO-10, conductors would be spaced sufficiently apart so that raptors would not be electrocuted and all transmission, power, and substation facilities for the project will be designed to be avian-safe, as appropriate and feasible, following the intent of *Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006* (APLIC 2006, 2012). Through project design, potential impacts would be less than significant, and potential impacts would be further minimized with implementation of these BMPs.

5.5 Cultural Resources

This section describes existing conditions and potential impacts on cultural resources as a result of construction, operation, and maintenance of the project. It presents the methods and results of cultural resources studies of the project area. The analysis concludes that the proposed project would have a less-than-significant impact on cultural resources. Incorporation of the APMs and BMPs described in Section 3.5.4.2 will further minimize potential less-than-significant impacts on cultural resources. The project's potential effects on cultural resources were evaluated using the significance criteria set forth in Appendix G of the CEQA Guidelines. The conclusions are summarized in Table 5.5-1 and discussed in more detail in Section 5.5.4. Project description information and potential impacts are organized and discussed by each participating utility's portion of the project. The following summary concerning cultural resources is derived from the Architectural Identification and Evaluation Report (Refer to Appendix D1) and the Archaeological Resources Survey Report and Addendum (Refer to Appendix D2 and D3) (Far Western 2021; Jacobs 2022; Far Western 2023). Appendix D2 and Appendix D3 contain confidential material and have been removed in their entirety. The reports will be filed via archival grade DVDs with the CPUC Docket Office. Refer to Appendix D4 for project correspondence with NAHC and Native American tribes.

5.5.1 Methodology and Environmental Setting

The Area of Potential Impacts (API) is situated in the northern San Joaquin Valley, both within and approximately 0.25 mile west of the City of Lodi and approximately 2.5 miles south of Lockeford in San Joaquin County. State Route (SR) 99 is located to the west of the API and SR 88 intersects the center of the API. The Mokelumne River is located approximately 1.5 miles north of the API at its closest point. Historically, Bear and Paddy creeks intersected the center of the API. The area is currently used for agricultural purposes, and an extensive system of canals and levees was built to transport and control irrigation water.

The archaeological API is defined as all proposed locations of ground disturbance, aboveground usage areas along the PG&E transmission line, and access roads proposed as part of the project. As the location-specific ground disturbance, aboveground usage areas, and depths of excavation have not been defined for this project yet, the archaeological API includes a 500-foot buffer on the PG&E transmission line from the centerline, a 200-foot buffer around pull sites and potential staging areas, and a 100-foot buffer corridor centered on the access roads to account for any potential areas of ground disturbance associated with the project. The archaeological API covers approximately 878.21 acres. The depth of ground disturbance is not expected to exceed approximately 30 feet for the majority of the project. Up to approximately four grounding wells are expected to be installed at depths of approximately 100 feet within PG&E Thurman Switching Station. The exact structure type, configuration, and dimensions will be determined by CPUC or City of Lodi requirements, final engineering, and other factors and are likely to change.

The architectural API encompasses 3,662 acres. It includes the maximum project footprint and all areas related to the project's construction, implementation, and operation, including areas anticipated to be used as access roads, staging areas, and laydown areas. In addition, the architectural API accounts for potential visual, atmospheric, and audible effects. The architectural API includes a 500-foot radius past the project footprint in rural areas and one parcel past the project footprint in suburban and industrial areas when project improvements include the new transmission line or switching station or substation improvements because of the highly visible nature of these features. The vertical extent of the architectural API will not exceed 155 feet above the existing ground surface for the new transmission line poles and 30 feet above the existing ground surface for the switching station and substation improvements. The removal of the top portion of the PG&E Industrial Tap Line outside of the City of Lodi north to its termination at PG&E Lodi-Lockeford No. 2 Line is excluded from the architectural API because there would not be a visual impact from this activity. The height of the existing poles will be shortened to accommodate the removal of the 60 kV facilities at the top of the line.

This cultural resources study included the following tasks: archival research; records search and PG&E Confidential Cultural Resource Database (CCRD) search; Native American outreach, Sacred Lands File search; surface and buried site sensitivity assessment; and intensive pedestrian survey.

The archival research and records search consulted PG&E's CCRD, the National Register of Historic Places (NRHP), California Register of Historical Resources (CRHR), California Inventory of Historic Resources, California Points of Historic Interest, California Historical Landmarks, California Department of Transportation Bridge Inventory, and Historic Properties Directory (NRHP 2020; OHP 2020a, 2020b). Additionally, historical maps and photographs were reviewed – in particular, USGS repository; David Rumsey Map Collection; Proquest Sanborn Fire Insurance Maps Collection; National Environmental Title Research; and the University of California, Berkeley, Earth Sciences and Map Library historical topographic map collections. The records search included a 0.25-mile buffer around the archaeological API or the architectural API.

Additional background research to identify architectural resources within the architectural API and to develop a historic context included review of primary and secondary sources available at repositories and online, such as maps, aerial images, regional histories, and historic newspapers. Statewide historic contexts pertinent to the architectural API also were reviewed. These sources included the following list:

- Water Conveyance Systems in California, Historic Context Development and Evaluation Procedures (California Department of Transportation [Caltrans] 2000)
- A Historical Context and Archaeological Research Design for Agricultural Properties in California (Caltrans 2007)
- General Guidelines for Identifying and Evaluating Historic Landscapes (Caltrans 1999)
- A Model for Identifying and Evaluating the Historic Significance of Post–World War II Housing (Transportation Research Board 2012)
- San Joaquin County libraries
- Lodi Historical Society
- San Joaquin County Historical Museum
- San Joaquin Delta College Library Archives and Special Collections
- National Park Service
- Ancestry.com
- ChroniclingAmerica.loc.gov (Library of Congress historic newspaper database)
- General Land Office land records
- National Archives
- Newspapers.com
- NewspaperArchive.com
- National Register Focus Database
- ParcelQuest
- USGS topographic maps
- U.S. Census Records

5.5.1.1 Cultural Resources Summary

Cultural resources are summarized by precontact, ethnographic context, and historical research, including architectural resources or built environment.

Precontact

There is limited evidence of late Pleistocene-era occupation of the northern San Joaquin Valley. This comes primarily in the form of artifact types associated with that period – specifically, eccentric crescents and Clovis points. These finds, however, generally occur in isolated contexts that provide little information regarding the lifeways of these late Pleistocene peoples. An exception is the Witt site (KIN-32) on the southwestern shore of Tulare Lake at the far southern end of the San Joaquin Valley. This locality has produced the largest collection of basally thinned concave-base points in California, with as many as 200 specimens reported (Dillon 2002; Hopkins 1991:34). Many of the ancient concave-base points at Tulare Lake are quite small, however, and are unlike classic Clovis points found elsewhere in North America (Hopkins 1991; Rondeau and Hopkins 2008).

The Lower Archaic Period (11500-7000 calendar years before the present [cal BP]) is poorly represented in the Central Valley, with few well-preserved archaeological deposits dating to this period. Exclusive use of handstones and milling slabs along with a number of other cobble-based pounding, chopping, and scraping tools are characteristic of assemblages from this time period. Lower Archaic assemblages from central California often are found to contain large broad-stemmed projectile or spear points. Settlement from this time appears to be a mobile, yet seasonally structured, settlement system with frequent re-use of encampments.

The Middle Archaic (7000-2500 cal BP) can be characterized by increasing sedentism and artifact diversity, including the introduction or mortars and pestles in the Valley lowlands by 5000 cal BP. There is also evidence for increasing trade, which included exotic items such as obsidian, shell beads and ornaments, and potentially other perishable items.

The Upper Archaic (2500-930 cal BP) is much better understood than the preceding periods because of a more extensive archaeological record and better temporal resolution. Cultural diversity first apparent in the Middle Archaic becomes much more pronounced in the Upper Archaic, as evidenced by a complex mosaic of distinct socio-political entities marked by contrasting burial postures, artifact styles, and other material culture elements (Bennyhoff and Fredrickson 1994; Rosenthal 1996). Throughout Central California, the Upper Archaic witnessed the development and proliferation of many specialized technologies, including new types of bone tools such as harpoons, shaft wrenches, and awls. Widespread exchange of obsidian and shell ornaments continues through this period.

The Emergent Period (930-150 cal BP) is composed of two phases, the latter of which represents the onset of cultural traditions most resembling those encountered by Europeans at contact. This period saw the introduction of the Stockton serrated arrow point as well as highly decorative items, including big-head effigy ornaments, collared stone pipes, ear spools, and incised bone whistles. Fishing is a significant component of the Native economy at this time as evidenced by the prevalence of fishing equipment at sites as well as the establishment of large, mound villages every few miles along the San Joaquin River and major tributaries. Mortars and pestles are used almost exclusively during this period.

Ethnographic Context

Historically, the Central Valley was home to no fewer than seven Native California ethnic groups, all related to a single linguistic superfamily—Penutian. It has been estimated that slightly more than 100,000 people lived in the Central Valley when Europeans first ventured into the basin about AD 1772 (Cook 1955, 1976; Moratto 1984:171). If this projection is correct, the Valley alone was home to almost one third of the entire state's estimated Native population (Cook 1955, 1976, 1978).

At the time of European contact, almost the entire San Joaquin Valley, including the current API, was held by the Yokuts; only the region immediately east and south of the delta was outside Yokuts territory, controlled instead by the Plains Miwok. At least 50 separate Yokuts groups lived in the San Joaquin Valley and adjacent Sierra Nevada foothills, each having a distinct name, dialect, and territory (Latta 1949). As Moratto (1984:173) points out, the Yokuts may have been the largest ethnic group in California with an estimated precontact population approaching 41,000 people (Cook 1955). According to Milliken (2006),

the precontact archaeological sites east of the archaeological API fall within the territory of the *Coybos*, a Northern Valley Yokuts group who lived along the San Joaquin River near the modern town of Lathrop. Milliken estimates a postcontact population density for the *Coybos* of almost five persons per square mile, among the highest population in the northern part of the Valley.

Like elsewhere in western California, the Yokuts were organized into small, independent political groups, referred to as tribelets. Houses typically were simple frame structures covered by tule mats. In the south, large communal houses were built in this manner, providing shelter to as many as 10 families; however, single-family dwellings appear to have been the norm among the Northern Valley groups (Wallace 1978). The Yokuts were hunter-gatherers, with fishing playing an important part in their diet. Other important dietary resources include waterfowl, deer, elk, pronghorns, acorns and other nut crops, as well as small seeds, bulbs, roots, and greens.

As is the case throughout California, the traditional lifeways of the Yokuts were radically disrupted by missionization. In the San Joaquin Valley, this process began as early as 1776 with the expedition of Lieutenant-Colonel Juan Bautista de Anza. As recorded in baptismal records, the *Coybos* moved to Mission San Jose between 1809 and 1813 (Eidsness and Milliken 2004).

The modern Northern Valley Yokut tribe is active in advocating for their cultural resources and tribal heritage. They frequently participate in archaeological and cultural resources reviews, surveys, and important collaborative efforts to document Native American resources and remain an important part of California tribal history and modern community.

Historic-Era Period (Adapted from DeBaker et al. 2019)

The archaeological API is situated between Lodi and Lockeford, two agricultural communities located in San Joaquin County, California. Lodi, originally named Mokelumne, was founded in 1869 when the Central Pacific Railroad (CPRR) chose the location for a station (Anon 1890:190). In 1906, Lodi had six fruit packing sheds and two lumber mills and the agricultural area surrounding the town was known for growing wine grapes (Martin 1904:9–11). Lodi was located on a railroad line between Stockton and Sacramento that connected the town to the rest of the state.

Lockeford is an unincorporated community built on the ranch of Dr. D. J. Locke and was named Lockeford because it was located near a ford on the Mokelumne River. Dr. Locke first came to the area in 1850, and Lockeford opened its first post office in 1861 (Anon 1890:197). Lockeford was situated on a road to the mines in Amador County (Tinkham and Spooner 1880:377).

The largest city close to Lodi and Lockeford is Stockton. Stockton was founded in 1849 during the California Gold Rush, and the town grew from a small settlement on the edge of the San Joaquin River in the mid-nineteenth century to one of the Central Valley's largest cities and an important transportation hub for the surrounding Delta region by the mid- and late twentieth century. The archaeological API is located approximately 16.8 miles northeast of Stockton and formed part of the larger agricultural landscape that developed in conjunction with the changes in industry and transportation in the city of Stockton. Stockton's growth was spurred by the city's burgeoning populations of immigrants and ethnic minorities, industrial development along the Stockton Channel, and transportation corridors, including the deep-water channel from Stockton to the San Francisco Bay, construction of three transcontinental railroads through the city, and ultimately the development of two major highways connecting the city to other urban areas throughout the state.

Because the archaeological API is near the transportation hub of Stockton, important research themes for the historic period include Industrial Development, Railroads, and Roads and Highways. This is evidenced by the built environment resources within or near the API, including segments of the Southern Pacific Railroad (SPRR) (P-39-000002) and the Central California Traction (CCT) Railroad (P-39-004457) that were constructed to move people and goods to and from Stockton and the rest of California.

Architectural Resources

In California, the historic period generally is divided into three periods: the Spanish Period (1769 to 1834), the Mexican Period (1821 to 1848), and the American Period (1848 to the present).

Spanish and Mexican Periods (1769 to 1848)

The Spanish Period spans 1769 to 1821, beginning with the founding of the El Presidio Real de San Diego and the Mission San Diego de Alcala. As early as 1776, the first formal European expedition, led by Lieutenant-Colonel Juan Bautista de Anza, entered San Joaquin Valley (Schenck 1926). Although the Spanish established a vast network of missions along the California coast during the Spanish Period, none of the missions were sited inland within San Joaquin County. A review of Spanish land grant information did not find any information regarding land grants within present-day San Joaquin County that might have relevance to the API's history (State Lands Commission 1982).

Mexico became independent of Spain in 1821, effectively ending the Spanish Period in California. Former Spanish lands then were opened for grants by the Mexican government to citizens who would colonize the area and use the land (Lech 2004). A review of Mexican land grants documented six land grants within San Joaquin County during the Mexican Period; however, none of these ranchos extended into the architectural API (State Lands Commission 1982).

American Period (1848 to the Present)

Following the signing of the Treaty of Guadalupe Hidalgo in 1848, the U.S. took possession of what is now California. The discovery of gold in California in 1848 led to the start of the California Gold Rush the following year, bringing many speculators from the eastern U.S. and European countries to California. In 1850, California was admitted into the U.S. as the 31st state, primarily because of the population increase created by the Gold Rush.

San Joaquin County was formed when California achieved statehood in 1850. Cartographic review indicates the architectural API environs remained sparsely populated during this time. Lodi later was established on the west end of the architectural API in 1869 along the newly constructed SPRR. The ease of transportation afforded by the SPRR and subsequent railroads coupled with an expanding road network contributed to the architectural API environs' burgeoning agricultural industry during the second half of the nineteenth century. The area also benefited from its proximity to Stockton, a major trade center in the region.

Historic themes specific to the architectural API include agriculture; irrigation, flood control, and water conveyance; transportation; and power infrastructure. These themes are discussed in greater detail in the following sections.

Agriculture

The earliest maps of the architectural API date from 1856 and 1857 (General Land Office 1855, 1865). They show some roads extending through the area (discussed further in Section 3.2.3), but that the architectural API was otherwise largely undeveloped. Lodi was created as a new railroad town at the west end of the architectural API in 1869, and by 1890 grew to a population of approximately 1,200 residents (Anon 1890). Around this time, a local history described that, "The land in the vicinity [of Lodi] is sandy and excellent for almost all kinds of crops. Watermelons have been a great specialty here for many years" (Anon 1890). However, dry grains principally were farmed in San Joaquin County during the 1800s. In the Lodi area, alfalfa was identified as "King of Crops" (Martin 1904:22). Therefore, it is likely that nineteenth-century farmers in the architectural API produced dry grains such as alfalfa, which required little in the way of irrigation (Caltrans 2007).

During the early twentieth century, farmers in San Joaquin County increasingly began to diversify their crops, with the area surrounding Lodi becoming known for its wine grapes. Other farm goods in the area

included olives, peaches, apricots, prunes, almonds, and figs, among others. Lodi featured six fruit packing sheds by 1906. Agricultural products grown in the architectural API environs were shipped throughout California and the nation via the railroads that traversed the area. Orchards and vineyards continue to characterize the architectural API to this day, reflecting the importance of the local agricultural industry (Martin 1904; Anon 1890).

Irrigation, Flood Control, and Water Conveyance

Dry grain farming, the principal industry in San Joaquin County during the second half of the nineteenth century, required little in the way of irrigation. However, crop diversification occurred during the twentieth century that required the construction of more irrigation features. Natural waterways and canals served as lifelines providing water to farms via features such as smaller canals, laterals, and ditches (JRP Historical Consulting Services and Caltrans 2000). Historic maps and aerials show numerous wells in the architectural API environs, as well as what appear to be small ditches diverting water from creeks to agricultural fields (NETROnline 2022; USGS 2022). This includes the Bear and Paddy creeks, which intersect the center of the API. A 1908 topographic quadrangle, the earliest available for the area, shows their meandering courses extending through the architectural API immediately east of present-day SR 88. This also is reflected in subsequent quadrangles and aerials through 1961. By 1967, however, an aerial shows that all three creeks had been channelized to follow their current, straighter paths. According to a 1977 report by the U.S. Army Corps of Engineers, channelization of Bear Creek in San Joaquin County was completed between 1963 and 1967 as part of a flood protection project that built 24 miles of channel improvements and 41 miles of low levees along the waterway. The project was intended to protect agricultural land, suburban areas, and transportation corridors from the devastating effects of floods (U.S. Army Corps of Engineers 1977). Paddy Creek likely was channelized during the same period for flood protection purposes.

The entire architectural API falls within the North San Joaquin Water Conservation District (NSJWCD), which was formed in 1948 to provide groundwater management (NSJWCD 2022). It represents one of the water storage and conservation districts created in California after the late 1920s in response to the "increased demand for storage and coordination of interests on larger streams" (JRP Historical Consulting and Caltrans 2000:15). The NSJWCD currently encompasses approximately 150,000 acres east of Lodi on both sides of the Mokelumne River and includes features such as pump stations, recharge sites, and reservoirs for water storage (all outside the API). A 2020 map of the district identifies that the NSJWCD South Pipeline, which delivers water from Mokelumne River to the north into Pixley Slough and Bear Creek to the south, intersects the architectural API approximately 0.5 mile east of North Alpine Road (NSJWCD 2020). The pipeline also is used during irrigation season to convey water to farms (Greater San Joaquin County Regional Water Coordinating Committee 2020). The pipeline's north-south alignment through the architectural API first appears between 1961 and 1968 topographic quadrangles, where it is labeled an aqueduct (NETROnline 2022; USGS 2022).

Another aqueduct intersects the architectural API: the Mokelumne Aqueduct, which extends northeast-southwest through the extreme east end of the architectural API. The resource runs nearly 100 miles in total and is owned and operated by the East Bay Municipal Utility District. The first segment of the line was completed in 1920 to provide water to the rapidly growing East Bay area. Additional segments were added as the twentieth century progressed (East Bay Municipal Utility District 2022). The aqueduct is first depicted through the architectural API between 1942 and 1947 topographical quadrangles (USGS 2022).

Transportation

Maps of the architectural API from 1856 and 1857 depict two parallel roads extending in a northeast-southwest orientation through the western half of the architectural API, the easternmost of which roughly follows the alignment of present-day SR 88 (General Land Office 1855, 1865). The remainder of the architectural API was sparsely developed during this time. Although the architectural API still retains its rural character, arrival of the SPRR led to the establishment of a new railroad town at Lodi at

the west end of the architectural API in 1869 (City of Lodi California n.d.). The SPRR mainline extended in a north-south orientation through Lodi approximately 0.82 mile west of the architectural API and also passed through the nearby towns of Elk Grove, Galt, Stockton, Lathrop, and Altamont Pass, California. The SPRR currently forms part of the UPRR alignment.

Another railroad, the San Joaquin and Sierra Nevada Railroad (SJ&SNR), was built in the architectural API environs shortly after the SPRR. The segment of the line between Lodi and Woodbridge, California, opened for business in 1882, while construction of the line continued eastward toward Lockeford, California (northeast of the API). The SJ&SNR passed approximately 0.26 mile north of the architectural API and had an east-west orientation that followed present-day SR 12. SPRR acquired the SJ&SNR in 1888, and it subsequently became known as the SPRR Valley Spring Branch (Hees n.d.). The segment of the former SPRR Valley Spring Branch in the vicinity of the architectural API is no longer extant.

The road historically in the location of present-day SR 88 was depicted as one of the major thoroughfares in the Central Valley in maps from the mid-1880s (Hall 1886, 1887). It connected Stockton, Waterloo, and Lockeford with communities in the Sierra Nevada. A map from 1894 later shows additional roads within the API, including East Harney Lane, Jack Tone Road, and East Kettleman Lane (USGS 2022). This trend of new road construction continued into the early twentieth century based on maps and aerials (NETROnline 2022; USGS 2022). The expanding road network during this time reflects the area's burgeoning agricultural industry, which increased settlement in the region. Roads as well as railroads were important movers of goods and people, and thus also aided the growth of the agricultural industry and prompted settlement along their alignments.

A third railroad reached Lodi during the early twentieth century: the CCT Railroad, which extends through the west end of the API. The portion of the line between Stockton and Lodi was completed in 1907, and the portion between Lodi and Sacramento was completed in 1910. The CCT Railroad line currently is owned by UPRR and BNSF Railway (JRP Historical Consulting Services 2003).

Power Infrastructure

Power infrastructure within the architectural API consists of PG&E Brighton-Bellota 230 kV Transmission Line, PG&E Rio Oso-Lockeford 230 kV Transmission Line, LEU Industrial Substation, and PG&E Lockeford Substation, as well as the following 60 kV power lines associated with the substations: PG&E Industrial Tap, PG&E Lockeford-Industrial, PG&E Lodi-Industrial, PG&E Lockeford 1, PG&E Sutter Home Switching Station-Lockeford-Lodi, PG&E Lockeford-Lodi No. 2, and PG&E Lockeford-Lodi No. 3.

During the first half of the twentieth century, California experienced immense growth, which led to development of a complex utility network. Early hydroelectric and transmissions systems supplied power to agricultural valleys and distant cities along the coast. Long-distance electric power lines were developed across California in the first decades of the twentieth century as electricity demands increased (Walker 2017).

PG&E, which formed in 1905 when multiple gas and electric companies in the Bay Area consolidated, emerged as an early leader in electrical systems development. By the end of the 1920s, PG&E expanded its reach by purchasing dozens of smaller geographically focused utilities, such as San Joaquin Light and Power Company (Walker 2017). As such, PG&E enjoyed monopoly status during the Great Depression and entering the post-war period, which brought rapid growth to the valley communities in the region. The company projected that the area load demand would double in the decade between 1945 and 1955 (Walker 2017). To address this growing demand for energy at the midcentury, PG&E announced a $350 million construction program to expand electricity and natural gas services in northern and central California (Contra Costa Gazette 1947).

Review of historic aerials and maps shows the development of power infrastructure within and around the architectural API during this period (NETROnline 2022; USGS 2022). PG&E Brighton-Bellota 230 kV Transmission Line represents the first part of this construction. Its northwest-southeast alignment extending through the extreme east end of the architectural API first appears in a 1939 topographical

quadrangle. Nearly a decade later, PG&E Lockeford Substation (located along East Kettleman Lane to the east of SR 88) was put in service in December 1948 (Anon 1949). PG&E Rio Oso-Lockeford 230 kV Transmission Line, which extends from PG&E Lockeford Substation to the existing alignment of PG&E Brighton-Bellota 230 kV Transmission Line to the east, was built later, first appearing on topographic quadrangles between 1961 and 1968 (NETROnline 2022; USGS 2022). LEU Industrial Substation southeast of the intersection of South Cluff and East Lodi avenues in Lodi dates from sometime between 1984 and 1993 based on aerials (NETROnline 2022). PG&E Industrial Tap, PG&E Lockeford-Industrial, and PG&E Lodi-Industrial 60 kV power lines reaching LEU Industrial Substation were erected after its construction. The remaining PG&E 60 kV distribution lines within the architectural API (PG&E Lockeford 1, PG&E Sutter Home Switching Station-Lockeford-Lodi, PG&E Lockeford-Lodi No. 2, and PG&E Lockeford-Lodi No. 3) are associated with PG&E Lockeford Substation and were built sometime between 1993 and 2002 based on aerials (NETROnline 2022).

5.5.1.2 Record Search Results

PG&E's CCRD was reviewed, which includes all the Central California Information Center's (CCaIC) current files (subscription updated October 30, 2018; CCaIC File No: 10889 Five Counties). The records search included a 0.25-mile buffer radius on the archaeological API and the same buffer on the architectural API. The records search resulted in the identification of 23 previously conducted cultural resources studies within 0.25 mile of the archaeological API, 20 of which overlap the archaeological API (Table 5.5-1). The intersecting studies are primarily archaeological surveys that occurred between 1971 and 2016; however, a majority of the archaeological API was not previously surveyed by these efforts.

The results of the architectural API records search indicated that one architectural resource investigation has been conducted previously within the 0.25-mile-radius study area (Report Number SJ-04506), and that it covered less than 1% of the architectural API. Additionally, the records search identified three previously recorded architectural resources within the 0.25-mile-radius study area: California Department of Transportation (Caltrans) Bridge Number 29C-341, which carries East Harney Lane over Paddy Creek, as well as two railroads that intersect the architectural API. The bridge is located immediately south of the architectural API and has been evaluated as not eligible for listing in the NRHP, CRHR, or for local designation (assigned Caltrans Status Code 5; Office of Historic Preservation Status Code 6Z). Refer to Table 5.5-2.

The records search resulted in the identification of seven previously recorded cultural resources within the records search area (Table 5.5-2). Five of the resources intersect the API, including the two historic-era railroad segments (P-39-004457 and P-39-000002), a row of oak trees (P-39-004471), a segment of SR 12 (P-39-004901), and four telegraph poles (P-39-004279). The two historic-era railroad segments, single home foundation, row of oak trees, and telegraph poles (P-39-004457, -000002, -004594, -004471, and -004279) have not been evaluated for their potential eligibility for listing in the CRHR or the NRHP. Far Western documented P-39-000002 as no longer extant in the 2021 investigation (Scott and Higgins 2021). The SPRR alignment (P-39-000002) is incorrectly mapped in some GIS datasets and, based on review of historic topographic quadrangles dating back to 1909, the alignment did not extend through either API. Only one of these resources (railroad alignment P-39-004457) intersects the northwestern extent of the architectural API.

The CCT Railroad segments have not been evaluated for listing on the NRHP or CRHR. In 2003, JRP Historical Consulting Services recorded a 100-foot-long segment of the CCT Railroad at the railroad's intersection with SR 12, approximately 250 feet north of the architectural API. The record noted that the rails, ties, and crossing guards all appeared to be nonoriginal and recently replaced. Three additional segments of the CCT Railroad have since been recorded in Stockton (outside the architectural API and 0.25-mile-radius study area). The first, in 2008 (recorded by Martinez), recommended the segment as not eligible for listing in the NRHP and CRHR based on a lack of integrity. The remaining two segments were recorded in 2010 (PARUS Consulting, Inc) and 2011 (Pappas and Tippet) and are unevaluated.

Table 5.5-1. Previous Cultural Resource Studies Conducted within 0.25 Mile of the API

Report No./ Map Label	Report Year	Intersects API?	Author(s)	Report Title	Report Type
CCIC 7597L	2011	Yes	Greathouse, E.A.	Lockeford #1 Reconductoring	Records/ literature search
Grant 2014	2014	Yes	Grant, Joanne	Cultural Resources Constraints Report, Lockeford-Industrial 60 kV, PM 31032412	Archaeological survey
Hammerle 2015	2015	Yes	Hammerle, Esme	Cultural Resources Constraints Report for Lockeford 2101 Blitz (PM 31013252)	Records/ literature search
Hammerle 2016	2016	Yes	Hammerle, Esme	Cultural Resources Constraints Report for Lockeford Substation Property, Lodi, San Joaquin County (PM 74001577)	Archaeological survey
SJ-01543/ CCaIC (San Joaquin) _SJ-01543	1971	Yes	Ritter, E.	Archaeological Reconnaissance of the Folsom South Canal, Central Valley, California	Archaeological survey
SJ-02759/ CCaIC (San Joaquin) _SJ-02759	1995	Yes	Hatoff, Brian, Barb Voss, Sharon Waechter, Stephen Wee	Cultural Resources Inventory Report for the Proposed Mojave Northward Expansion Project, Final	Archaeological survey
SJ-02824/ SJ-2824	1996	Yes	Busby, C., S. Guedon, and M. Tannam	Cultural Resources Assessment, San Joaquin Area Flood Control Restoration Plan, San Joaquin County, California (Oct. 1995) (and) Cultural Resources Assessment Addendum San Joaquin Area Flood Control Restoration Plan	Regional overview
SJ-03379	1994	Yes	-	Historic Report (49 CFR 1105.8) Southern Pacific Transportation Company Proposed Abandonment in San Joaquin and Calaveras Counties, California ICC Docket No. AB-12 (Sub-No 155X)	Archaeological survey
SJ-03642/ CCaIC (San Joaquin) _SJ-03642	1999	Yes	Wulf, E., and K. Wooten	Archaeological Survey Report for the Proposed Road Rehabilitation, Widening, and Replacement of Four Bridges on California State Highway 88 Between Waterloo and State Highway 12 in San Joaquin County, California, 10-SJ-88 KP 8.2/19.3 (PM 5.1/12.3), EA10-2	Archaeological survey
SJ-04506/ CCaIC (San Joaquin) _SJ-04506	2001	Yes[a]	Egherman, Rachael	Lodi Energy Center Cultural Resources (Archaeological and Historic Built Environment Resources) Technical Report.	Archaeological survey

Report No./ Map Label	Report Year	Intersects API?	Author(s)	Report Title	Report Type
SJ-04391	2001	Yes	Delacorte, Michael G.	Phase II Test Excavations Prehistoric of Three Sites (CA-SJO-93, CA-SJO-264, CA-SJO-265) Along State Route 88, San Joaquin County, California.	Excavation
SJ-05342	1975	Yes	Wagers, J. C.	The San Joaquin and Sierra Nevada Railroad	Journal article
SJ-05498	2004	No	Leach-Palm, L., P. Mikkelsen, J. King, J. Hatch, and B. Larson	Cultural Resource Inventory of Caltrans District 10 Rural Conventional Highways; Volume l: Summary of Methods and Findings	Archaeological survey and inventory
SJ-05501	2004	No	Rosenthal, J. S.	Cultural Resources Inventory of Caltrans District 10 Rural Conventional Highways; Volume lll: Geoarchaeological Study.	Geoarchaeological Analysis
SJ-05503	2004	Yes	J. Meyer	Cultural Resources Inventory of Caltrans District 10 Rural Conventional Highways; Volume II F: San Joaquin County.	Archaeological survey and inventory
SJ-06330	2007	Yes	Jones, E. T., T. Douglass, and B. Matzen	A Cultural and Paleontological Resources Study for the Archer Daniels Midland Sweetener Distribution Center Project. Lodi, San Joaquin County, California.	Archaeological survey and inventory
SJ-06507/ CCalC (San Joaquin) _SJ-06507	2007	Yes	URS Corporation	Cultural Resources Report for Geotechnical Evaluations of the San Joaquin Area Flood Control Agency Project Levees	Archaeological survey
SJ-06723/ SJ-6723	2008	Yes	URS Corporation	Cultural Resources Survey Report for the Urban Levee Project	Archaeological survey
SJ-06724/ SJ-6724	2008	Yes	URS Corporation	Cultural Resources Baseline Literature Review for the Urban Levees Project	Regional overview
SJ-07226	2007	Yes	Gross, C.	Lodi/Delta Community College Project DEIR, San Joaquin Delta Community College District (EXCERPT): Section 4.16: Cultural Resources.	Archaeological survey and inventory
S-35094	2008	Yes	URS Corporation	Technical Report Final: Cultural Resources Survey Report for the Urban Levee Project	Archaeological survey
Tremaine 2012	2012	Yes	Tremaine, Kim	Lockeford No. 1 60kV Reconductoring Project, San Joaquin County Archaeological Survey Report	Archaeological survey
31013251	2015	No	Fies, Robin	Cultural Resources Constraints Report; Lodi 1102 Blitz (Circuit: Lodi 1102 Bank 2), San Joaquin County, PM 31013251	Archaeological survey

[a] Intersects both archaeological API and architectural API.

Bridge #29C-341 (documented by Caltrans), was determined to not be eligible for listing on the NRHP, CRHR or for local designation (Caltrans 2019). Additionally, Bridge #29C-341 is not within the architectural API. Table 5.5-2 summarizes the cultural resource information found in the record search.

Table 5.5-2. Previously Recorded Resources Identified within 0.25 Mile of the API

Primary No. (P-39-)	Trinomial (CA-SJO-)	Resource Age	Site Type	Resource Description	Eligibility[a]	Intersects API?
000002	250H	Historic	Built environment	Southern Pacific Railroad, operation began in 1869, which connected the San Joaquin Valley with Sacramento, the transcontinental main line over the Sierra Nevada, and San Francisco Bay.	7R	No
004457	294H	Historic	Built environment	Segment of the Central California Traction Railroad, built in 1907 to 1910 between Sacramento and Stockton.	7R	Yes
004279	-	Historic	Archaeological	Four standing flat-top telegraph poles	7R	Yes
004471	-	Historic	Built environment	Row of oak trees	7R	Yes
004594	309H	Historic	Archaeological	A single home foundation c. 1935	7R	No
004901	324H	Historic	Built environment	Segment of State Route 12	6Z	Yes
Bridge #29C-341	-	Historic	Built environment	Caltrans Bridge Resource, Harney Lane near Lodi	6Z	No

Note:

[a] Eligibility codes: 6Z – Not eligible for listing on the NRHP, the CRHR, or local designation through survey evaluation; 7R – Not evaluated for the NRHP or CRHR.

A search of the NRHP, the CRHR, the California Historic Landmarks, and California Points of Historical Interest did not indicate that there are additional cultural resources listed within the archaeological or architectural API or within 0.25 mile (NRHP 2020; OHP 2020a, 2020b).

Historic-Era Sensitivity

Historic-era development within the project vicinity steadily built up from its origins in the mid- to late-nineteenth century to the mid-twentieth century, at which point the spread of development switched from expansion to infill of residential units while still maintaining a sparse rural character. Throughout this period, the project vicinity has been characterized by small homestead agriculture with three categories of historic-era property types: (1) domestic residences and related outbuildings and refuse deposits; (2) agricultural plots comprised of row crops, orchards, and support structures; and (3) infrastructure, especially transportation features such as roads and railroads, and water conveyance systems such as aqueducts and the canalization of natural waterways.

Many of the infrastructural resources are still extant on modern aerials, though these have likely undergone repeated episodes of maintenance and replacement. Smaller features such as refuse deposits and agricultural objects may still be extant, but because of ongoing intensive agriculture, these features likely have been impacted, disturbed, or removed within existing farm plots. Marginal areas, such as at the outskirts of residences, roads, and farm plots, have the highest likelihood for intact surficial deposits, although disturbed deposits still are possible across the API. Based on research by the PG&E Substation

Engineer, Lockeford Substation is historic in age (ca. 1948). Overall, there is a moderate potential for historic-era surface and subsurface deposits.

Potential for Encountering Historic-Era Archaeological Resources

Project activities could involve ground disturbance to a depth of up to approximately 30 feet. If ground disturbance activities occur near historic railroad alignments, there is the possibility of discovering subsurface deposits in those areas. These could include spur lines or refuse deposits. Additionally, the archaeological API is in an area that has been used for agricultural purposes continuously since the nineteenth century, so it is possible that buried refuse deposits or other archaeological material related to homesteading and agricultural activities could be discovered during excavation. Prior to modern refuse disposal systems, people in the nineteenth and early- to mid-twentieth centuries frequently deposited household refuse in ditches, creeks, or privies, fed it to livestock, or spread it over agricultural fields to enrich the soil. These activities could have resulted in the creation of archaeological deposits or isolated artifacts.

Buried Site Sensitivity

This section assesses the potential for buried precontact archaeological sites within the Northern San Joaquin 230 kV Transmission Project API. The project is located in a rural area characterized by agricultural use east of Lodi and south of Lockeford, San Joaquin County, California. SR 99 is west of the archaeological API and SR 88 intersects the center of the API. The buried potential of this area was estimated based on the age and distribution of surface deposits combined with the proximity to historic-era streams (distance to water). Many Holocene-age depositional landforms (for example, alluvial fans and floodplains) have a general "geologic potential" to contain buried sites as they were formed after the arrival and occupation of the region by precontact people (Thomas 2012).

Conversely, landforms that predate the Holocene have little or no potential to contain buried sites because there were few, if any, people yet present in the region. Previous studies have shown that known precontact sites tend to be located within 200 meters (656 feet) or less of a known stream or other water source (Rosenthal and Meyer 2004). Thus, Holocene-age terrestrial deposits located within 200 meters of a historic-era bay or stream are considered to have an elevated potential to contain buried sites.

The depth of ground disturbance is not expected to exceed approximately 30 feet for the majority of the project. Up to approximately four grounding wells are expected to be installed to approximately 100 feet in depth within PG&E Thurman Switching Station. Exact structure type, configuration, and dimensions will be determined by CPUC or City of Lodi requirements, final engineering, and other factors and are likely to change. Although new roads are not being constructed, some existing roads in the archaeological API may be bladed; however, it is highly unlikely that any potentially buried archaeological resources may be impacted by the project-related actions throughout the majority of the project locations. Approximately 90% of the archaeological API has a "Lowest" or "Low" sensitivity rating (Far Western 2021).

There is a "High" potential for buried precontact resources in the central portion of the archaeological API, near SR 88 and Bear Creek, based on the close proximity to freshwater and the relatively recent age of the sediments. Therefore, this location has a reasonable possibility that previously unidentified archaeological remains could be encountered during blading of the existing road and excavation of tower footings. However, aside from this small portion of the archaeological API, no subsurface archaeological remains are expected because of the relatively low sensitivity in the API overall.

5.5.1.3 Native American Coordination

PG&E Senior Cultural Resource Specialist, Mike Taggart, contacted the Native American Heritage Commission (Commission) with an initial request for a search of the Sacred Lands File on November 4, 2015. The Commission's response, dated November 25, 2015, stated that no Native American cultural sites are documented within the API. The Commission also provided a list of seven Native American contacts that may have knowledge about archaeological and/tribal cultural resources in

the area. Mike Taggart sent initial outreach letters to the contacts listed by the Commission in May and November of 2016. These letters included information about the proposed project and public open houses to learn more about the project and provide feedback about the potential transmission line corridors. Wilton Rancheria Tribal Resources Coordinator, Ed Silva, responded on December 6, 2016, stating that he could not make any of the open house dates but he did request a meeting.

This meeting to discuss the project occurred on January 12, 2017, and included two contacts from the Wilson Rancheria, Ed Silva and Cultural Resource Officer, Antonio Ruiz; PG&E's Mike Taggart and Bob Donovan; and Colleen Taylor from CH2M Hill (now Jacobs). The meeting included review of project information discussed at the open houses that occurred in 2016. The tribal representatives were encouraged to identify potential resources to support avoidance or minimization of potential impacts during the project design/development and analysis phase that year. The project then was put on hold for a couple years and consultation also was paused temporarily.

On April 13, 2021, Far Western Anthropological Research Group, on behalf of PG&E, contacted the Commission with a request for a current search of the Sacred Lands File. The Commission's response, dated May 10, 2021, stated that no Native American cultural sites are documented within the API. The Commission also provided a list of 18 Native American contacts that may have knowledge about archaeological and tribal cultural resources in the area. On behalf of PG&E's Cultural Resources Specialist Starla Lane, Far Western sent letters with associated project maps on June 17, 2021, to the contacts listed by the Commission, to inform them of the proposed project and request input regarding cultural resources.

Far Western sent a second letter with the Addendum API project maps to the original 18 Native American contacts on February 8, 2023. Far Western also sent a second request for a search of the Sacred Lands File on January 26, 2023. The Commission's response, dated March 1, 2023, stated that no Native American cultural sites are documented within the Addendum API. The Commission also provided a list of 15 Native American contacts that may have knowledge about archaeological and tribal cultural resources in the area, all of which were originally contacted. As of July 27, 2023, three tribes have contacted PG&E's Starla Lane with requests to consult on this project. The Buena Vista Rancheria of Me-Wuk Indians requests formal government-to-government consultation under CEQA to discuss a site visit and other potential measures to protect the cultural resources. They also requested a copy of the cultural resources assessment. The Confederated Villages of Lisjan and United Auburn Indian Community of the Auburn Rancheria both had representatives respond on March 7, 2023, requesting additional information on the cultural assessment findings. PG&E's Starla Lane responded on July 27, 2023, with access to the cultural resources reports, results of the NAHC file search, and GIS shapefiles of the project.

Table 5.5-3 summarizes the entirety of correspondence timeline from the 2016 effort until the present. For copies of correspondence, refer to Appendix D4.

Table 5.5-3. Summary of the Native American Outreach Efforts.

Native American Tribes Contacted	Contact Name provided by NAHC	Letters Sent On	Responder/Response /Date/Actions
-	Randy Yonemura	May 25, 2016 November 14, 2016 May 26, 2021	No response
Buena Vista Rancheria of Me-Wuk Indians	Rhonda Morningstar Pope	May 25, 2016 November 14, 2016 May 26, 2021 June 17, 2021 February 8, 2023	A response was received via email on July 12, 2021, from Ivan Senock to PG&E cultural resources specialist, Starla Lane. The response said, "After review of the notification and examination of the property using the Google Earth mapping application, it is determined BVR has no objection to commencement of the project. If Tribal Cultural

Native American Tribes Contacted	Contact Name provided by NAHC	Letters Sent On	Responder/Response /Date/Actions
			Resources should be inadvertently encountered, during the project, Buena Vista Rancheria requests additional notification so steps may be taken to protect and preserve them." A response was received on March 17, 2023, from Ivan Senock. The tribe requests formal government-to-government consultation under CEQA to discuss a site visit and other potential measures to protect the cultural resources. They also requested a copy of the cultural resources assessment. PG&E responded on July 27, 2023, with access to the cultural resources reports.
California Valley Miwok Tribe	-	May 25, 2016 November 14, 2016 May 26, 2021 June 17, 2021 February 8, 2023	No response
California Valley Miwok Tribe AKA Sheep Rancheria of Me-Wuk Indians of CA	-	February 8, 2023	No response.
Chicken Ranch Rancheria of Me-Wuk Indians	Lloyd Mathiesen	June 17, 2021 February 8, 2023	No response
Guidiville Indian Rancheria	Donald Duncan	June 17, 2021 February 8, 2023	No response
Ione Band of Miwok Indians	Crystal Martinez	May 25, 2016 November 14, 2016 May 26, 2021	No response
Ione Band of Miwok Indians	Sara Dutschke	June 17, 2021 February 8, 2023	No response
Ione Band of Miwok Indians Cultural Committee	-	May 25, 2016 November 14, 2016 May 26, 2021	No response
Muwekma Ohlone Indian Tribe of the SF Bay Area	Monica Arellano	June 17, 2021 February 8, 2023	No response
Nashville Enterprise Miwok-Maidu-Nishinam Tribe	Cosme Valdez	June 17, 2021 February 8, 2023	No response
North Valley Yokuts Tribe	Katherine Perez	June 17, 2021 February 8, 2023	No response

Native American Tribes Contacted	Contact Name provided by NAHC	Letters Sent On	Responder/Response /Date/Actions
North Valley Yokuts Tribe	Timothy Perez	June 17, 2021 February 8, 2023	No response
Tule River Indian Tribe	Joey Garfield	June 17, 2021 February 8, 2023	No response
Tule River Indian Tribe	Neil Peyron	June 17, 2021 February 8, 2023	No response
Tule River Indian Tribe	Kerri Vera	June 17, 2021 February 8, 2023	No response
United Auburn Indian Community of the Auburn Rancheria	Gene Whitehouse	June 17, 2021 February 8, 2023	A response was received via email on July 6, 2021, from Anna Cheng to PG&E cultural resources specialist, Starla Lane, stating that the United Auburn Indian Community of the Auburn Rancheria wishes to consult on this project. The United Auburn Indian Community replied that they do not show any previously recorded CHRIS sites in the API; however, that may be due to private property not surveyed. Ms. Cheng inquired whether a cultural resources survey been conducted or is scheduled, and if one has already been conducted, they request that it is shared with them. Response received on March 7, 2023, from Anna Starkey. The tribe requested GIS shapefiles of the project area. PG&E responded on July 27, 2023, with access to the cultural resources reports and the GIS shapefiles.
Wilton Rancheria	Raymond Hitchcock	May 25, 2016 November 14, 2016 May 26, 2021	A response was received on December 6, 2016, from Wilton Rancheria tribal representative, Ed Silva, stating that they couldn't make any of the open house dates but requesting a meeting.
Wilton Rancheria	Steven Hutchason	May 25, 2016 November 14, 2016 May 26, 2021 June 17, 2021 February 8, 2023	A response was received on June 25, 2021, via email from Mariah Mayberry to PG&E cultural resources specialist, Starla Lane stating that Wilton Rancheria would like to request consultation on this project. Wilton Rancheria requested any other maps of the project along with the Cultural Resources Assessment once completed. PG&E responded on July 27, 2023, with access to the cultural resources reports and the GIS shapefiles.
Wilton Rancheria	Dahlton Brown	June 17, 2021 February 8, 2023	Refer to previous response from Mariah Mayberry.
Wilton Rancheria	Jesus Tarango	June 17, 2021 February 8, 2023	Refer to previous response from Mariah Mayberry.
The Confederated Villages of Lisjan	Corrina Gould	June 17, 2021 February 8, 2023	**Response received from Corrina Gould on March 7, 2023, with a request for the NAHC results. PG&E responded on July 27, 2023, with access to the cultural resources reports and the NAHC results.**

Native American Tribes Contacted	Contact Name provided by NAHC	Letters Sent On	Responder/Response /Date/Actions
			Chairperson Gould responded via email on August 2, 2023, with no further information about the project location. They asked to be notified if there are any findings during construction, and reminded the construction team to remain vigilant during construction since the project is on their ancestorial land and unanticipated discoveries are possible.

5.5.1.4 Archaeological Survey

Far Western archaeologists completed an intensive pedestrian survey of the archaeological API between May 5 and May 9, 2021. The survey was executed using transects no greater than 15 meters apart, and environmental circumstances often called for tighter transect intervals of 10 meters. Most of the survey area consisted of in-use, recently tilled agricultural fields; vineyards constituted roughly 60% of the survey area, orchards (primarily cherry) made up 20%, grazing pasture accounted for 15%, and various commercial and residential properties and associated roads accounted for an estimated 5% of the survey area. Ground visibility across the survey area averaged an estimated 70% because the vineyards had been well maintained and recently tilled. Visibility in the orchards, pastures, and developed areas was drastically lower at roughly 20% from ground-obscuring local grasses. However, despite the generally good ground visibility, all the soil within the API have been subject to routine agricultural disturbance, severely limiting the possibility of *in situ* cultural discovery. The roads also demonstrated good ground visibility and have been subjected to grading and vehicle traffic. It is not uncommon for artifacts to become unearthed during grading and road improvements during construction activities.

Far Western was not able to access five of the properties within the archaeological API. Approximately 53.91 acres of the total approximately 834 acres were unable to be surveyed. The landowners of 15510 (APN 5304018) and 15153 (APN 5126008) North Jack Tone Road denied right of entry to the survey crew. 15278 North Jack Tone Road (APN 5304027) is an operating plant nursery (strawberries and other tightly planted rows) and pedestrian survey was not feasible. The northern property boundary of 14433 Kettleman Lane (APN 5304020) is bounded by an 8-foot-tall electric fence, preventing survey access. Lastly, APN 5304041 contains a fenced solar farm, which was inaccessible to the survey crew.

Far Western archaeologists completed an intensive pedestrian survey of additional project areas near PG&E Lockeford Substation, within the City of Lodi, and along PG&E 60 kV lines north of the City of Lodi within an expanded archaeological API on November 21, 2022.

The agricultural land, orchards, private property, roadsides, and vineyards were systematically surveyed using 10 to 15 meter transects covering approximately 80% of the additional API. Paved areas and buildings in the API were not surveyed. The survey areas are completely flat, located on a valley floor that was developed into farmland, rural residences, and urban environments. DPR 523 site forms were updated for four resources and prepared for the two newly identified sites and one new isolate. These sites are described in the following sections.

Ground visibility of unpaved areas was very good, approximately 80% to 90%, with minimal limitations from vegetation, modern refuse, or terraformed land related to farming. Sparse vegetation included Valley Oak, California cockleburs, grape vines, San Joaquin tarweed, California buckwheat, grasses, and sedges. Visibility was approximately 90% in active vineyards, although the ground had been thoroughly disturbed from planting and crop maintenance and other agricultural activities.

Modern debris and piles of refuse were present and more heavily concentrated near parts of the API containing a railroad, likely related to nearby homeless encampments. The debris consisted mainly of

clothing, empty beverage and food containers, and plastic fragments. Extensive modern disturbances also are present throughout the API, most notably paved roads, sidewalks, businesses, and warehouses.

5.5.1.5 Architectural Survey

Investigators who meet the Secretary of the Interior's Professional Qualification standards in Architectural History and History, per 36 Code of Federal Regulations Part 61, oversaw the completion of an architectural field survey of the entire API between December 15 and 22, 2022. Survey methods were designed to meet local, state, and federal requirements, and follow guidance put forth in the California Office of Historic Preservation's *Instructions for Recording Historical Resources*. The survey also was consistent with the Secretary of the Interior's *Standards and Guidelines for Archeology and Historic Preservation* (48 Federal Register 44716).

The survey was conducted from public vantage points and public rights-of-way. If surveyed resources were not visible or accessible from public areas, investigators completed supplemental research to record and evaluate the resources, such as review of current mapping software, historic maps, aerials, historic newspaper databases, city directories, and other sources.

Prior to initiating fieldwork, investigators exported parcel data for the architectural API from the San Joaquin County Assessor and ParcelQuest and uploaded it to ArcGIS Collector. This information included parcel boundaries as well as relevant information such as parcel address, assessor's parcel number, and construction year. Investigators also uploaded shapefiles showing the locations of previously recorded architectural resources within the architectural API.

During the survey, investigators used the ArcGIS Collector application loaded with the previously mentioned shapefiles to collect geotagged photographs of each property constructed prior to 1977, including any accessory resources, as well as completed pertinent notes on architectural style, form, condition, and historic integrity. Investigators also assigned estimated construction dates to properties based on field verification of San Joaquin County Assessor and ParcelQuest data, professional judgement, and historical research, including historic maps, aerials, newspaper databases, and other sources.

The extent of the architectural API also was field verified to determine if the project would be visible past the 500-foot-radius buffer surrounding the new PG&E 230 kV transmission line. In several instances, the architectural API was expanded to include the full extent of a parcel and other interrelated properties, based on existing conditions such as flat topography, limited development, and lack of other visual intrusions. Oftentimes, a building cluster would be located immediately outside the architectural API limits; however, since the building cluster was associated with properties within the architectural API, it was recorded as part of an interrelated resource, including the portion outside the architectural API. For example, residences and outbuildings were frequently outside the limits of the architectural API; however, since they were directly and historically associated with agricultural fields and orchards within the architectural API, the entirety of the property was recorded and the architectural API was expanded.

Resources older than 45 years are summarized in Section 5.5.1.6 and are in the process of being recorded on Department of Parks and Recreation (DPR) 523 series forms. No resources constructed less than 45 years ago appeared to possess exceptional significance and, therefore, were not recorded. In areas where the new PG&E transmission line is being constructed alongside an existing transmission line with structures of a similar height as the proposed features, investigators confirmed in the field that no new visual intrusions would occur to properties within the architectural API. This was completed through assessing existing viewsheds from public vantage points, historic character and setting of the area, building orientation, existing vegetation, topography, and age of existing visual intrusions. As a result, if it was determined that there would be no new visual changes from the new line, then these resources within the architectural API were not documented in the survey matrix or on DPR 523 series forms.

5.5.1.6 Cultural Resources Results Summary

The survey resulted in the identification of three new archaeological cultural resources (BD-01, BD-02, and BD-ISO-01; Table 5.5-4), and the five previously recorded archaeological cultural resources were revisited (Table 5.5-6). All of these resources, while located in the API, are outside of the proposed work areas.

- BD-01 consists of five features: two historic-era portable hydrants, one water catchment feature, an abandoned vineyard with rows of old grape vines, and a row of three old oak stumps. This resource is adjacent to a project access road within the API. The site remains unevaluated; however, since the access road has no scheduled ground disturbance, the site will be avoided.
- BD-02 consists of old agricultural and railroad equipment debris scatter. These materials are moveable objects and are not considered in situ archaeological remnants; thus, they do not have potential archaeological significance and are not potentially eligible for listing in the CRHR. Therefore, no further management recommendations are necessary.
- BD-ISO-01 is an isolated historic-era metal hitch drag.
- P-39-004279, consisting of four dilapidated flat-top telegraph poles, was relocated and determined to be in fair condition. It was found to be misplotted on CCaIC maps and new features associated with the site were observed, extending the site boundaries.
- P-39-004901, a 61-meter segment of SR 12, was relocated and appears to have been replaced with modern parts.
- P-39-000002, a 40-foot-wide railroad grade, appears to have been destroyed and is now a sidewalk.
- P-39-004471, a row of oak trees along SR 12, intersects the API, but at an area where the site record notes periodic gaps, and no historic-era trees are within the API.

Table 5.5-4. Newly Identified Archaeological Resources

Primary No. (P-39-)	Trinomial (Ca-SJO-)	Resource Age	Age	Resource Type	Eligibility[a]	Survey Results
BD-01	-	H	Historic	A historic-era vineyard with five associated features	Unevaluated	Within API; outside of work area
BD-02	-	H	Historic	Agricultural and railroad equipment scatter	Unevaluated	Within API; outside of work area
BD-ISO-1	N/A	H	Historic	A historic-era metal hitch drag	Unevaluated	Within API; outside of work area

The background research and architectural field survey identified 68 new architectural resources within the architectural API meeting the 45-year survey cutoff date that required recordation.

Overall, 68 previously unrecorded resources were identified within the architectural API meeting the 45-year survey cutoff date that required recordation within the survey results matrix and on DPR 523 series forms (in progress). Of these previously unrecorded resources, 42 are rural residential, 7 are industrial sites, 4 are water conveyance features, 5 are farm buildings on agricultural land, 6 are suburban residential, 1 is an electrical substation, 2 are 230 kV transmission lines, and 1 is a cemetery. Rural residential consisted mainly of Ranch, Minimal Traditional, Cottage, Queen Anne, and eclectic styles. Most rural residential parcels contained outbuildings, including garages, barns, shops, sheds, and carports. Industrial properties were mainly utilitarian warehouses, shops, garages, or manufacturing plants. Water conveyance features within the architectural API consisted of earthen and gravel levees and underground

pipelines. Farm buildings included sheds, shops, barns, or warehouses related to agricultural production on a parcel with no residence. Suburban residential included properties on small 0.25-acre lots within the City of Lodi. Electrical infrastructure consisted of one substation and two 230 kV transmission lines. The one cemetery is the Lodi Memorial Park and Cemetery. The date range for the properties within the architectural API breaks down as follows: 19 were built between 1900 and 1920, 11 were built between 1920 and 1940, 19 were built between 1940 and 1960, and 19 were built between 1960 and 1977.

Of the 68 previously unrecorded resources, seven were evaluated as appearing eligible for listing in the CRHR and are considered historical resources for the purposes of CEQA for this project. Two properties were found eligible under Criteria 1 (broad patterns of history) and 3 (design) and five were found to appear to be eligible under Criterion 3 (design). Table 5.5-5 summarizes the assessment of potential impacts to CRHR eligible resources.

Table 5.5-5. Assessment of Potential Impacts to CRHR Eligible Resources

Resource Identifier #	APN	Project Element Proximity	Assessment
21	049-230-060	Located approximately 500 feet southeast of structure W38 and approximately 352 feet east of centerline of preferred alternative	The subject property already has a diminished viewshed to the rear of the property from modern industrial buildings viewable from Curry Avenue. The new transmission line will not impact its integrity aspects of design, workmanship, materials, setting, and feeling. The installation of project elements at least 350 feet from the resource will not modify its historic appearance, context, visual narrative, or any character-defining features.
25	049-230-100	Located approximately 572 feet southeast of structure W37 and approximately 480 feet east of centerline of preferred alternative	The subject property already has a diminished viewshed to the rear of the property from modern industrial buildings viewable from Curry Avenue. The new transmission line will not impact its integrity aspects of design, workmanship, materials, setting, and feeling. The installation of project elements at least 480 feet from the resource will not modify its historic appearance, context, visual narrative, or any character-defining features.
30	061-132-110	Located approximately 1,150 feet northeast of structure W31 and approximately 1,100 feet from centerline of preferred alternative	The subject property already has diminished viewshed to the rear of the property from modern residences viewable from Vintage Road and E Kettleman Lane. The new transmission line will not impact its integrity aspects of design, workmanship, materials, setting, and feeling. The installation of project elements at least 1,000 feet from the resource will not modify its historic appearance, context, visual narrative, or any character-defining features, and is separated from the improvements by a large agricultural field.
32	061-133-010	Located approximately 1,100 feet northwest of structure W30 and approximately 1,100 feet from centerline of preferred alternative	The building cluster associated with this resource, consisting of a Craftsman style residence, tank house, and garage/carport, is set back more than 1,000 feet from the project improvements and already has limited or obscured visibility from a public vantage point. As a result, the project improvements will not impact its integrity aspects of design, workmanship, materials, setting, and feeling.

Resource Identifier #	APN	Project Element Proximity	Assessment
34	061-133-020	Located approximately 1,150 feet northwest of structure W30 and approximately 1,100 feet from centerline of preferred alternative	The building associated with this resource, consisting of a Craftsman style residence, is set back more than 1,000 feet from the project improvements and already has limited or obscured visibility from a public vantage point. As a result, the project improvements will not impact its integrity aspects of design, workmanship, materials, setting, and feeling.
47	063-150-460	Located approximately 800 feet southwest of structure W19 and approximately 750 feet south from the centerline of preferred alternative	The subject property already has a diminished viewshed to the north and east of the property from modern infill viewable from N Locust Tree Road. The building associated with this resource is located approximately 750 feet from the project improvements and already has limited or obscured visibility from a public vantage point. As a result, the project improvements will not impact its integrity aspects of design, workmanship, materials, setting, and feeling.
67	N/A	Located approximately 650 feet southeast of structure E1 and approximately 700 feet southeast from the centerline of preferred alignment	The property is a buried aqueduct segment that has no above-ground features within the API. The installation of Project elements 650 or more feet from the resource will not affect its integrity of location, design, materials, workmanship, feeling, and association, and the property will still convey its significance under Criterion 1. The PG&E Brighton-Bellota 230 kV transmission line already intersects with the aqueduct segment. Therefore, because the setting already is characterized by electrical infrastructure, the Project elements will not diminish its integrity of setting. No physical impacts will occur to the property as part of the Project.

Two previously recorded historic-era built environment resources were mapped as intersecting the architectural API and these locations were visited during the survey (P-39-000002 and P-39-004457; Table 5.5-6). However, there is no evidence of the SPRR (P-39-000002) at its recorded location (Dolan 2002; Gross 2022) on historic USGS maps. This finding is corroborated by the survey results, which did not identify any railroad features in this location. The recorded SPRR segments included in the GIS shapefile of the resource appears to be in error.

Portions of the CCT Railroad were previously evaluated as not eligible for listing in the CRHR. The evaluation completed as part of this project found the CCT Railroad within the APIs as not appearing eligible for listing in the CRHR as an individual resource and as a potential contributor to a larger resource. The resource does not have a direct association with important events or significant patterns of development and does not illustrate a distinctive engineering achievement.

Visits to the two previously recorded historic-era built environment resources were documented on DPR 523 Series forms, site record update forms (DPR Form 523), and are briefly described as follows:

1. The segment of P-39-000002 (SJO-250H), the former SPRR, mapped as intersecting the API, is an intact, paved private drive that crosses the northbound CCT Railroad (SJO-294H). Segments of this line have railroad rails in place even though the rail line is no longer used. Apart from its intersection with SJO-294H, no railroad-related features or other archaeological material was observed. The DPR

site record for this resource was updated to reflect archaeological survey observations. Notably, the architectural survey did not identify any evidence of the previously recorded segment of the SPRR (P-39-000002) within the architectural API.

2. Far Western and Jacobs each visited a segment of P-39-004457 (SJO-294H), the CCT Railroad, which intersects both APIs between East Sargent Road and Lodi Junction. Extending north-south through the eastern half of Lodi, the railroad segment consists of a single track on a low gravel berm. The line still operates between Lodi and Stockton, including the spur at Lodi Junction that turns 90 degrees toward and then through the eastern half of Lodi. The previously recorded segment of the line nearest the architectural API is a 100-foot-long segment at the railroad's intersection with SR 12, approximately 250 feet north of the architectural API. The prior record of the segment was not evaluated for listing in the CRHR or NRHP; however, the record noted that the rails, ties, and crossing guards associated all appeared to be nonoriginal. The approximately 2.5-mile-long segment of the CCT Railroad within the architectural API was evaluated for the CRHR and also appears to feature nonoriginal rails and ties. The DPR site record for this resource was updated to reflect archaeological survey observations.

Table 5.5-6. Previously Recorded Cultural Resources Visited during Survey

Primary No. (P-39-)	Trinomial (Ca-SJO-)	Resource Age	Resource Type	Resource Description	Eligibility	Survey Results
000002[a]	250H	Historic	Built environment	Segment of Southern Pacific Railroad	Unevaluated	No railroad-related features or other archaeological material was observed at this segment location.
004457	294H	Historic	Built environment	Segment of Central California Traction Railroad	Unevaluated	Appears as previously recorded.
004471	-	Historic	Archaeological	Row of oak trees	Unevaluated	Within API; outside of work area
004901	324H	Historic	Archaeological	Segment of State Route 12	Not Eligible	Within API; outside of work area
004279	-	Historic	Archaeological	Four standing flat-top telegraph poles	Unevaluated	Within API; outside of work area; PG&E will avoid all telegraph components

Note:
[a] There is no evidence of the SPRR (P-39-000002) at its recorded location on historic USGS maps or during the field surveys. Its inclusion in the GIS shapefile of the resource appears to be in error.

5.5.2 Regulatory Setting

5.5.2.1 Federal

Compliance with federal regulations was not required by the project and no federal regulations related to cultural resources are applicable to the project. Several previously recorded resources were evaluated for the NRHP and the regulations are thus included in this section.

National Register of Historic Places

This section details Section 106 of the National Historic Preservation Act (Section 106), as defined in United States Code Title 54, Section 300101 et seq. Section 106 requires federal agencies to consider any effects of their undertakings on historic properties and affords the State Historic Preservation Officer, Native American groups, other interested parties, and the Advisory Council on Historic Preservation a reasonable opportunity to comment on such undertakings. Historic properties include significant

prehistoric or historic districts, sites, buildings, structures, or objects listed in or eligible for listing in the National Register of Historic Places (NRHP).

The criteria used for NRHP determinations of eligibility for this undertaking are detailed in 36 CFR 800.4 and 36 CFR 63, and are as follows:

The quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that:

A. Are associated with events that have made a significant contribution to the broad patterns of our history; or
B. Are associated with the lives of persons significant in our past; or
C. Embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
D. Have yielded, or may be likely to yield, information important in prehistory or history.

In addition to these criteria, a property must retain historic integrity to be considered historically significant. Historic integrity, as defined by the National Park Service, is the authenticity of the physical identity that is evidenced by the survival of characteristics that existed during the resource's period of significance. Historic properties must retain enough of their historic character or appearance to be recognizable as significant properties and to convey the reasons for their significance. Integrity must be evaluated with regard to the retention of location, design, setting, materials, workmanship, feeling, and association.

5.5.2.2 State

California Register of Historical Resources

Under Section 21083.2 of CEQA, an important archaeological or historical resource is an object, artifact, structure, or site that is listed on, or eligible for listing on, the CRHR. Eligible resources are those that can be clearly shown to meet any of the following criteria:

A. Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage

B. Is associated with the lives of persons important in our past

C. Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic value

D. Has yielded, or may be likely to yield, information important in prehistory or history

Automatic listings include properties that are listed on the NRHP. In addition, Points of Historical Interest nominated from January 1998 onward are to be jointly listed as Points of Historical Interest and on the CRHR.

Resources listed in a local historic register or deemed significant in a historical resources survey, as provided under Public Resources Code (PRC) Section 5024.1(g), are presumed to be historically or culturally significant unless the preponderance of evidence demonstrates that they are not. A resource that is not listed on or determined to be ineligible for listing on the CRHR, not included in a local register of historical resources, or not deemed significant in a historical resources survey may nonetheless be historically significant, as determined by the lead agency (PRC Section 21084.1 and Section 21098.1).

Pursuant to Section 15064.5, a cultural resource is considered to be historically significant if it meets the criteria for listing in the CRHR (PRC Section 5024.1, Title 14 CCR, Section 4852), including the following:

A. Associated with events that have made a significant contribution to the broad patterns of local or regional history or the cultural heritage of California or the United States; or

B. Associated with the lives of persons important to local, California, or national history; or

C. Embodies the distinctive characteristics of a type, period, region, or method of construction; or represents the work of an important creative individual; or possesses high artistic values; or

D. Has yielded, or has the potential to yield, information important to the prehistory or history of the local area, California, or the nation.

Historic integrity is the ability of a property to convey its significance and is defined as the authenticity of a resource's historic identity, evidenced by the survival of characteristics that existed during the resource's period of significance. Historical resources must retain enough of their historic character or appearance to be recognizable as historical resources and to convey the reasons for their significance. Integrity must be evaluated with regard to the retention of location, design, setting, materials, workmanship, feeling, and association. A resource that has lost its historic character or appearance still may have sufficient integrity for the CRHR if it maintains the potential to yield significant scientific or historical information or specific data.

California Health and Safety Code and Public Resources Code

Broad provisions for the protection of Native American cultural resources are contained in the California Health and Safety Code, Division 7, Part 2, Chapter 5 (Sections 8010 through 8030).

Several provisions of the PRC also govern archaeological finds of human remains and associated objects. Procedures are detailed under PRC Section 5097.98 through 5097.996 for actions to be taken whenever Native American remains are discovered. Furthermore, Section 7050.5 of the California Health and Safety Code states that any person who knowingly mutilates or disinters, wantonly disturbs, or willfully removes human remains in or from any location other than a dedicated cemetery without authority of law is guilty of a misdemeanor, except as provided in Section 5097.99 of the PRC. Any person removing human remains without authority of law or written permission of the person or persons having the right to control the remains under PRC Section 7100 has committed a public offense that is punishable by imprisonment.

PRC Chapter 1.7, Section 5097.5/5097.9 (Stats. 1965, c. 1136, p. 2792), entitled Archaeological, Paleontological, and Historical Sites, defines any unauthorized disturbance or removal of a fossil site or remains on public land as a misdemeanor and specifies that state agencies may undertake surveys, excavations, or other operations as necessary on state lands to preserve or record paleontological resources.

5.5.2.3 Local

Because the CPUC has exclusive jurisdiction over project siting, design, and construction, PG&E's portion of the project is not subject to local (city and county) discretionary regulations except for air districts and Certified Unified Program Agencies (CUPAs) with respect air quality and hazardous waste regulations. However, local plans and policies are considered for informational purposes and to assist with the CEQA review process.

The City of Lodi is a local agency and must comply with its own local plans and policies.

Background research indicated that no cultural resources designated for local listing are located in the project area.

5.5.3 Impact Questions

The project's potential effects on cultural resources were evaluated using the significance criteria set forth in Appendix G of the CEQA Guidelines. The conclusions are summarized in Table 5.5-7 and discussed in more detail in Section 5.5.4.

Table 5.5-7. CEQA Checklist for Cultural Resources

Would the project:	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a) Cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5?	☐	☐	☒	☐
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?	☐	☐	☒	☐
c) Disturb any human remains, including those interred outside of dedicated cemeteries?	☐	☐	☒	☐

5.5.3.1 Additional CEQA Impact Questions

None.

5.5.4 Potential Impact Analysis

Project impacts related to cultural resources were evaluated against the CEQA significance criteria and are discussed in the following subsections. The impact analysis evaluates potential project impacts during the construction phase and the operation and maintenance phase. The impact discussion is organized to describe the effects that each participating utility's portion of the project has on the environment.

5.5.4.1 Significance Criteria

According to Section 15002(g) of the CEQA Guidelines, "a significant effect on the environment is defined as a substantial adverse change in the physical conditions which exist in the area affected by the proposed project." As stated in Section 15064(b) of the CEQA Guidelines, the significance of an activity may vary with the setting. Per Appendix G of the CEQA Guidelines, the potential significance of project impacts to cultural resources were evaluated for each of the criteria listed in Table 5.5-6, as discussed in Sections 5.5.4.2 and 5.5.4.3.

5.5.4.2 Applicant-Proposed Measures and Best Management Practices

PG&E and LEU will implement the following APMs and BPMs:

APM CUL-1. Develop and Implement Worker Environmental Awareness Program Prior to Construction. PG&E will design and implement a worker environmental awareness program that will be provided to all project personnel involved in earth-moving activities. This training will be administered by a qualified cultural resource professional either as a stand-alone training or as part of the overall environmental awareness training required by the project and may be recorded for use in subsequent training sessions. No construction worker will be involved in field operations without having participated in the worker environmental awareness program, which will include, at a minimum:

1. A review of archaeology, history, precontact, and Native American cultures associated with historical resources in the project vicinity
2. A review of applicable local, state, and federal ordinances, laws, and regulations pertaining to historic preservation
3. A discussion of procedures to be followed in the event that unanticipated cultural resources are discovered during implementation of the project
4. A discussion of disciplinary and other actions that could be taken against persons violating historic preservation laws and PG&E policies
5. A statement by the construction company or applicable employer agreeing to abide by the Worker Education Program, PG&E policies, and other applicable laws and regulations

BMP CUL-1. Develop and Implement Worker Environmental Awareness Program Prior to Construction. LEU will design and implement a worker environmental awareness program that will be provided to all project personnel involved in earth-moving activities. This training will be administered by a qualified cultural resource professional either as a stand-alone training or as part of the overall environmental awareness training required by the project, and may be recorded for use in subsequent training sessions. No construction worker will be involved in field operations without having participated in the worker environmental awareness program, which will include, at a minimum:

1. A review of archaeology, history, precontact, and Native American cultures associated with historical resources in the project vicinity
2. A review of applicable local, state, and federal ordinances, laws, and regulations pertaining to historic preservation
3. A discussion of procedures to be followed in the event that unanticipated cultural resources are discovered during implementation of the project
4. A discussion of disciplinary and other actions that could be taken against persons violating historic preservation laws and PG&E policies
5. A statement by the construction company or applicable employer agreeing to abide by the Worker Education Program, PG&E policies, and other applicable laws and regulations

APM CUL-2. Archaeological Construction Monitoring in High-Sensitivity Areas. In high-sensitivity areas where survey did not identify archaeological resources (PG&E structures W12, W13 and W14), once per day during ground-disturbing activities a qualified archaeological monitor will observe the ground-disturbing activities and have the authority to halt ground-disturbing work temporarily within 100 feet of a find when safe to do so to assess the find. The assessment, and any subsequent evaluation, will follow the processes described in APM CUL-3. Monitoring at these locations can be reduced if, after initial monitoring, the qualified archaeological monitor has determined there is a low likelihood of identifying cultural resources.

APM CUL-3: Inadvertent Cultural Resource Discoveries. While the pedestrian survey had good ground visibility and did not identify any new cultural resources, it is not uncommon to have unanticipated cultural discoveries during construction. The precontact buried site sensitivity analysis identified a high potential for buried resources near SR 88 and Bear Creek. Additionally, the area has historically been occupied and used for agricultural purposes since the late 1900s. For these reasons, precontact and historic-era inadvertent discoveries are possible during construction. If such discoveries take place, the following procedures will be initiated:

1. All ground-disturbing construction activities within 100 feet of the discovery will halt immediately.
2. The construction crew will protect the discovery from further disturbance until it has been assessed by a qualified archaeologist.

3. The construction supervisor will immediately contact the project construction inspector and the PG&E cultural resource specialist.
4. The PG&E cultural resources specialist will coordinate with the state lead officials, as appropriate. If the discovery can be avoided or protected and no further impacts will occur, then the resource will be documented on DPR 523 forms, and no further effort will be required. If the resource cannot be avoided and may be subjected to further impacts, qualified personnel will evaluate the significance of the discovery in accordance with the state laws outlined previously; personnel will implement data recovery or other appropriate treatment measures, if warranted. A qualified historical archaeologist will complete an evaluation of historic-period resources, while evaluation of precontact resources will be completed by a qualified archaeologist specializing in California prehistoric archaeology. Evaluations may include archival research, oral interviews, and/or field excavations to determine the full depth, extent, nature, and integrity of the deposit.

BMP CUL-3. Inadvertent Cultural Resource Discoveries. While the pedestrian survey had good ground visibility and did not identify any new cultural resources, it is not uncommon to have unanticipated cultural discoveries during construction. The precontact buried site sensitivity analysis identified a low potential for buried resources in the LEU portion of the project. Additionally, the area has historically been occupied and used for agricultural purposes since the late 1900s. For these reasons, precontact and historic-era inadvertent discoveries are possible during construction. If such discoveries take place, the following procedures will be initiated:

1. All ground-disturbing construction activities within 100 feet of the discovery will halt immediately.
2. The construction crew will protect the discovery from further disturbance until it has been assessed by a qualified archaeologist.
3. The construction supervisor will immediately contact the project construction inspector and the LEU cultural resource specialist.
4. The LEU cultural resource lead will coordinate with the state lead officials, as appropriate. If the discovery can be avoided or protected and no further impacts will occur, then the resource will be documented on DPR 523 forms, and no further effort will be required. If the resource cannot be avoided and may be subjected to further impacts, qualified personnel will evaluate the significance of the discovery in accordance with the state laws outlined previously; personnel will implement data recovery or other appropriate treatment measures, if warranted. A qualified historical archaeologist will complete an evaluation of historic-period resources, while evaluation of precontact resources will be completed by a qualified archaeologist specializing in California prehistoric archaeology. Evaluations may include archival research, oral interviews, and/or field excavations to determine the full depth, extent, nature, and integrity of the deposit.

APM CUL-4. Unanticipated Discovery of Human Remains. If human remains or suspected human remains are discovered during PG&E construction, work within 100 feet of the find will stop immediately and the construction supervisor will contact the PG&E cultural resources specialist, who meets the Secretary of Interior's Standards for archaeology. Upon discovery, the Coroner Division of the San Joaquin County Sheriff's Office will be contacted for identification of human remains. The Coroner has 2 working days to examine the remains after being notified.

If the remains are Native American, the Coroner must notify the Native American Heritage Commission (NAHC) of the discovery within 24 hours. The NAHC then will identify and contact a Most Likely Descendant (MLD). The MLD may make recommendations to the landowner or representative for the treatment or disposition, with proper dignity, of the remains and grave goods. When proper consultation has occurred, a procedure that may include the preservation, excavation, analysis, and curation of artifacts and/or reburial of those remains and associated artifacts will be formulated and implemented.

If the remains are not Native American, the Coroner will consult with the archaeological research team and the lead agency to develop a procedure for the proper study, documentation, and ultimate disposition of the remains. If a determination can be made as to the likely identity—either as an individual or as a

member of a group—of the remains, an attempt should be made to identify and contact any living descendants or representatives of the descendant community. As interested parties, these descendants may make recommendations to the owner or representative for the treatment or disposition, with proper dignity, of the remains and grave goods. Final disposition of any human remains or associated funerary objects will be determined in consultation between the landowner and the MLD.

BMP CUL-4. Unanticipated Discovery of Human Remains. If human remains or suspected human remains are discovered during LEU construction, work within 100 feet of the find will stop immediately and the construction supervisor will contact the LEU cultural resources specialist, who meets the Secretary of Interior's Standards for archaeology. Upon discovery, the Coroner Division of the San Joaquin County Sheriff's Office will be contacted for identification of human remains. The Coroner has 2 working days to examine the remains after being notified.

If the remains are Native American, the Coroner must notify the Native American Heritage Commission (NAHC) of the discovery within 24 hours. The NAHC then will identify and contact a Most Likely Descendant (MLD). The MLD may make recommendations to the landowner or representative for the treatment or disposition, with proper dignity, of the remains and grave goods. When proper consultation has occurred, a procedure that may include the preservation, excavation, analysis, and curation of artifacts and/or reburial of those remains and associated artifacts will be formulated and implemented.

If the remains are not Native American, the Coroner will consult with the archaeological research team and the lead agency to develop a procedure for the proper study, documentation, and ultimate disposition of the remains. If a determination can be made as to the likely identity—either as an individual or as a member of a group—of the remains, an attempt should be made to identify and contact any living descendants or representatives of the descendant community. As interested parties, these descendants may make recommendations to the owner or representative for the treatment or disposition, with proper dignity, of the remains and grave goods. Final disposition of any human remains or associated funerary objects will be determined in consultation between the landowner and the MLD.

5.5.4.3 Potential Impacts

As described in Chapter 3, Project Description, the project will provide a new 230 kV transmission source in northern San Joaquin County, in central California. The project includes extending an existing PG&E 230 kV transmission line through PG&E Lockeford Substation to a new PG&E Thurman Switching Station in Lodi, California, by installing new tubular steel poles and conductors for approximately 11 miles. PG&E Lockeford Substation will be expanded on existing substation property to accommodate the new 230 kV facility. PG&E Thurman Switching Station will transfer the new 230 kV source to the new adjacent LEU 230/60 kV Guild Substation. LEU Guild Substation will transfer the 60 kV power to the existing adjacent LEU 60 kV Industrial Substation, which will be modified to receive the new LEU 60 kV lines (via the new 230 kV source) and to disconnect the existing PG&E 60 kV sources. When disconnected, the three existing PG&E 60 kV lines will be partially removed and reconfigured mainly within their existing alignments to continue operation between PG&E Lockeford and Lodi substations. LEU distribution and the third-party telecommunication underbuild on PG&E 60 kV line portions being removed will be relocated by the respective utility owner to within or adjacent to other existing alignments. An existing PG&E distribution line will be extended underground approximately 500 feet in franchise to provide a permanent secondary service line to PG&E Thurman Switching Station. PG&E project-related work to update communication between facilities and the protection scheme system also will occur within the existing fence lines of remote-end substations Brighton, Bellota, Lodi, and Rio Oso, and a communication facility, Clayton Hill Repeater Station.

Project impacts on cultural resources are defined by CEQA as a change in the characteristics of a resource that convey its significance or justify its eligibility for inclusion on the CRHR or local register. Direct impacts may occur by: (1) physically damaging, destroying, or altering all or part of a resource, (2) altering characteristics of the surrounding environmental setting that contribute to the significance of a resource, (3) allowing a resource to deteriorate through neglect, or (4) incidental discovery of archaeological

resources without proper notification. Direct impacts can be assessed by determining the exact location of historical resources and assessing their significance under the NRHP and CEQA criteria, identifying the types and extent of the proposed impacts and their effect on significant resources, and determining appropriate measures to reduce impacts to less-than-significant levels. Indirect impacts may include changes to the viewshed of a significant resource through introduction of a new project element.

CEQA recommends avoidance or preservation in place as the preferred treatment for eligible properties and unique or important archaeological or historical resources (PRC 21083.2). If avoidance is not a feasible option, data recovery is a common treatment. For architectural resources, if physical changes to a property – excluding demolition – can be treated following the Secretary of Interior Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings, the project-related impact on the historical resource will generally be considered to be reduced to a less-than-significant level.

No cultural impacts are expected during the operation and maintenance phase of the project.

a) Would the project cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5? *Less-than-Significant Impact.*

PG&E Potential Impact Discussion

In total, the architectural API has 188 parcels, 96 of which were constructed prior to 1977. Sixty-eight newly identified architectural resources and one previously unrecorded segment of the CCT Railroad (P-39-004457/ CA-SJO-294H) within the architectural API were recorded and evaluated during the project's environmental assessment. Although not eligible for listing in the CRHR, the CCT Railroad resource will be entirely avoided during the course of the project. Seven resources were evaluated as eligible for listing in the CRHR and considered historical resources for the purposes of CEQA for this project. The 7 eligible architectural resources are located outside of the City of Lodi and are more than 2,000 feet from PG&E's Lockeford Substation expansion and PG&E 60 kV line reconfiguration.

The seven eligible architectural resources will not be significantly impacted by the new PG&E 230 kV transmission line because of existing visual intrusions, no physical impacts, and distance from the existing resources. There would be no physical impacts to these resources; therefore, the resources would retain their integrity of location, design, materials, workmanship, feeling, and association. The historic and current uses of these resources would remain intact (rural residential properties, some of which are engaged in small-scale agriculture on medium-sized parcels). In addition, the character-defining features associated with each resource, such as their massing, materials, orientation, and landscape features, would remain intact and not be diminished by the new PG&E 230 kV transmission line. In most cases, the new PG&E 230 kV transmission line will range from approximately 350 feet to approximately 1,100 feet from the contributing resources within the property. Therefore, the resources would continue to convey their significance under their applicable CRHR criteria, such as Criterion 1 for representing the increasing settlement in small rural residences during their periods of construction and Criterion 3 for distinctive design. In addition, while the new PG&E 230 kV transmission line may be visible from certain public vantage points, other changes have occurred to the setting and feeling of the areas, and the project will be a marginal change that will not diminish the characteristics that make the resources significant. There will be a less-than-significant impact to historical resources from this project during construction.

Project operation and maintenance will not be ground disturbing and will occur within city streets, facilities, or electrical line ROWs and, as such, will not cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5; no impact will occur.

LEU Potential Impact Discussion

The LEU portion of the project has no newly identified architectural resources and is near the previously unrecorded segment of the CCT Railroad. LEU's relocation of its existing overhead 12 kV feeder line to an underground configuration and activities at LEU Industrial and Guild substations will occur approximately

50 feet south of the CCT Railroad segment within the City of Lodi. Although not eligible for listing in the CRHR, the historic-era railroad segment (P-39-004457/CA-SJO-294H) is entirely avoided by the LEU portion of the project. There will be no impact to historical resources from this project during construction.

Project operation and maintenance will not be ground disturbing and will occur within facilities or electrical line ROWs and, as such, will not cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5; no impact will occur.

b) Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5? *Less-than-Significant Impact*.

PG&E Potential Impact Discussion

Surface surveys and records searches identified five archaeological sites within the archaeological API. There is a low potential to encounter surface precontact resources based on the survey. The potential is the highest adjacent to the creeks in the center of the archaeological API. An analysis of sensitivity for buried precontact-era sites determined that the majority of the archaeological API has a low to lowest potential. There is a high potential for buried precontact resources in the central portion of the archaeological API, near SR 88 and Bear Creek. While no archeological resources were observed in the areas with high potential, APM CUL-2 will be implemented to further reduce the potential for impact to buried resources at PG&E 230 kV structures W12, W13, and W14. Archival research found moderate potential for historic-era surface and subsurface deposits. No impacts to archaeological resources are anticipated.

As such, with the implementation of APM CUL-1, APM CUL-2, and APM CUL-3, impacts to resources would be considered less than significant during construction.

Project operation and maintenance will not be ground disturbing and will occur within city streets, facilities, or electrical line ROWs and, as such, will not cause a substantial adverse change in the significance of an archaeological resource as defined in Section 15064.5; no impact will occur.

LEU Potential Impact Discussion

Surface surveys and records searches did not identify any archaeological sites within the API. An analysis of sensitivity for buried precontact-era sites determined that the LEU portion of the project within the API has a low potential. Archival research found moderate potential for historic-era surface and subsurface deposits. No impacts to archaeological resources are anticipated.

As such, with the implementation of BMP CUL-1 and BMP CUL-3, impacts to resources would be considered less than significant.

Project operation and maintenance will not be ground disturbing and will occur within facilities or electrical line ROWs and, as such, will not cause a substantial adverse change in the significance of an archaeological resource as defined in Section 15064.5; no impact will occur.

c) Would the project disturb any human remains, including those interred outside of formal cemeteries? *Less-than-Significant Impact.*

PG&E Potential Impact Discussion

There are no known graves within the APIs and the records search and Sacred Lands File search found no archaeological sites containing human remains within the search radius. The Lodi Memorial Park and Cemetery fence is adjacent to the existing PG&E 12 kV distribution pole on the east side of South Guild Avenue. An underground line extension will be installed away from the cemetery within the roadway to PG&E Thurman Switching Station. It is unlikely that human remains will be encountered during the course of the project. The PG&E portion of the project will not impact any known graves during construction,

operation, or maintenance. Project impacts on human remains are not anticipated. If human remains are discovered, PG&E will implement APM CUL-4.

LEU Potential Impact Discussion

There are no known graves within the APIs and the records search and Sacred Lands File search found no archaeological sites containing human remains within the search radius. The Lodi Memorial Park and Cemetery is approximately 120 feet north of the LEU 12 kV feeder line relocation from an overhead to an underground configuration. The LEU portion of the project will not impact any known graves during construction, operation, or maintenance. Project impacts on human remains are not anticipated. If human remains are discovered, LEU will implement BMP CUL-4.

5.6 Energy

This section describes existing conditions and potential impacts on energy as a result of construction, operation, and maintenance of the project. Project description information and potential impacts are organized and discussed by each participating utility's portion of the project. The analysis concludes that less-than-significant impacts on energy will occur. The project's potential effects on energy resources were evaluated using the significance criteria set forth in Appendix G of the CEQA Guidelines. The conclusions are summarized in Table 5.6-1 and discussed in more detail in Section 5.6.3.

5.6.1 Methodology and Environmental Setting

Local and state websites were reviewed for regulatory background information and information on existing energy providers and resources in San Joaquin County.

5.6.1.1 Methodology

The impact analysis used assumptions regarding construction-related fossil fuel use and operational energy requirements. Construction-related fossil fuel use was estimated based on the anticipated construction equipment use, vehicle trips, and helicopter use. The California Air Resources Board (CARB) In-Use Off-Road 2021 Diesel Emission Factors model was used to estimate the total amount of diesel fuel use based on vehicle category and horsepower rating. Refer to Appendix E for energy use detail.

EMFAC2021 was used to estimate the gasoline and diesel fuel used by on-road vehicles, assuming the following based on VMT:

- Workers are assumed to travel in gasoline-fueled passenger vehicles (72% light-duty automobiles, 6% light-duty trucks class 1, and 21% light-duty trucks class 2).
- Vendor deliveries, material transport, and construction support vehicles are assumed to occur in either diesel-fueled heavy-duty trucks or gasoline-fueled light-duty trucks (23% light-duty trucks class 1 and 77% light-duty trucks class 2).

Jet fuel use by helicopters was estimated using fuel consumption numbers from the FOCA methodology, which assumes one landing and takeoff per hour for a twin-engine medium-lift helicopter. Electricity use during construction and operation of the proposed project was assumed to be minimal.

5.6.1.2 Environmental Setting

The proposed project will be located within unincorporated areas of northeastern San Joaquin County and partially within an industrial area of the City of Lodi (refer to Figure 3.1-1). The foothills of the Diablo Range define the southwest corner of the County and the foothills of the Sierra Nevada lie along the County's eastern boundary. Major geographic features in the project area include the Mokelumne River, Bear Creek, SR 99, SR 88, and SR 12. The topography in the area generally is flat with rolling hills increasing to the east. Elevation ranges from approximately 135 feet above sea level at the eastern end of the project to approximately 60 feet above sea level at the western end of the project. Northeastern San Joaquin County is predominantly agricultural with retail wineries, rural and semi-rural residential development outside of the City of Lodi, and small concentrated areas of industrial and commercial business along transportation corridors.

5.6.1.3 Existing Electrical and Natural Gas Services

San Joaquin County is served by PG&E, Modesto Irrigation District, Lodi Electric Utility, and the Port of Stockton for electricity. PG&E also provides natural gas service within the County. San Joaquin County has 26 power plants generating electricity, most operating on natural gas, with the remaining operating on biomass, hydroelectric, solar, and wind power. The largest electric power generator in San Joaquin County

is the NCPA Lodi Energy Center (LEC), with a capacity of approximately 304 MW of natural gas-fired power. NCPA also operates two combustion turbines with the City of Lodi. CT1, with a capacity of approximately 25 MW, has dual fuel capability, with natural gas as the primary fuel. CT2, an approximately 49.9 MW steam injected combustion turbine unit, uses reclaimed wastewater to produce steam (NCPA 2022). Within the proposed project area, PG&E currently transmits high-voltage electricity to existing substations, where the voltage is stepped down for distribution throughout the area. PG&E provides 60 kV power to LEU, which steps down the power for distribution to LEU customers in the City of Lodi.

The CEC provides data on energy production sources. Table 5.6-1 shows energy production sources for the energy providers in San Joaquin County.

Table 5.6-1. San Joaquin County Energy Providers and Sources

	2020 Energy Source Mix			
Electrical Energy Source	PG&E Base Plan	Modesto Irrigation District Retail Energy	LEU	Stockton Port District Retail Electric Load
Eligible Renewable	30.6%	24.3%	26.8%	46.5%
Coal	0.0%	0.0%	0.0%	0.0%
Large Hydroelectric	10.1%	29.0%	19.2%	0.0%
Natural Gas	16.4%	18.4%	19.7%	0.0%
Nuclear	42.8%	2.7%	0.0%	0.0%
Other or Unspecified Power[a]	0.0%	25.6%	34.3%	53.5%
Total	100%	100%	100%	100%

[a] "Unspecified Power" is defined as electricity from transactions that are not traceable to specific generation sources.

Source: CEC 2022

5.6.1.4 Existing Energy Use

Within San Joaquin County, total energy consumption has increased since the early 1990s. However, energy consumption has increased at a lower rate than population increase, suggesting less energy usage per person or greater energy efficiency (SJCOG 2022). In 2021, residences of San Joaquin County collectively consumed approximately 5,608 million kilowatt hours (kWh) of electricity and non-residential consumption was approximately 3,483 million kWh (CEC 2016). Energy consumption in the immediate project area is directly correlated with the particular land uses.

5.6.1.5 Energy Conservation

PG&E sponsors several energy conservation programs that include education, solar energy incentives, electric cars, the fluorescent lighting business program, and a weatherization program for low-income families. These services are intended to reduce energy consumption in homes through the replacement of inefficient appliances and minor housing repairs, making homes more energy efficient. Consumers also receive educational materials that provide energy-saving tips and information.

5.6.2 Regulatory Setting

The following sections contain an overview of regulations related to the use of energy and energy conservation.

5.6.2.1 Federal

Energy Policy Act of 2005

The Energy Policy Act created energy-related tax incentives from 2005 to 2016 to promote energy efficiency and conservation pertaining to renewable energy, oil and gas production and transmission, coal production, and electric generation and transmission.

American Recovery Reinvestment Act of 2009

As part of a larger stimulus package, the Recovery Act authorized federal funding to the U.S. Department of Energy to forward specific energy priorities, including modernizing the nation's electric transmission grid.

5.6.2.2 State

Renewable Portfolio Standard Program

Established in 2002, California's Renewable Portfolio Standard aims to ensure that a minimum amount of renewable energy is included in the portfolio of electricity resources serving a state or county. In September 2018, SB 100 was signed into law, which directed the CPUC, CEC, and CARB to plan for 100% of total retail sales of electricity in California to come from eligible renewable energy resources and zero-carbon resources by December 31, 2045. The law notes that new and modified electric transmission facilities may be necessary to facilitate the state achieving its renewable portfolio standard targets.

Renewable Energy Transmission Initiative

The Renewable Energy Transmission Initiative 2.0 is a statewide, nonregulatory planning effort convened by the California Natural Resources Agency, with participation from the CEC, CPUC, CAISO, and the U.S. Bureau of Land Management, California Office. The Renewable Energy Transmission Initiative 2.0 was created to explore the renewable generation potential available to California utilities to help meet statewide GHG reduction and renewable energy goals, and to identify the potential transmission implications of accessing and integrating these resources.

California 2008 Energy Action Plan Update

Originally developed in 2003 and updated in 2005 and 2008, the California Energy Action Plan identifies specific action areas to ensure that California's energy resources are adequate, affordable, technologically advanced, and environmentally sound. The plan's first-priority actions to address California's increasing energy demands are energy efficiency and demand response (namely, reduction of customer energy usage during peak periods to address system reliability and support the best use of energy infrastructure). Additional priorities include the use of renewable sources of power and distributed generation. The plan also notes that investment in conventional transmission infrastructure is crucial to helping the state meet its renewable energy goals.

California Climate Crisis Act

Approved in September 2022, the California Climate Crisis Act (or AB 1279) requires the state of California to achieve net zero GHG emissions by 2045, to achieve and maintain net negative GHG emissions thereafter, and to ensure that statewide anthropogenic GHG emissions are reduced to at least 85% below 1990 levels by 2045. Under this act, future updates to CARB's *Climate Change Scoping Plan* must identify and recommend a variety of policies and measures to achieve these goals, particularly those that enable carbon dioxide (CO_2) removal or carbon capture, utilization, and storage technologies.

Integrated Energy Policy Report

The CEC adopts an Integrated Energy Policy Report (IEPR) every 2 years, which provides a cohesive approach to identifying and solving the state's pressing energy needs and issues. The report contains an integrated assessment of major energy trends and issues facing California's electricity, natural gas, and transportation fuel sectors and provides policy recommendations to conserve resources and ensure a reliable, secure, and diverse energy supply, among other objectives. An update is published every other year and was most recently provided in February 2023 to address 2022 trends. Some of the key recommendations or actions from this update, as related to renewable energy resources, include the following:

- Examine how to balance the roles of distributed energy resources and grid assets in making the energy transition away from fossil fuels.
- Examine the role of interconnection and how utility process reform can increase the pace of distributed energy resources deployment.
- Initiate efforts to analyze opportunities for additional reliability investments and develop a Clean Energy Reliability Investment Plan.
- Enact the Strategic Electricity Reliability Reserve to make additional generation and load reduction available during extreme events.

5.6.2.3 Local

Because the CPUC has exclusive jurisdiction over project siting, design, and construction, PG&E's portion of the project is not subject to local (city and county) discretionary regulations except for air districts and CUPAs with respect to air quality and hazardous waste regulations. However, local plans and policies are considered for informational purposes and to assist with the CEQA review process.

The City of Lodi is a local agency and must comply with its own local plans and policies for LEU's portion of the project.

San Joaquin County General Plan

The 2035 *San Joaquin County General Plan* (San Joaquin County 2016) includes implementation programs to accomplish the following:

- Prepare and adopt a Sustainability Master Plan.
- Prepare and adopt updated low-impact development standards.
- Prepare a study on feasibility of developing a waste-to-energy facility.
- Develop and implement a renewable energy/property assessed clean energy program.
- Remove barriers to renewable energy.
- Develop and adopt an ordinance for solar energy facilities.
- Review energy consumption of county operations.
- Evaluate the feasibility of replacing government automobiles with energy-efficient vehicles.
- Establish industrial design standards.

City of Lodi General Plan

The *City of Lodi General Plan* identifies goals and policies aimed at energy conservation and increased renewable energy sources. The City administers and implements a variety of local energy conservation and waste reduction programs, including using low-voltage LED lighting equipment in traffic signals; solar-assisted equipment at all new bus shelters and stops; energy education programs for children and

students; standards for photovoltaic panel installations; and lighting, heating, solar, and air conditioning rebate programs for residential and nonresidential customers through the City's electric utility. As of 2021, more than 35% of the City's power came from carbon-free sources (LEU 2021).

5.6.3 Impact Questions

The project's potential effects on energy were evaluated using the significance criteria set forth in Appendix G of the CEQA Guidelines. The conclusions are summarized in Table 5.6-2 and discussed in more detail in Section 5.6.4.

Table 5.6-2. CEQA Checklist for Energy

Would the project:	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a) Result in potential significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources during project construction or operation?	☐	☐	☒	☐
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	☐	☐	☐	☒

5.6.3.1 Additional CEQA Impact Questions

The project's potential effects on energy also were evaluated using the CPUC's Additional CEQA Impact Questions for Energy in the *Guidelines for Energy Project Applications Requiring CEQA Compliance: Pre-filing and Proponent's Environmental Assessments* (CPUC 2019). This additional impact question is evaluated using the significance criteria set forth in Appendix G of the CEQA Guidelines. The conclusions are presented in Table 5.6-3 and discussed in more detail in Section 5.6.4.

Table 5.6-3. Additional CEQA Impact Questions for Energy

Would the project:	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Add capacity for the purpose of serving a nonrenewable energy resource?	☐	☐	☒	☐

5.6.4 Potential Impact Analysis

Project impacts related to energy were evaluated against the CEQA significance criteria and are discussed in the following subsections. The impact analysis evaluates potential project impacts during the construction phase and the operation and maintenance phase. The impact discussion is organized to describe the effects that each participating utility's portion of the project has on the environment.

5.6.4.1 Significance Criteria

According to Section 15002(g) of the CEQA Guidelines, "a significant effect on the environment is defined as a substantial adverse change in the physical conditions which exist in the area affected by the proposed project." As stated in Section 15064(b) of the CEQA Guidelines, the significance of an activity may vary with the setting. Per Appendix G of the CEQA Guidelines, the potential significance of project impacts

related to energy was evaluated for each of the criteria listed in Table 5.6-2 and Table 5.6-3 and discussed in Section 5.6.4.3.

5.6.4.2 Applicant-Proposed Measures and Best Management Practices

APM GHG-1 and BMP GHG-1 are discussed in Section 5.8.4.2 (Greenhouse Gas) and will simultaneously contribute to the reduction of energy resources.

5.6.4.3 Potential Impacts

As described in Chapter 3, Project Description, the project will provide a new 230 kV transmission source in northern San Joaquin County, in central California. The project includes extending an existing PG&E 230 kV transmission line through PG&E Lockeford Substation to a new PG&E Thurman Switching Station in Lodi, California, by installing new tubular steel poles and conductors for approximately 11 miles. PG&E Lockeford Substation will be expanded on existing substation property to accommodate the new 230 kV facility. PG&E Thurman Switching Station will transfer the new 230 kV source to the new adjacent LEU 230/60 kV Guild Substation. LEU Guild Substation will transfer the 60 kV power to the existing adjacent LEU 60 kV Industrial Substation, which will be modified to receive the new LEU 60 kV lines (via the new 230 kV source) and to disconnect the existing PG&E 60 kV sources. When disconnected, the three existing PG&E 60 kV lines will be partially removed and reconfigured mainly within their existing alignments to continue operation between PG&E Lockeford and Lodi substations. LEU distribution and the third-party telecommunication underbuild on PG&E 60 kV line portions being removed will be relocated by the respective utility owner to within or adjacent to other existing alignments. An existing PG&E distribution line will be extended underground approximately 500 feet in franchise to provide a permanent secondary service line to PG&E Thurman Switching Station. PG&E project-related work to update communication between facilities and the protection scheme system also will occur within the existing fence lines of remote-end substations Brighton, Bellota, Lodi, and Rio Oso, and a communication facility, Clayton Hill Repeater Station.

Table 5.6-4 shows a summary of the estimated fuel consumption associated with the proposed project construction and operation and maintenance based on the proposed construction schedule and estimated equipment usage (refer to Appendix E for Energy Consumption Calculations).

Table 5.6-4. Summary of Estimated Fuel Consumption During Construction and Operation and Maintenance

Project Activity	Gasoline (gallons)	Diesel (gallons)	Jet Fuel (gallons)
PG&E Portion of the Project – Construction Duration	22,01	280,915	11,101
PG&E Portion of the Project – Annual Operations & Maintenance	186	774	355
PG&E Total Fuel Consumption	22,237	281,689	11,456
LEU Portion of the Project – Construction Duration	3,164	98,640	-
LEU Portion of the Project – Annual Operations & Maintenance	-	357	-
LEU Total Fuel Consumption	3,164	98,997	-
Total Project Fuel Consumption	25,401	380,687	11,456

Notes:

Emissions from LEU Construction and Operation were obtained from City of Lodi 2022.

Table 5.6-5 compares the statewide total fuel consumption statistics obtained from the August 1, 2021, through July 31, 2022, CEC *Weekly Fuels Watch Report*, with the project.

Table 5.6-5. Summary of Estimated Fuel Consumption During Construction and Operation and Maintenance Compared to Statewide Fuel Consumption

Project Activity	Fuel Type	Estimated Amount of Fuel Consumed (gallons)[a]	Statewide Fuel Resources Consumed August 1, 2021, through July 31, 2022 (gallons)[b]	Consumed by Project (%)
PG&E Portion of the Project – Construction	Gasoline	22,051	12,875,755,200	0.0002%
	Diesel	280,915	4,297,076,691	0.0065%
	Jet Fuel	11,101	3,899,952,000	0.0003%
PG&E Portion of the Project – Operations & Maintenance	Gasoline	186	12,875,755,200	0.000001%
	Diesel	774	4,297,076,691	0.000018%
	Jet Fuel	355	3,899,952,000	0.000009%
LEU Portion of the Project – Construction	Gasoline	3,164	12,875,755,200	0.00002%
	Diesel	98,640	4,297,076,691	0.0023%
LEU Portion of the Project – Operations & Maintenance	Diesel	357	4,297,076,691	0.00001%
Total	Gasoline	25,401	12,875,755,200	0.0002%
	Diesel	380,687	4,297,076,691	0.0089%
	Jet Fuel	11,456	3,899,952,000	0.0003%

Notes:

[a] Total gallons of fuel consumed for project construction represents the total gasoline from the employee vehicle trips and the total diesel from the construction equipment and vendor delivery truck trips during the construction phases.

[b] Source: CEC 2022. A conservative estimate of annual statewide fuel resources consumed is assumed to be equivalent to 100% of annual production/stocks consumed within the state.

a) Would the project result in potential significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources during project construction or operation? *Less-than-Significant Impact.*

PG&E Potential Impact Discussion

The project may indirectly result in wasteful, inefficient, or unnecessary consumption of energy resources if existing customers using project infrastructure to receive energy resources engage in irresponsible energy use. However, construction and operation of PG&E's portion of the project will not directly result in potentially significant impacts caused by wasteful, inefficient, or unnecessary consumption of energy resources. Construction of the PG&E portion of the project has an expected duration of approximately 34 months and will require consumption of nonrenewable resources to fuel construction vehicles, equipment, and helicopters. Additionally, operation and maintenance of the project will require the consumption of nonrenewable resources to fuel vehicles, equipment, and helicopters. As shown in Table 5.6-4, construction and operation and maintenance of PG&E components will result in the consumption of an estimated 22,237 gallons of gasoline, 281,689 gallons of diesel, and 11,456 gallons of jet fuel.

As compared to the statewide total fuel consumption for one year, PG&E project construction and operation and maintenance activities will consume a minimal amount of fuel, less than 0.01% of the statewide fuel consumption, as shown in Table 5.6-5.

PG&E structure installation and wire stringing will be temporary with construction work locations moving along the proposed PG&E 230 kV transmission line alignment. PG&E project-related work at its stations will be temporary and require minimal vehicle trips after workers arrive to station locations. PG&E's engineering and construction have developed an efficient construction plan and sequence that minimizes

vehicle trips and avoids wasteful, inefficient, or unnecessary consumption of energy. Implementation of APM GHG-1, which minimizes unnecessary construction vehicle idling time will further reduce energy consumption. Energy consumption during operations of PG&E portion of the project is limited to periodic maintenance vehicle and equipment usage, typical of electrical facilities. Therefore, impacts on energy resources from the project will be less than significant.

LEU Potential Impact Discussion

The project may indirectly result in wasteful, inefficient, or unnecessary consumption of energy resources if existing customers using project infrastructure to receive energy resources engage in irresponsible energy use. However, the construction and operation of LEU portion of the project will not directly result in potentially significant impacts caused by wasteful, inefficient, or unnecessary consumption of energy resources. LEU construction of its portion of the project has an expected duration of approximately 13 months and will require consumption of nonrenewable resources to fuel construction vehicles, and equipment. As shown in Table 5.6-4, construction of the LEU portion of the project will result in the consumption of an estimated 3,164 gallons of gasoline, 98,997 gallons of diesel. LEU operation and maintenance activities is expected to have an additional 4 hours of monthly truck trips, which will result in approximately 357 gallons of diesel used annually. The use of jet fuel is not anticipated for LEU activities.

As compared to the statewide total fuel consumption for one year, LEU project construction activities will consume a minimal amount of fuel, less than 0.01% of the statewide fuel consumption, as shown in Table 5.6-5.

LEU's engineering and construction have developed an efficient construction plan and sequence that minimizes vehicle trips and avoids wasteful, inefficient, or unnecessary consumption of energy. Implementation of BMP GHG-1, which minimizes unnecessary construction vehicle idling time will further reduce energy consumption. Energy consumption during operations is limited to periodic maintenance vehicle and equipment usage, typical of electrical facilities. Therefore, impacts on energy resources from the project will be less than significant.

b) Would the project conflict with or obstruct a state or local plan for renewable energy or energy efficiency? *No Impact.*

PG&E Potential Impact Discussion

Construction of the project will support state and local plans for developing renewable energy and energy efficiency. The project provides for PG&E 230 kV transmission structures and conductors with new, high-capacity conductor capable of increasing the deliverability of renewable generation from energy production sites, including renewable sources. As shown in Table 5.6-1, PG&E sources approximately 30.6% of energy from Eligible Renewable sources. The new PG&E circuit will be capable of efficiently transmitting energy from Eligible Renewable sources, add needed reinforcement to the system, and provide an additional avenue for electrical energy to reach LEU.

Construction of the project will allow PG&E to meet its obligation to add the CAISO-approved project to the CAISO-controlled grid, as discussed in the 2017-2018 Transmission Planning Process. No impact will occur.

LEU Potential Impact Discussion

Construction of the project will support state and local plans for developing renewable energy and energy efficiency. The project provides for conductors with new, high-capacity conductor capable of increasing the deliverability of renewable generation from energy production sites, including renewable sources. As shown in Table 5.6-1, LEU sources approximately 26.8% of energy from Eligible Renewable sources. The new LEU facilities will be capable of efficiently receiving energy from Eligible Renewable sources through PG&E new 230 kV source, and provide an additional avenue for electrical energy to reach LEU. No impact will occur.

5.6.4.4 Additional Impact Question

Would the project add capacity for the purpose of serving a non-renewable energy resource? *Less-than-Significant Impact.*

PG&E Potential Impact Discussion

The existing system includes service to LEU by PG&E through three existing PG&E 60 kV power lines. The proposed system will differ from the existing system by changing PG&E's service to LEU from the existing three 60 kV lines to two new PG&E 230 kV transmission lines. After the new 230 kV source is in service, the PG&E Lockeford-Lodi 60 kV system will increase from its current normal load serving capability of 194 MW. Moving the LEU load to the 230 kV source will conserve more capacity on the 60 kV system. After the project, the load-serving capability of the 230/60 kV system will be approximately 404 MW.

The project will not add capacity for the specific purpose of serving a non-renewable energy resource. However, the project infrastructure will be available for interconnection from both renewable and non-renewable energy sources. The project will not add capacity for the purpose of serving a non-renewable energy resource such as local generation by NCPA and the City of Lodi (LEC, CT1, and CT2) that utilizes natural gas as part of its existing operation. A less-than-significant impact will result.

LEU Potential Impact Discussion

The existing system includes service to LEU by PG&E through three existing PG&E 60 kV power lines. The proposed system will differ from the existing system by changing PG&E's service to LEU from the existing three 60 kV lines to two new PG&E 230 kV transmission lines. After the new 230 kV source is in service, the PG&E Lockeford-Lodi 60 kV system will increase from its current normal load serving capability of 194 MW. Moving the LEU load to the 230 kV source will conserve more capacity on the 60 kV system. After the project, the load-serving capability of the 230/60 kV system will be approximately 404 MW.

The project will not add capacity for the specific purpose of serving a non-renewable energy resource. However, the project infrastructure will be available for interconnection from both renewable and non-renewable energy sources. The project will not add capacity for the purpose of serving a non-renewable energy resource such as local generation by NCPA and the City of Lodi (LEC, CT1, and CT2) that utilizes natural gas as part of its existing operation. A less-than-significant impact will result.

5.7 Geology, Soils, and Paleontological Resources

This section describes existing conditions and potential impacts on geology, soils, and paleontological resources as a result of construction, operation, and maintenance of the project. The analysis concludes that, although these resources will be temporarily affected by project construction, project-related impacts to geology, soils, and paleontological resources will be less than significant. The APMs and BMPs, as described in Section 5.7.4.2, will further reduce impacts. The project's potential effects were evaluated using the significance criteria set forth in Appendix G of the CEQA Guidelines. Project description information and potential impacts are organized and discussed by each participating utility's portion of the project. The conclusions are summarized in Table 5.7-2 (located in Section 5.7.3) and discussed in more detail in Section 5.7.4.

5.7.1 Methodology and Environmental Setting

5.7.1.1 Methodology

Information on geology and soils was compiled from published literature, maps, and examination of aerial photographs. Geologic units and structural features were obtained from maps published by the California Geological Survey (CGS) and U.S. Geological Survey (USGS).

Soil descriptions were obtained from mapping by the NRCS (NRCS 2019). Information on unique paleontological resources or sites or unique geological features was obtained from published and unpublished geological maps and literature, as well as records searches of paleontological collections at the Natural History Museum of Los Angeles County and the University of California Museum of Paleontology (UCMP) at Berkeley, and a pedestrian reconnaissance field survey of the project area. Logs from 12 geotechnical boreholes were analyzed to provide a general view of subsurface stratigraphy for potential correlation to mapped geologic surface exposures. Seismic information was developed from several sources, including the USGS, CGS, and the Stanislaus and San Joaquin County General Plans.

Geotechnical reports (Appendix F1, F2 and F3) were prepared to inform the design of the new LEU Guild Substation, new PG&E Thurman Switching Station, and expanded PG&E Lockeford Substation. Also, a Paleontological Resources Impact Evaluation Report (Appendix F4) was prepared by Earthview Science (2022).

Existing data were analyzed according to PG&E Paleontological Resources Standards and Procedures (PG&E 2015). The analysis includes (1) geologic map review, (2) scientific literature review, (3) institutional paleontological records search, (4) aerial imagery review, and (5) available geotechnical reports. Geological maps were obtained at the smallest unit available; in this case, 1:62,500 scale (Marchand & Atwater 1979; Marchand & Bartow 1979). Geological and paleontological literature relevant to the northern San Joaquin Valley was reviewed for paleontological findings. UCMP and Paleobiology databases were searched for paleontological records within 1 mile of the project corridor (UCMP 2022; Paleobiology Database 2022). Google Earth aerial imagery also was reviewed for physiographic context and land use of the project site and vicinity.

5.7.1.2 Regional and Local Geologic Setting

The main project area is near the geographic center of California in the San Joaquin Valley, which is the southern portion of the Central Valley of California (as shown on Figure 5.7-1). The Central Valley also is referred to as the Great Valley Geomorphic Province. It extends for approximately 450 miles from low-lying hills near Red Bluff in the north to the San Emigdio and Tehachapi Mountains near Bakersfield in the south. The Central Valley is bounded on the northeast by a volcanic plateau of the Cascade Range; on the east by the Sierra Nevada Range, which rises to a maximum height of more than 14,000 feet above mean sea level; and on the west by the Coast Ranges, including the Diablo Range, which extends into the western margin of Merced County. Elevations in the Central Valley range from slightly below mean sea level to 400 feet above mean sea level at its northern and southern ends. The northern one-third of the

valley is known as the Sacramento Valley and the southern two-thirds as the San Joaquin Valley (California DOC 2002a, 2002b; Page 1986; Norris and Webb 1990).

San Joaquin County occupies a central location in California's Central Valley. The southwest corner of the County is defined by small intermittent streams entering the valley from the semi-arid Diablo Range on the west and the foothills of the Sierra Nevada Range lie along the County's eastern boundary. Some streams terminate on alluvial fans and others have been dammed to form reservoirs for irrigation. To the east, perennial rivers flow from the more humid, larger drainage areas of the Sierra Nevada and have been dammed to provide irrigation. In the past, runoff from these drainages deposited sand, silt, and clay and built up large alluvial fans along each side of the valley. The larger, more gently sloping fans on the east side of the valley are primarily composed of sediment deposits derived from granitic rock, which have created extensive foothills. Alluvial fans of the Sacramento-San Joaquin River Delta are composed of sediment derived primarily from sedimentary source rock deposits and generally have steeper slopes. The valley floor is composed of alluvial, floodplain, and delta plain deposits from the surrounding ranges.

During the late Mesozoic and Cenozoic periods, the region existed as a lowland or shallow marine embayment. In the late Cenozoic, much of the area was occupied by shallow brackish and freshwater lakes, particularly in the San Joaquin Valley (Page 1986; Norris and Webb 1990).

The main project area in northeastern San Joaquin County ranges in elevation from a low of approximately 60 feet above mean sea level at LEU Industrial Substation on the western extent to a high of approximately 135 feet above mean sea level at PG&E Brighton-Bellota line on the eastern extent. The surface topography is relatively flat with an overall slope of approximately 0 to 1%. Northeastern San Joaquin County is predominantly agricultural with retail, wineries, and rural and semirural residential development outside of the City of Lodi, and small concentrated areas of industrial and commercial business along transportation corridors.

Project work at PG&E remote-end substations will be updating system protection schemes within control rooms, extending existing fiber telecommunication lines, and potentially removing redundant telecommunication equipment within existing fenced station facilities in areas of previous ground disturbance. Project work at PG&E Clayton Hill Repeater Station will be adding two new antennas to an existing telecommunication tower. These PG&E facilities have existing health and safety plans that address the potential hazard of being onsite during an earthquake. These PG&E project activities outside of northeastern San Joaquin County will have no impact on geology, soils, and paleontological resources and are not assessed further in this section.

5.7.1.3 Seismic Hazards

Fault Zones

The Alquist-Priolo Act requires the establishment of "earthquake fault zones" along known active faults in California. A fault is considered active if it has generated earthquakes accompanied by surface rupture during historic time (approximately the last 200 years) or has shown evidence of fault displacement during the Holocene period (approximately the last 11,000 years) (Bryant and Hart 2007). A fault is considered potentially active if there is evidence of fault displacement during the Quaternary period (approximately the last 1.6 million years). A fault is considered inactive if the most recent documented fault displacement predates the Quaternary period. For the purposes of this report, active faults within a distance of approximately 80 miles that may potentially affect the project were identified using the CGS map (CGS 2022).

No known active faults cross the proposed or existing PG&E or LEU project components and none are located within approximately 10 miles of the immediate project vicinity (refer to Figure 5.7-1). Additionally, no known active faults are within San Joaquin County.

San Andreas Fault Zone

The nearest fault of major historical significance is the San Andreas Fault, which passes within a distance of approximately 80 miles southwest of the western most portion of the project at LEU Industrial Substation.

Other major branches include the Greenville Fault (located approximately 37 miles to the southwest), Calaveras Fault (located approximately 51 miles to the southwest), and the Hayward Fault (located approximately 59 miles to the southwest). These active right-lateral, strike-slip faults extend in a northwest-southeast direction to the northwest, west, and southwest of San Joaquin County.

The San Andreas Fault zone extends from the Gulf of California in Mexico to the Mendocino coast in northern California and accommodates the majority of movement between the Pacific and North American plates. Large earthquakes on the San Andreas Fault were recorded in 1838, 1865, 1890, 1906, and 1989. The more recent 1989 earthquake was a magnitude 6.9, while the 1906 earthquake was a magnitude 7.8.

Foothills Fault System

The Foothills Fault system (located approximately 23 miles to the northwest) is a major north-northwest trending group of relatively short, discontinuous normal faults extending along the western Sierra Nevada from Oroville in the north to Fresno in the south. The northern part of the Foothills Fault system ruptured in the 1975 Oroville earthquake. The Bear Mountain Fault extends parallel to the eastern border of San Joaquin County and is the closest member of the Foothills Fault system to the project site. The CGS fault activity map does not indicate evidence of displacement on this portion of the Bear Mountain Fault during the Quaternary period.

The Great Valley Fault System

The Great Valley fault zone (located approximately 47 miles to the west) is a system of generally blind, west-dipping thrust and reverse faults that are interpreted to form the structural boundary between the eastern Central Valley and Coast Ranges. The Midland Fault is the closest fault in the Great Valley Fault System to the site. Recognition and evaluation of the Great Valley fault zone as a seismic source was prompted by the 1983 Coalinga earthquake, a magnitude 6.5. The fault zone also includes the 1892 Winters-Vacaville earthquake of magnitude 6.4.

Strong Ground Motion

The project is not within an active fault zone as defined by the Alquist-Priolo Act. However, the project is in an area that is subject to ground shaking from earthquakes generated on faults associated with the Coast Ranges to the west, in particular the Hayward, San Andreas, and Greenville faults and faults of the Great Valley Fault zone, and faults to the east in the Foothills Fault system. Shaking from an earthquake can result in structural damage and can trigger other geologic hazards such as liquefaction. Ground shaking is affected by the earthquake magnitude, duration, and distance from the source. Ground conditions also will influence impacts from strong ground motions. Seismic waves attenuate with distance from their sources, so estimated bedrock accelerations are highest in areas closest to the source. Local soil conditions may amplify or dampen seismic waves as they travel from the underlying bedrock to the ground surface.

Ground motion was calculated at the existing PG&E Lockeford Substation site, proposed PG&E Thurman Switching Station site, and proposed LEU Guild Substation site, using Section 1613.3 of the 2016 California Building Code (CBC), chapters 11 and 22 of American Society of Civil Engineers (ASCE) ASCE 7-10, and the USGS seismic design maps (Burns & McDonnell 2020; Kleinfelder 2019a; Kleinfelder 2019b; CBC 2016; OSHPD 2022). The peak ground acceleration (PGA) was obtained for the ground motion with a 10% probability of being exceeded in 50 years, or a 475-year return period. The values were obtained for PG&E Thurman Switching Station at longitude -121.249 and latitude 38.129 and at PG&E Lockeford Substation at longitude -121.159 and latitude 38.118. According to available information and the calculated PGA values, the expanded PG&E Lockeford Substation site and the proposed PG&E Thurman Switching Station site are categorized as stiff soil (Class D), PGA of 0.225 units of gravity (g) and PGA of 0.249 g, respectively (Kleinfelder 2019a; Kleinfelder 2019b). The LEU Guild Substation site at longitude -121.251 and latitude 38.129 is categorized as stiff soil (Class D), PGA of 0.249 g (Burns & McDonnell 2020). This range of PGA values is considered low to moderate for the state. PGA values across California range from approximately 0.1 g to more than 1.0 g. More than three-quarters of the population of the state resides in counties with seismic hazard calculated to be greater than 0.4 g (USGS 1996).

Seismic-Induced Landslides

The project area is relatively flat (0 to 1% slope) and is distant from hills, mountains, or slopes. For these reasons, the project area is not expected to be prone to seismic-induced landslides.

5.7.1.4 Liquefaction

Liquefaction is a phenomenon in which saturated cohesionless soils, such as sand and silt, temporarily lose their strength and liquefy when subjected to dynamic forces, such as intense and prolonged ground shaking. The vast majority of liquefaction hazards are associated with sandy soils and silty soils of low plasticity (CGS 2008). To be susceptible to liquefaction, potentially liquefiable soils must be saturated or nearly saturated. In general, liquefaction hazards are most severe in saturated soils within the upper 50 feet of the ground surface. The potential for liquefaction increases with shallower groundwater.

The project site is not within a known area of liquefaction hazard (CGS 2022). Sandy and loamy soils comprise most of the soils underlying the project. The introduction of water to the project through irrigation or excessive rainfall may increase the potential for liquefaction during seismic events. Specific liquefaction hazard areas have not been identified in San Joaquin County; however, this potential exists in areas of the San Joaquin Valley where unconsolidated sediments and a high water table coincide.

At PG&E Lockeford Substation, PG&E Thurman Switching Station, and LEU Industrial and LEU Guild substations, the geotechnical reports concluded that based on the relatively dense soil types and depth to groundwater at these sites, liquefaction potential is considered negligible (Burns & McDonnell 2020; Kleinfelder 2019a; Kleinfelder 2019b).

5.7.1.5 Geologic Units

Geologic units within the project area are presented on Figure 5.7-2 (Marchand & Atwater 1979; Marchand & Bartow 1979; Dawson 2009). The following list describes geologic units from youngest to oldest:

- Pleistocene to Holocene

  Most geologic units in the project area cover the middle to late Pleistocene Epoch (approximately 2 million years ago to 11,700 years ago) and the Holocene Epoch (11,700 years ago to present). These geologic units generally are not lithified.

  - **Alluvium/Colluvium (Qu)** – Unnamed late Pleistocene or Holocene alluvium and colluvium consisting of flat, relatively undissected fan, terrace, basin deposits, and small active streams.
  - **Modesto Formation** – Late Pleistocene arkosic alluvium sand with minor gravel and silt, forming Mokelumne River alluvial fans, low terraces, and high floodplains. This formation includes the following units:

    Qm2 – Upper unit chiefly made of sand, becoming finer grained toward the fan toe, and is probably glacial outwash.

    Qm2e – Upper unit made of arkosic sand that formed low dunes on the Mokelumne River fan and in the Delta. Although it is not well sorted, this unit is probably eolian.

    Qm2f – Lower unit made of foothill-derived alluvial silt, clay, and minor sand following tributaries across lower fans. It consists of abundant volcanic detritus.

    Qm1 – Lower unit made of arkosic alluvium forming the Mokelumne River alluvial fan. It is probably glacial outwash.
  - **Riverbank Formation** – Middle to late Pleistocene arkosic alluvium sand with silt, forming terraces and alluvial fans along the Mokelumne River. Upper to lower units are as follows:

    Qr3 – Upper unit comprises arkosic alluvium forming the Mokelumne River alluvial fan. It is primarily sand and probably glacial outwash.

Qr3f – Upper unit comprises foothill-derived alluvial sand and silt. It contains abundant volcanic detritus.

Qr2 – Middle unit comprises arkosic alluvium from the middle Pleistocene period forming Mokelumne River terraces and alluvial fan. It is chiefly sand and probably glacial outwash.

Qr2f – Lower unit comprises foothill-derived alluvial sand and silt. It contains abundant volcanic detritus.

Qr1 – Presumed to be a lower unit consisting of arkosic alluvium, sand and silt, forming terraces and alluvial fans along the Mokelumne River.

- **Turlock Lake Formation (Qt1)** – Early to middle Pleistocene period arkosic alluvium, including sand with some silt and minor gravel (Dawson 2009).

- Miocene to Pliocene

  Late Miocene period (approximately 12 to 5 million years ago) and Pliocene period (approximately 5 to 2.6 million years ago) rocks are present at or near the surface on the east side of the project area.

  - **Laguna Formation (Tl)** – Pliocene period cobble gravel, sand, and minor silt of mixed metamorphic, granitic, and volcanic sources.

Soils

Soils in the project area are shown on Figure 5.7-3 (NRCS 2019). The project site surface soils are predominantly mapped as Tokay fine sandy loam, 0 to 2% slopes, and Kingdon fine sandy loam, 0 to 2% slopes. Smaller portions of the project site surface soils consist of Acampo sandy loam, 0 to 2% slopes; Archerdale very fine sandy loam, 0 to 2% slopes, overwashed; Cometa sandy loam, 2% to 5% slopes; Montpellier-Cometa complex, 5% to 8% slopes; San Joaquin loam, thick surface, 0 to 2% slopes; San Joaquin sandy loam, 2% to 5% slopes; and Tujunga loamy sand, 0 to 2% slopes. Soils of the Tokay series are present largely in the western and portions of the central segments of the project, and the Kingdon series soils are more predominant in the eastern segment and also some portions of the central segment (NRCS 2019).

Both the Kingdon and Tokay soil series consist of very deep, well-drained soils formed from granitic rock sources. They are friable, low in organic matter, slightly acidic, and have moderately rapid permeability and slow runoff. They have mixed mineralogy and are uniformly sorted with coarse particles. The hazard of water erosion is slight for soils across the project area (NRCS 2019).

Expansive soils contain significant amounts of clay that expand when wet and can cause damage to foundations if moisture collects beneath structures. According to NRCS data, Kingdon and Tokay soil series within the project site do not contain significant amounts of clay and, therefore, soil expansion is not a concern in these areas. The smaller areas of Archerdale very fine sandy loam, Cometa sandy loam, Montpellier-Cometa complex, and San Joaquin loams contain higher clay content and have high shrink-swell potential.

The project site is not within a known area of liquefaction hazard (CGS 2022).

Subsidence

Subsidence is the downward displacement of a large portion of land. Tectonic movement or subsidence occurs at a massive geologic time scale and sediment accumulation rates that would be hardly noticeable in many millennia. Areas in California, including portions of San Joaquin County, have seen subsidence related to over-pumping of groundwater. While as much as 28 feet of subsidence has occurred in portions of the San Joaquin Valley to the south and west of the project area (USGS 2018), little subsidence (during the last 6 years, the annual vertical displacement rate is calculated as -0.2 to -0.1 foot) has been reported in the eastern San Joaquin groundwater basin where the project is located (DWR 2022).

Landslides

A landslide is a mass of rock, soil, or debris that has been displaced downslope by sliding, flowing, or falling. There is a low probability for landslides in the project area because of the relatively flat (0 to 1% slope) topography and distance from hills, mountains, or slopes. While the project components span over creeks and channels, no project components are located within the slopes of those channels. The project site is not located within a known landslide hazard area, as indicated by the California Landslide Susceptibility Map prepared by CGS (CGS 2022).

Erosion

Erosion is the process by which rocks, soil, and other land materials are abraded or worn away from the Earth's surface over time. The rate of erosion depends on many factors, including soil type and geologic parent materials, slope and placement of soils, and human activity. The potential for erosion is highest in loose, unconsolidated soils. The steepness of slopes and absence of vegetation also are factors that increase the natural rates of erosion. Thus, erosion potential is high in steep, unvegetated areas, especially those disturbed by grading or other construction activities.

A soil's susceptibility to erosion varies and is a function of its characteristics, such as soil texture, soil structure, topography, amount of vegetative cover, and climate. Erosion from water mainly occurs in loose soils on moderate to steep slopes, particularly during high-intensity storm events. Erosion from wind mainly occurs in dry, loose, and finely granulated soils. Because the topography at the project site is relatively flat, erosion potential is low**.**

5.7.1.6 Paleontological Report

The paleontological resource sensitivity analysis is based on published geological mapping and the geological sensitivity of rock type. From the end of the Mesozoic Era (Upper Cretaceous Series) into the Cenozoic Era, the deep-sea basin in which the Great Valley Sequence was deposited experienced numerous periods of deposition from various transgressions (local sea level rises) and regressions (local sea level drops) along with localized depositional hiatuses and several unconformities (Bartow 1991). These marine transgressions and regressions resulted in aquatic and terrestrial depositional environments, respectively, with differing associated biota. In the Neogene and Quaternary Periods, depositional environments changed from shallow marine to nonmarine (Galloway et al. 1999), again with differing associated biota. Such geological and ecological changes through time have implications for the possible distribution of paleontological resources in the project area.

Geologic Units and Paleontological Sensitivity

Pleistocene to Holocene

Pleistocene to Holocene geologic formations represent the major Pleistocene formations of the eastern San Joaquin Valley from youngest to oldest: Modesto Formation, Riverbank Formation, and Turlock Lake Formation, as well as the more recent sediments (Qha and Qu). During the Pleistocene, also known as the Ice Age, the Central Valley was teeming with animals. Late Ice Age fauna is known as the Rancholabrean Land Mammal stage. This group includes herbivores such as mammoth, mastodon, camels, bison, llamas, elk, and horses, as well as predators such as the short-faced bear, saber-tooth cat, scimitar cat, dire wolf, and California lion. Middle and early Ice Age fauna is known as the Irvingtonian Land Mammal stage, which includes mammoths, mastodons, and other members of the elephant family; horses; bone-crushing dogs; hyenas; wolves; saber-toothed cats; and bears. Fossils representing both of these faunas have been found in the San Joaquin Valley.

Alluvium/Colluvium

The alluvium/colluvium represents unnamed Holocene and possibly latest Pleistocene sediment. This formation is widespread across the state of California. It consists of unconsolidated sediment that is generally considered too young to produce significant fossils. Occasionally, significant vertebrate fossils are found in this sediment because it is older than previously thought or because older layers lie close to

the surface (Maguire & Holroyd 2016). For this assessment, no fossil localities were found within this type of sediment within approximately 9 miles of the project area.

Modesto Formation

The Modesto Formation geologic units are the youngest Pleistocene geologic units in the project area. They are thought to date to the late Ice Age, or the Rancholabrean Land Mammal Age. Modesto Formation sediments are fluvial and, under some circumstances, have been fossiliferous. Fossils are occasionally found in sediment attributed to the Modesto Formation, primarily along major rivers and first order streams.

Eleven fossil localities are attributed to the Modesto Formation in the UCMP database. Only three of these fossil localities are in San Joaquin County. All three of these were found during an expansion of SR 99, approximately 30 miles south of the project area in the City of Stockton (UCMP #s V2016003, V2016004, and V2016005). In addition, fossils discovered approximately 9 to 11 miles southwest of the project area, in the Lincoln Village neighborhood of Stockton, were not attributed to any formation in the UCMP database but were found in sediment mapped as Modesto Formation at the surface. However, in general, many fossil localities that have been attributed to Modesto Formation actually are more likely to be part of the upper Riverbank Formation, which lies just below the Modesto Formation.

Riverbank Formation

The Riverbank Formation geologic units date from about 450,000 years ago to 150,000 years ago, covering the late Irvingtonian Land Mammal Age as well as the early- and mid-Rancholabrean Land Mammal Age (Dundas et al. 1996). The Riverbank Formation has yielded early Rancholabrean and late Irvingtonian mammalian fossils, including the extinct North American camel (*Camelops*), mammoth (*Mammuthus*), ground sloth (*Megalonyx*), and bison (*Bison*). Many fossil localities that have been attributed to the Modesto Formation have been revealed under scrutiny to actually be from the upper Riverbank Formation. The fossiliferous Riverbank Formation layer is a compound soil with a strongly gleyed (green-gray-blue wetland soil) horizon with a discontinuous hardpan composed of caliche (calcium carbonate cementing the fine-grained alluvium). Similarly, fossil localities attributed to the Riverbank Formation sometimes have been found to be part of the Turlock Lake Formation (Dundas & Chatters 2013). However, no fossil localities in the Riverbank Formation were found for this assessment within 7 miles of the project area.

Turlock Lake Formation

The Turlock Lake Formation is an early- to mid-Pleistocene geologic unit that corresponds to the Irvingtonian Land Mammal Age, a period not well represented in the fossil record. Since 1993, thousands of vertebrate fossils have been found in the Turlock Lake Formation approximately 20 miles southeast of the project area at Fairmead Landfill in the City of Chowchilla (Dundas & Chatters 2013). Fossils from more than 72 taxa were found. A museum, the Madera County Fossil Discovery Center, was built to house them. It has since been reported that fossils had been discovered periodically by heavy equipment operators since the opening of the landfill (Dundas & Chatters 2013).

Fairmead Landfill fossils were found in the upper unit of the Turlock Lake Formation in a large deposit of greenish clay a half-meter thick. The discovery occurred at 40 feet below ground surface (bgs), under approximately 30 feet of Riverbank Formation sediment, including the middle and upper unit. The fossils were found in the first 10 feet of Turlock Lake Formation sediment.

Outside of the Fairmead Landfill discovery, fossil discoveries in the Turlock Lake Formation seem to be limited. Although there is evidence that some Turlock Lake Formation fossils, including the Fairmead Landfill site, are mistakenly attributed to Riverbank Formation in UCMP (Dundas et al. 1996; Dundas & Chatters 2013), no other vertebrate fossil localities in the Turlock Lake Formation were found for this assessment. Several plant fossil localities are attributed to Turlock Lake Formation but all are in eastern Fresno County approximately 120 miles from the project area (UCMP 2022).

Laguna Formation

The Laguna Formation is a Pliocene period formation dating from 5 to 2.6 million years ago described in detail in Marchand and Allwardt (1981). No fossil localities are attributed to Laguna Formation in UCMP (UCMP 2022). For this assessment, no other evidence was found that the Laguna Formation is fossiliferous.

Paleontological Survey Results

The project area extends approximately 9 miles from the east side of the City of Lodi across unincorporated San Joaquin County farmland. This area lies within the Great Valley physiographic province of California (also known as the Central Valley), a relatively flat alluvial plain approximately 400 miles long and approximately 50 miles wide. The Central Valley is a structural trough or basin in which sediments have been accumulating since the Jurassic Period (about 160 million years ago). The project area is within the San Joaquin Valley (the southern half of the Central Valley), just south of the Mokelumne River, a major waterway that flows from the central Sierra Nevada Range into the Sacramento-San Joaquin River Delta. The closest project alignment to the Mokelumne River is approximately 1 mile south of its current channel. Bear Creek, a tributary of the Mokelumne River, flows through the project area. The project area is mostly farmland dedicated to row crops, except for the western end, which is within an industrial zone of the City of Lodi.

Institutional records searches and scientific literature review were performed for the project area and surrounding areas (Earthview Science 2022). No records of fossils or documented fossil collection localities were found within the project area or within approximately 1 mile of the project area.

Because there is potential to encounter geologic units of greater sensitivity at depth and potential – although relatively low – for unanticipated fossil discovery in geologic units determined to be of low to moderate sensitivity, APMs and BMPs are recommended in the following sections. Table 5.7-1 summarizes the paleontological sensitivity of the geologic units in and around the project area.

Table 5.7-1. Paleontological Sensitivity of Geologic Units in and Around the Project Corridor

Geologic Age at Surface	Geologic Unit	Paleontological Sensitivity – PFYC Category	Basis for Sensitivity Rating
Pleistocene to Holocene	Qha – Alluvium (Holocene)	2: low	Holocene age sediment is generally considered too young to contain scientifically significant fossils.
	Qu – Alluvium/Colluvium (Holocene/Pleistocene)	2: low	Qu sediment represents Holocene and latest Pleistocene periods. Significant fossils are found occasionally in Qu sediment. However, this geologic unit is relatively widespread at the surface in the San Joaquin Valley and no fossil localities attributed to this unit were found within approximately 7 miles of the project area. Qu is considered to be of low sensitivity.
	Qm_2 – Modesto Formation (Pleistocene)	2 to 3: low to moderate	The Modesto Formation is the uppermost Pleistocene geologic unit in the project area. Significant fossils are found only occasionally in Modesto Formation. However, at anticipated project excavation depths of 30 feet or more, encountering the upper Riverbank Formation (below the Modesto Formation) is likely because it lies below the Modesto Formation. The Riverbank Formation has moderate sensitivity.
	Qm_2e – Modesto Formation (Pleistocene)		
	Qm_2f – Modesto Formation (Pleistocene)		
	Qm_1 – Modesto Formation (Pleistocene)		

Geologic Age at Surface	Geologic Unit	Paleontological Sensitivity – PFYC Category	Basis for Sensitivity Rating
	Qr_3 – Upper Riverbank Formation (Pleistocene)	3: moderate	Riverbank Formation has yielded significant vertebrate fossils of early Rancholabrean or late Irvingtonian age. However, no fossil localities in Riverbank Formation were found for this assessment within approximately 7 miles of the project area. Overall, scientifically significant fossils occur in this formation intermittently and with low predictability outside of major river channels. The Riverbank Formation is determined to have moderate sensitivity.
	Qr_3f – Upper Riverbank Formation (Pleistocene)		
	Qr_2f – Middle Riverbank Formation (Pleistocene)		
	Qr_2 – Lower Riverbank Formation (Pleistocene)		
	Qr_1 – Lower Riverbank Formation (Pleistocene)		
Miocene to Pliocene	Tl – Laguna Formation (Pliocene)	2: low	This formation is not known to be fossiliferous. Accordingly, sensitivity is determined to be low.

PFYC = potential fossil yield classification

5.7.2 Regulatory Setting

5.7.2.1 Federal

Earthquake Hazards Reduction Act of 1977

The Earthquake Hazards Reduction Act of 1977 is a law formulating a national policy to diminish the dangers of earthquakes in the United States. The Earthquake Hazards Program is part of the USGS Natural Hazards Mission Area and is the USGS component of the multi-agency National Earthquake Hazards Reduction Program (NEHRP), established by Congress in 1977. The USGS Advanced National Seismic System was established by Congress as an NEHRP facility. The NEHRP agencies pursue the goals of the program through collaboration with each other and numerous partners. In addition to other federal agencies, program partners include state and local governments, universities, research centers, professional societies, trade associations and businesses, as well as associated councils, commissions, and consortia. NEHRP's work encompasses research, development, and implementation activities. Program research helps to advance understanding of why and how earthquakes occur and impact the natural and built environments. The program develops strategies, tools, techniques, and other measures that can reduce the adverse effects of earthquakes and also facilitates and promotes implementation of these measures, thereby strengthening earthquake resilience among at-risk communities.

Antiquities Act of 1906

The Antiquities Act of 1906 (Title 16, USC, Sections 431–433) was enacted with the primary goal of protecting cultural resources in the U.S. This act explicitly prohibits appropriation, excavation, injury, and destruction of any historic or prehistoric ruin or monument, or any "object of antiquity" located on lands owned or controlled by the federal government, without prior permission of the secretary of the federal department that has jurisdiction over the site. The act also establishes criminal penalties, including fines and imprisonment, for these acts. The Antiquities Act contains a requirement for studies by qualified experts in the subject matter and contains precise stipulations regarding the management/curation of collected materials. Although the Antiquities Act itself and its implementing regulation (43 CFR Section 3) do not specifically mention paleontological resources, "objects of antiquity" have been interpreted to include paleontological resources by the NPS, the Bureau of Land Management (BLM), the U.S. Forest Service (USFS), and other federal agencies.

National Environmental Policy Act

NEPA, as amended (Pub. L. 91-190, 42 USC 4321-4347, January 1, 1970, as amended by Pub. L. 94-52, July 3, 1975, Pub. L. 94-83, August 9, 1975, and Pub. L. 97-258 Section 4(b), September 13, 1982), recognizes the continuing responsibility of the federal government to "preserve important historic, cultural, and natural aspects of our national heritage..." (Sec. 101 [42 USC Section 4321]). This can be interpreted to refer to paleontological as well as cultural resources. When not on federal lands, requiring paleontological analysis under NEPA is at the discretion of the lead federal agency.

Paleontological Resources Preservation, Omnibus Public Lands Act

The Omnibus Public Lands Act (Public Law 111-011, Title VI, Subtitle D) (OPLA-PRP 2009) is legislation directing the Secretaries of the Interior and Agriculture to manage and protect paleontological resources on federal land using scientific principles and expertise. OPLA-PRP incorporates most of the recommendations of the report of the Secretary of the Interior entitled "Assessment of Fossil Management on Federal and Indian Lands" (2000) to formulate a consistent paleontological resources management framework. In passing the OPLA-PRP, Congress officially recognized the scientific importance of paleontological resources on some federal lands by declaring that fossils from these lands are federal property that must be preserved and protected. The OPLA-PRP codifies existing policies of the BLM, NPS, USFS, U.S. Bureau of Reclamation, and USFWS, and provides the following:

- Uniform criminal and civil penalties for illegal sale and transport, and theft and vandalism of fossils from federal lands
- Uniform minimum requirements for paleontological resource-use permit issuance (terms, conditions, and qualifications of applicants)
- Uniform definitions for "paleontological resources" and "casual collecting"
- Uniform requirements for curation of federal fossils in approved repositories

There are federal legislative protections for scientifically significant fossils for projects that take place on federal lands (with certain exceptions such as the Department of Defense). If any portion of the project occurs on federally managed lands (for example, BLM lands), federal protections for paleontological resources on those lands apply under NEPA, the Federal Land Policy and Management Act of 1976, and OPLA-PRP.

5.7.2.2 State

Alquist-Priolo Earthquake Fault Zoning Act

California enacted the Alquist-Priolo Special Studies Zones Act in 1972, which was renamed the Alquist-Priolo Earthquake Fault Zoning Act in 1994, which regulates development and construction of buildings intended for human occupancy to avoid the hazard of surface fault rupture. Also known as the Alquist-Priolo Act, it requires the establishment of "earthquake fault zones" along known active faults in California. Regulations on development within these zones are enforced to reduce the potential for damage resulting from fault displacement. The proposed project is not within an Alquist-Priolo earthquake fault zone and does not involve a structure for human occupancy; therefore, it is not subject to the requirements of this act. Information on earthquake fault zones is provided for public information purposes (refer to Section 5.7.1.3, Seismic Hazards, for further discussion).

California Public Resources Code

The state of California PRC (Chapter 1.7), Sections 5097.5 and 30244, includes additional state-level requirements for the assessment and management of paleontological resources. These statutes require reasonable mitigation of adverse impacts to paleontological resources resulting from development on state lands, define the removal of paleontological sites or features from state lands as a misdemeanor, and prohibit the removal of any paleontological site or feature from state land without permission of the applicable jurisdictional agency. Section 30244 requires reasonable mitigation for impacts on

paleontological resources that occur as a result of development on public lands. Further, California Penal Code Section 622.5 sets the penalties for damage or removal of paleontological resources.

Seismic Hazards Mapping Act

The Seismic Hazards Mapping Act (SHMA) of 1990 addresses earthquake hazards other than fault rupture, including liquefaction and seismically induced landslides. Seismic hazard zones are to be mapped by the State Geologist to assist local governments in land use planning. The SHMA states that, "it is necessary to identify and map seismic hazard zones in order for cities and counties to adequately prepare the safety element of their general plans and to encourage land use management policies and regulations to reduce and mitigate those hazards to protect public health and safety."

California Building Standards Code

The California Building Standards Commission is responsible for coordinating, managing, adopting, and approving building codes in California. The state of California provides minimum standards for building design through the 2022 CBC (CCR, Title 24). Chapter 18 of the CBC regulates the excavation of building foundations and retaining walls and specifies required geological reports. Appendix J of the 2022 CBC regulates grading activities, including drainage and erosion control and construction on unstable soils, such as expansive soils and areas subject to liquefaction.

5.7.2.3 Local

Because the CPUC has exclusive jurisdiction over project siting, design, and construction, PG&E's portion of the project is not subject to local (city and county) discretionary regulations except for air districts and CUPAs with respect to air quality and hazardous waste regulations. However, local plans and policies are considered for informational purposes and to assist with the CEQA review process.

Although PG&E is not subject to local discretionary permitting, ministerial permits will be secured, as required. Table 3.10-1 in Chapter 3 of this PEA lists the authorizations that may be required for project construction.

The City of Lodi is a local agency and must comply with its own local plans and policies.

General plans of the City of Lodi and San Joaquin County were reviewed for provisions relevant to geology/soils and paleontological resources (City of Lodi 2010; San Joaquin County 2016). No provisions were found for San Joaquin County for paleontological resources. Relevant provisions in the general plans include the following:

City of Lodi General Plan Policy S-P18. Ensure that all public facilities, such as buildings, water tanks, underground utilities, and berms, are structurally sound and able to withstand seismic activity.

City of Lodi General Plan Policy S-P20. Require soils reports for new projects and use the information to determine appropriate permitting requirements, if deemed necessary.

City of Lodi General Plan Policy S-P21. Require that geotechnical investigations be prepared for all proposed critical structures (such as police stations, fire stations, emergency equipment, storage buildings, water towers, wastewater lift stations, electrical substations, fuel storage facilities, large public assembly buildings, designated emergency shelters, and buildings three or more stories high) before construction or approval of building permits, if deemed necessary. The investigation shall include estimation of the maximum credible earthquake, maximum ground acceleration, duration, and the potential for ground failure because of liquefaction or differential settling.

City of Lodi General Plan Policy C-P18. In the event that archaeological/paleontological resources are discovered during site excavation, the City shall require that grading and construction work on the project site be suspended until the significance of the features can be determined by a qualified archaeologist/paleontologist. The City will require that a qualified archaeologist/paleontologist make recommendations for measures necessary to protect any site determined to contain or constitute an historical resource, a unique archaeological resource, or a unique paleontological resource or to undertake

data recovery, excavation, analysis, and curation of archaeologist/paleontologist materials. City staff shall consider such recommendations and implement them where they are feasible in light of project design as previously approved by the City.

San Joaquin County General Plan Policy PHS-3.2. The County shall not approve any of the following land uses if they are located within one-eighth of a mile of any active fault or on soil that is highly susceptible to liquefaction: facilities necessary for emergency services; major utility lines and facilities; manufacturing plants using or storing hazardous materials; high occupancy structures, such as multifamily residences and large public assembly facilities; and facilities housing dependent populations, such as prisons, schools, and convalescent centers.

San Joaquin County General Plan Policy PHS-3.4. The County shall require proposals for new development in areas determined by the County to have high liquefaction potential to include detailed site-specific liquefaction studies.

San Joaquin County General Plan Policy PHS-3.5. The County shall require that all proposed structures, utilities, or public facilities within County-recognized areas of near-surface subsidence or liquefaction be located and constructed in a manner that minimizes or eliminates potential damage.

5.7.3 Impact Questions

The project's potential effects on geology, soils, and paleontological resources were evaluated using the significance criteria set forth in Appendix G of the CEQA Guidelines. The criteria and conclusions are summarized in Table 5.7-2 and discussed in more detail in Section 5.7.4.

Project impacts on paleontological resources were evaluated based on an assessment of the paleontological sensitivity of identified geologic formations in relation to the proposed project activities. In accordance with Appendix G of the CEQA Guidelines, project impacts on paleontological resources were considered significant if the project would directly or indirectly destroy a unique paleontological resource or site. Sensitivity ratings were used to assess the likelihood and severity of project impacts. The sensitivity ratings provided in Table 5.7-1, which combine a number of relevant considerations, are measured in light of the nature of subsurface disturbance associated with the project, and the significance of impacts is determined based on that information.

Table 5.7-2. CEQA Checklist for Geology, Soils, and Paleontological Resources

Would the project:	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault?	☐	☐	☐	☒
ii Strong seismic ground shaking?	☐	☐	☒	☐
iii Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐
iv Landslides?	☐	☐	☒	☐

Would the project:	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐
c) Be located on a geologic unit of soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?	☐	☐	☒	☐
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?	☐	☐	☒	☐
e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems 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?	☐	☐	☒	☐

5.7.3.1 Additional CEQA Impact Questions

None.

5.7.4 Potential Impact Analysis

Project impacts related to geology, soils, and paleontological resources were evaluated against the CEQA significance criteria and are discussed in the following subsections. The impact analysis evaluates potential project impacts during the construction phase and the operation and maintenance phase. The impact discussion is organized to describe the effects of each participating utility's portion of the project on the environment.

5.7.4.1 Significance Criteria

According to Section 15002(g) of the CEQA Guidelines, "a significant effect on the environment is defined as a substantial adverse change in the physical conditions which exist in the area affected by the proposed project." As stated in Section 15064(b) of the CEQA Guidelines, the significance of an activity may vary with the setting. Per Appendix G of the CEQA Guidelines, the potential significance of project impacts on geology, soils, and paleontological resources were evaluated for each of the criteria listed in Table 5.7-2, as discussed in Section 5.7.4.

5.7.4.2 Applicant-Proposed Measures and Best Management Practices

APM GEO-1: Appropriate PG&E Design Measures Implementation. Based on available references, sands and loamy sands are the primary soil types expected to be encountered in the graded and excavated areas as project construction proceeds. Potentially problematic subsurface conditions may include soft or loose soils. Where soft or loose soils are encountered during design studies or construction on PG&E facilities, appropriate measures will be implemented to avoid, accommodate, replace, or improve soft or loose soils encountered during construction. Such measures may include the following:

- Locating construction facilities and operation away from areas of soft and loose soil.
- Overexcavating soft or loose soils and replacing them with nonexpansive engineered fill.
- Increasing the density and strength of soft or loose soils through mechanical vibration and compaction.
- Treating soft or loose soils in place with binding or cementing agents.

Construction activities in areas where soft or loose soils are encountered may be scheduled for the dry season, as necessary, to allow safe and reliable equipment access.

BMP GEO-1: Appropriate LEU Design Measures Implementation. Based on available references, sands and loamy sands are the primary soil types expected to be encountered in the graded and excavated areas as project construction proceeds. Potentially problematic subsurface conditions may include soft or loose soils. Where soft or loose soils are encountered during design studies or construction on LEU facilities, appropriate measures will be implemented to avoid, accommodate, replace, or improve soft or loose soils encountered during construction. Such measures may include the following:

- Locating construction facilities and operation away from areas of soft and loose soil.
- Overexcavating soft or loose soils and replacing them with nonexpansive engineered fill.
- Increasing the density and strength of soft or loose soils through mechanical vibration and compaction.
- Treating soft or loose soils in place with binding or cementing agents.

Construction activities in areas where soft or loose soils are encountered may be scheduled for the dry season, as necessary, to allow safe and reliable equipment access.

APM PAL–1: Retain a PG&E Qualified Paleontological Principal Investigator. A PG&E Paleontological Principal Investigator who meets the standards set forth by the Society of Vertebrate Paleontology will be retained to ensure that all APMs related to paleontological resources are properly implemented. The Paleontological Principal Investigator will have a master's degree or Ph.D. in geology or paleontology, have knowledge of the local paleontology, and be familiar with paleontological procedures and techniques.

BMP PAL–1: Retain an LEU Qualified Paleontological Principal Investigator. An LEU Paleontological Principal Investigator who meets the standards set forth by the Society of Vertebrate Paleontology will be retained to ensure that all BMPs related to paleontological resources are properly implemented. The Paleontological Principal Investigator will have a master's degree or Ph.D. in geology or paleontology, have knowledge of the local paleontology, and be familiar with paleontological procedures and techniques.

APM PAL–2: PG&E Workers Environmental Awareness Training. Training on paleontological resources protection will be administered for excavation deeper than 3 feet bgs at all PG&E work locations. It may be provided by the PG&E project Paleontologist or Archaeologist as a stand-alone training or it may be included as part of the overall environmental awareness training as required by the project.

The training will include the following:

- The types of fossils that could occur at the project site
- The types of lithologies in which the fossils could be preserved
- The procedures that should be taken in the event of a fossil discovery
- Penalties for disturbing paleontological resources

BMP PAL–2: LEU Workers Environmental Awareness Training. Training on paleontological resources protection will be administered for excavation deeper than 3 feet bgs at all LEU work locations. It may be provided by the LEU project Paleontologist or Archaeologist as a stand-alone training or it may be included as part of the overall environmental awareness training as required by the project.

The training will include the following:

- The types of fossils that could occur at the project site
- The types of lithologies in which the fossils could be preserved
- The procedures that should be taken in the event of a fossil discovery
- Penalties for disturbing paleontological resources

APM PAL-3: Paleontological Resource Monitoring for Select PG&E Construction Activities. A paleontological monitor will be present to monitor for paleontological resources in areas where Riverbank formation or Turlock Lake formation occurs at the surface and excavation is greater than 3 feet deep and, for excavations involving drilling or augering, uses a drill diameter that is larger than 3 feet. The paleontological monitor will be able to: (1) recognize fossils and paleontological deposits, and deposits that may be paleontologically sensitive; (2) take accurate and detailed field notes, photographs, and locality coordinates; and (3) document project-related ground-disturbing activities, their locations, and other relevant information, including a photographic record.

BMP PAL-3: Paleontological Resource Monitoring for Select LEU Construction Activities. A paleontological monitor will be present to monitor for paleontological resources in areas where Riverbank formation occurs at the surface and excavation is greater than 3 feet deep and, for excavations involving drilling or augering, uses a drill diameter that is larger than 3 feet. The paleontological monitor will be able to: (1) recognize fossils and paleontological deposits, and deposits that may be paleontologically sensitive; (2) take accurate and detailed field notes, photographs, and locality coordinates; and (3) document project-related ground-disturbing activities, their locations, and other relevant information, including a photographic record.

APM PAL–4: PG&E Unanticipated Paleontological Discovery. If significant paleontological resources are discovered during PG&E's construction activities, the following procedures will be followed:

- Stop work immediately within 100 feet of the fossil find.
- Contact the designated project inspector and Cultural Resources Specialist (CRS) immediately.
- Protect the site from further impacts, including looting, erosion, or other human or natural damage.
- Arrange for a PG&E Paleontological Principal Investigator to evaluate the discovery. If the discovery is determined to be significant, PG&E will implement measures to protect and document the paleontological resource. Work may not resume within 100 feet of the find until approved by the paleontologist and CRS.
- Curate all fossils discovered in an appropriate repository.
- A qualified paleontologist will be notified to review the need for paleontological monitoring during subsequent ground-disturbing activities with the potential to affect paleontologically sensitive sediments at that location. The qualified paleontologist will be responsible for the reassessment of paleontological sensitivity upon the receipt of additional information from ongoing excavations, which may result in reducing, or increasing, the amount of monitoring required.

BMP PAL–4: LEU Unanticipated Paleontological Discovery. If significant paleontological resources are discovered during LEU's construction activities, the following procedures will be followed:

- Stop work immediately within 100 feet of the fossil find.
- Contact the designated project inspector and LEU Cultural Resource Lead immediately.
- Protect the site from further impacts, including looting, erosion, or other human or natural damage.
- Arrange for an LEU Paleontological Principal Investigator to evaluate the discovery. If the discovery is determined to be significant, LEU will implement measures to protect and document

the paleontological resource. Work may not resume within 100 feet of the find until approved by the paleontologist and LEU Cultural Resource Lead.

- Curate all fossils discovered in an appropriate repository.
- A qualified paleontologist will be notified to review the need for paleontological monitoring during subsequent ground-disturbing activities with the potential to affect paleontologically sensitive sediments at that location. The qualified paleontologist will be responsible for the reassessment of paleontological sensitivity upon the receipt of additional information from ongoing excavations, which may result in reducing, or increasing, the amount of monitoring required.

5.7.4.3 Potential Impacts

As described in Chapter 3, Project Description, the project will provide a new 230 kV transmission source in northern San Joaquin County, in central California. The project includes extending an existing PG&E 230 kV transmission line through PG&E Lockeford Substation to a new PG&E Thurman Switching Station in Lodi, California, by installing new tubular steel poles and conductors for approximately 11 miles. PG&E Lockeford Substation will be expanded on existing substation property to accommodate the new 230 kV facility. PG&E Thurman Switching Station will transfer the new 230 kV source to the new adjacent LEU 230/60 kV Guild Substation. LEU Guild Substation will transfer the 60 kV power to the existing adjacent LEU 60 kV Industrial Substation, which will be modified to receive the new LEU 60 kV lines (via the new 230 kV source) and to disconnect the existing PG&E 60 kV sources. When disconnected, the three existing PG&E 60 kV lines will be partially removed and reconfigured mainly within their existing alignments to continue operation between PG&E Lockeford and Lodi substations. LEU distribution and the third-party telecommunication underbuild on PG&E 60 kV line portions being removed will be relocated by the respective utility owner to within or adjacent to other existing alignments. An existing PG&E distribution line will be extended underground approximately 500 feet in franchise to provide a permanent secondary service line to PG&E Thurman Switching Station. PG&E project-related work to update communication between facilities and the protection scheme system also will occur within the existing fence lines of remote-end substations Brighton, Bellota, Lodi, and Rio Oso, and a communication facility, Clayton Hill Repeater Station.

a) Would the project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:

i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? *No Impact*.

PG&E Potential Impact Discussion

No known sufficiently active faults underlie the PG&E project components. Additionally, PG&E structures being modified or constructed are not intended for human occupancy; therefore, the project would not expose people or structures to potential substantial adverse effects from rupture of a known fault during either construction or operation and maintenance of PG&E's project components. As a result, there is no impact.

LEU Potential Impact Discussion

No known sufficiently active faults underlie the LEU project components. Additionally, LEU structures being modified or constructed are not intended for human occupancy; therefore, the project would not expose people or structures to potential substantial adverse effects from rupture of a known fault during either construction or operation and maintenance of LEU project components. As a result, there is no impact.

ii) Strong seismic ground shaking? *Less-than-Significant Impact.*

PG&E Potential Impact Discussion

PG&E's project components are not located in proximity to any active faults. The nearest faults mapped by the CGS as active are the Greenville Fault (located approximately 40 miles to the southwest), Calaveras Fault (located approximately 50 miles to the southwest), Hayward Fault (located approximately 60 miles to the southwest), and San Andreas Fault zone (located approximately 80 miles to the southwest). The nearest faults of major historical significance are the San Andreas Fault, which passes within approximately 80 miles of the project area, and the associated Hayward Fault, which passes within approximately 60 miles southwest of the project area. It is unlikely that PG&E project components would be exposed to a moderate or greater earthquake during their operational life, and that the earthquake will be centered close enough to the project to produce strong ground shaking in the project area. PG&E's project components would be engineered to meet loads generated by wind, ice, broken conductors, and other sources of shaking, and will not increase the risk of loss, injury, or death from strong seismic ground shaking. Project work at PG&E remote-end substations and the repeater station will remove equipment or make minor modifications to equipment on existing structures. Therefore, the impact will be less than significant.

LEU Potential Impact Discussion

LEU's project components are not located in proximity to any active faults. The nearest faults mapped by CGS as active are the Greenville Fault (located approximately 40 miles to the southwest), Calaveras Fault (located approximately 50 miles to the southwest), Hayward Fault (located approximately 60 miles to the southwest), and San Andreas Fault zone (located approximately 80 miles to the southwest). The nearest faults of major historical significance are the San Andreas Fault, which passes within approximately 80 miles of the project area, and the associated Hayward Fault, which passes within approximately 60 miles southwest of the project area. It is unlikely that the LEU project components will be exposed to a moderate or greater earthquake during their operational life, and that the earthquake will be centered close enough to the LEU substations to produce strong ground shaking in the project area. The proposed new LEU project components will be engineered to meet loads generated by wind, ice, broken conductors, and other sources of shaking, and will not increase the risk of loss, injury, or death from strong seismic ground shaking. Therefore, the impact will be less than significant.

iii) Seismic-related ground failure, including liquefaction? ***Less-than-Significant Impact.***

PG&E Potential Impact Discussion

As described previously, the closest known active fault is located approximately 37 miles from the project area, including PG&E project components. No known liquefaction hazard areas have been identified in the vicinity of PG&E project components; however, this potential exists in areas of the San Joaquin Valley where unconsolidated sediments and a high water table coincide. In general, liquefaction hazards are most severe in saturated soils within the upper 40 feet of the ground surface. At PG&E Lockeford Substation and PG&E Thurman Switching Station, the geotechnical investigation concluded that the potential for liquefaction is characterized as negligible. The majority of soils are sandy and loamy along the proposed PG&E transmission line route. There is potential for introduction of water to the PG&E transmission line work areas through irrigation or excessive rainfall, which could increase the potential for liquefaction. While these conditions are unlikely to occur within the PG&E transmission line route, the project would implement APM GEO-1, which will minimize liquefaction hazards that could be exacerbated by strong seismic ground shaking. The project impact would be less than significant.

LEU Potential Impact Discussion

As described previously, the closest known active fault is located approximately 37 miles from the project area, including LEU project components. Specific liquefaction hazard areas have not been identified in the vicinity of LEU project components; however, this potential exists in areas of the San Joaquin Valley where unconsolidated sediments and a high water table coincide. In general, liquefaction hazards are most severe in saturated soils within the upper 40 feet of the ground surface. At LEU Industrial and LEU Guild substations, the geotechnical investigation concluded that the potential for liquefaction is characterized as negligible. While saturated soil conditions are unlikely to occur at the LEU substations, the project would

implement BMP GEO-1, which will minimize liquefaction hazards that could be exacerbated by strong seismic ground shaking. The project impact would be less than significant.

iv) Landslides? *Less-than-Significant Impact.*

PG&E Potential Impact Discussion

With the exception of creeks and unlined irrigation channel crossings, PG&E project components are located on either level ground or slopes of less than 2%. No mapped landslide hazard areas exist within or adjacent to the PG&E project components. Therefore, the impact will be less than significant.

LEU Potential Impact Discussion

LEU's project components are located on level ground or slopes of less than 2%. No mapped landslide hazard areas exist within or adjacent to the LEU project components. Therefore, the impact will be less than significant.

b) Would the project result in substantial soil erosion or the loss of topsoil? *Less-than-Significant Impact.*

PG&E Potential Impact Discussion

During construction, grading activities will be conducted at the new PG&E Thurman Switching Station, the expanded PG&E Lockeford Substation, and specific areas along the PG&E transmission line route to create temporary work areas or a level structure area. Minimal grading and vegetation clearing may be required for transmission line structure installation, pull and tension site development, and creation of temporary access routes. Construction sites will be accessed using existing paved and unpaved access roads, new temporary unpaved access roads, and unpaved overland routes. Best practices will be implemented to minimize and avoid surface runoff, erosion, and pollution and to control dust. Stockpiles will be located away from or downgradient of waterways, in accordance with the PG&E SWPPP that will be prepared for the PG&E project components. Sediment control measures will be implemented to manage temporary stockpiles, as described in Section 5.10.

Erosion and loss of topsoil during construction of PG&E project components would be minimized because of the limited areas that will be graded and disturbed, the temporary nature of construction, the relatively flat work areas, and the use of standard best practices and dust control measures to minimize fugitive dust emissions and stormwater runoff, as described in Sections 5.2 and 5.10. Topsoil removed during PG&E construction activities in agricultural areas would be stockpiled onsite and replaced during site restoration as described in APM AGR-1 (Section 5.2). The project also would implement APM GEO-1 and APM HYD-1 (Section 5.10), which requires development and implementation of an SWPPP. If project work at PG&E remote-end substations includes ground disturbance to remove retired telecommunication equipment, the work areas will be included in the SWPPP. The project impacts would be less than significant.

LEU Potential Impact Discussion

During construction, grading activities will be conducted at the LEU Guild and LEU Industrial substations. Construction sites will be accessed using existing paved and unpaved access roads, new temporary unpaved access roads, and unpaved overland routes. Measures will be implemented to minimize and avoid surface runoff, erosion, and pollution and to control dust. Stockpiles will be located away from or downgradient of waterways, in accordance with the LEU SWPPP that will be prepared for the LEU project components. Sediment control measures will be implemented to manage temporary stockpiles, as described in Section 5.10.

Erosion and loss of topsoil during construction of LEU project components would be minimized because of the limited areas that will be graded and disturbed, the temporary nature of the construction, the relatively flat work areas, and the use of standard best practices and dust control measures to minimize fugitive dust emissions and stormwater runoff, as described in Sections 5.2 and 5.10. The project also would implement BMP GEO-1 and BMP HYD-1 (Section 5.10), which requires development and implementation of an SWPPP. The project impacts would be less than significant.

c) Would the project be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse? *Less-than-Significant Impact.*

PG&E Potential Impact Discussion

Based on a review of topographic maps, the PG&E transmission line route is located either on level ground or on slopes of less than approximately 2%. No mapped landslide hazard areas exist, either within or adjacent to the PG&E project components. Based on a review of NRCS soil survey data, the project will be constructed in stable soils. NRCS does not indicate that any soils of low bearing strength exist along the PG&E transmission line alignment. No geotechnical requirements are needed, but PG&E would implement APM GEO-1 and apply appropriate design measures as identified in the geotechnical reports based on soil type. At PG&E Lockeford Substation and PG&E Thurman Switching Station, construction in localized areas of soft soils will occur only following the use of compacted fill material or binding agents, grading will be designed to limit the potential for slope instability, and slopes affected by construction activities will be monitored and maintained in a stable condition. Installation of required new equipment at PG&E remote-end substations and the repeater station will not include ground disturbance. Therefore, the impact will be less than significant.

LEU Potential Impact Discussion

LEU's project components are located on level ground with minimal slopes. No mapped landslide hazard areas exist, either within or adjacent to the LEU project components. Based on a review of NRCS soil survey data, the project will be constructed in stable soils. NRCS does not indicate that any soils of low bearing strength exist at the LEU project components. No geotechnical requirements are needed, but LEU would implement BMP GEO-1 and apply appropriate design measures as identified in the geotechnical report based on soil type. Construction of LEU project components in localized areas of soft soils will occur only following the use of compacted fill material or binding agents, grading will be designed to limit the potential for slope instability, and any slopes affected by construction activities will be monitored and maintained in a stable condition. Therefore, the impact will be less than significant.

d) Would the project be located on expansive soil, as defined in Table 18-1 of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property? *Less-than-Significant Impact.*

PG&E Potential Impact Discussion

Based on a review of NRCS soil survey data for the project area, significant expansive soils were not identified in the vicinity of most PG&E project components. Soils in the project area primarily consist of sandy loam, with lesser amounts of gravelly loam and clay. These soil types are located underneath PG&E Thurman Switching Station and the connecting 12 kV secondary station service, the PG&E transmission line alignment, the PG&E reconfigured 60 kV lines, and PG&E Lockeford Substation.

Expansive or collapsible soils are not expected to have a significant adverse impact because PG&E TSPs will be installed to depths of approximately 18 to 30 feet, and the grounding wells installations at PG&E Thurman Switching Station are expected to reach a depth up to 100 feet, which will prevent shifting as a result of soil expansion or collapse. Standard construction practices that are compliant with uniform building codes will be used to address hazardous soil conditions, if encountered (for example, compact soil at pole sites or wet sandy soils during augering). PG&E will implement APM GEO-1 and apply appropriate design measures based on soil type. Installation of required new equipment at PG&E remote-end substations and the repeater station will not include ground disturbance. Impacts would be less than significant.

LEU Potential Impact Discussion

Based on a review of NRCS soil survey data for the project area, significant expansive soils were not identified in the vicinity of LEU project components. Soils in the project area primarily consist of sandy

loam, with lesser amounts of gravelly loam and clay. These soil types are located underneath the existing LEU Industrial Substation and the proposed LEU Guild Substation.

Standard construction practices that are compliant with uniform building codes will be used to address hazardous soil conditions, if encountered. LEU would implement BMP GEO-1 and apply appropriate design measures based on soil type. Impacts would be less than significant.

e) Would the project 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? *No Impact.*

PG&E Potential Impact Discussion

The project does not include a waste disposal system; therefore, no impact will occur.

LEU Potential Impact Discussion

The project does not include a waste disposal system; therefore, no impact will occur.

f) Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature? *Less-than-Significant Impact.*

PG&E Potential Impact Discussion

The project does not occur near or on a unique geologic feature. Installation of required new equipment at PG&E remote-end substations and the repeater station will not include ground disturbance. Potential footing removal of retired remote-end telecommunication equipment will likely be no more than approximately 4 feet of excavation and will occur within the station fence line where the area was previously disturbed to install the footings. No impact is expected to occur.

PG&E Thurman Switching Station and PG&E Lockeford Substation would be constructed or modified on sediment with moderate paleontological sensitivity. The western half of the PG&E transmission line alignment would be constructed on sediment that has been determined to have low to moderate paleontological sensitivity. The eastern half of the PG&E transmission alignment would be constructed on sediment that is determined to have moderate sensitivity. None of the proposed PG&E project components would be constructed on geologic units of high paleontological sensitivity according to surface mapping.

However, there is potential to encounter geologic units of greater sensitivity at depth and potential – although relatively low – for unanticipated fossil discovery in geologic units determined to be of low to moderate sensitivity. Impacts to paleontological resources could occur when earthwork activities, such as grading and excavation, disturb geological deposits or formations within which fossils are buried.

Six stratigraphic units that are moderately sensitive for paleontological resources (Turlock Lake Formation and Riverbank Formation) occur where PG&E Lockeford Substation would be expanded, PG&E Rio Oso-Lockeford structure would be relocated, and where new PG&E 230 kV structures would be installed between PG&E Lockeford Substation and PG&E Brighton-Bellota line. Three stratigraphic units with low to moderate paleontological sensitivity (Modesto Formation) are located in the project area west of PG&E Lockeford Substation and with the City of Lodi.

Excavations for PG&E TSPs and station foundations have the highest likelihood of potentially encountering intact and significant paleontological resources because of the relatively large-scale dimensions of ground disturbance in comparison to other types of project-related effects. Typical excavations for line and station structure foundations are expected to range from approximately 18 to 30 feet in depth. Replaced PG&E power poles would be direct buried to approximately 12.5 feet and PG&E extended 12 kV service line would be installed to approximately at least 15 feet bgs when crossing under the railroad tracks. Both excavations are unlikely to encounter intact and significant paleontological resources at that depth in the area with low to moderate sensitivity. Therefore, during excavation for structure foundations, the project could inadvertently unearth and destroy unknown (that is, not yet

recorded) buried paleontological resources that cannot be identified through noninvasive field surveys. A paleontological monitor will be present during excavation greater than 3 feet deep where Riverbank Formation occurs at the surface, as described in APM PAL-3.

Drilling at PG&E TSP structure locations, and PG&E Lockeford Substation and PG&E Thurman Switching Station foundation locations, has a moderate likelihood of revealing intact and significant paleontological resources, depending on the diameter of the drill bit. While some paleontological resources, if present, may become pulverized by the drill bit, a large-diameter drill bit may allow others to survive intact, and these may be discernible within spoils piles. While shallow surface contouring is much less likely to yield significant paleontological resources than excavations for PG&E TSP or station foundations, any fossils, if present, are more likely to survive intact than during drilling. The grounding wells installations at PG&E Thurman Switching Station are expected to reach a depth up to approximately 100 feet. The Riverbank Formation, which has moderate sensitivity for paleontological resources, is expected to begin at depths of approximately 30 feet at this location. A paleontological monitor will be present to monitor for paleontological resources where excavations involving drilling or augering uses a drill diameter that is larger than 3 feet, as described in APM PAL-3. No measures are recommended for drilling/augering excavation with a drill that is 3 feet or less in diameter.

Impacts to paleontological resources resulting from construction of the PG&E project components will be less than significant. The implementation of APM PAL-1 through APM PAL-4, which requires a qualified Paleontological Principal Investigator, worker environmental awareness training, and recovery of paleontological resources, with further reduce potential less-than-significant impacts.

LEU Potential Impact Discussion

The project does not occur near or on a unique geologic feature. LEU Guild and LEU Industrial substations would be constructed or modified on sediment with moderate paleontological sensitivity. None of the proposed LEU project components would be constructed on geologic units of high paleontological sensitivity according to surface mapping.

However, there is potential to encounter geologic units of greater sensitivity at depth and potential – although relatively low – for unanticipated fossil discovery in geologic units determined to be of low to moderate sensitivity. Impacts to paleontological resources could occur when earthwork activities, such as grading and excavation, disturb geological deposits or formations within which fossils are buried.

Construction of LEU project components will result in subsurface disturbance affecting one stratigraphic unit with low to moderate paleontological sensitivity (Modesto Formation).

Excavations for LEU Guild Substation have the highest likelihood of potentially encountering intact and significant paleontological resources because of the relatively large-scale dimensions of ground disturbance. The deepest expected excavations for LEU Guild Substation would be to install two dead-end structure piers to an approximate 16-foot depth. Within LEU Industrial Substation, the deepest expected excavation will be to approximately 20 feet bgs for the two new LEU 60 kV monopoles drilled pier foundations. The existing LEU 12 kV feeder line would be installed between approximately 4 and 10 feet bgs. During excavation for substation foundations, while unlikely, the project could inadvertently unearth and destroy unknown (that is, not yet recorded) buried paleontological resources that cannot be identified through noninvasive field surveys. The LEU portion of the project is not in areas where Riverbank formation occurs at the surface.

Impacts to paleontological resources resulting from construction of the PG&E project components will be less than significant. The implementation of BMP PAL-1, BMP PAL-2, and APM PAL-4, which requires a qualified Paleontological Principal Investigator, worker environmental awareness training, and recovery of paleontological resources, with further reduce potential less-than-significant impacts.

5.8 Greenhouse Gas Emissions

This section discusses potential GHG emissions associated with project construction, operation, and maintenance. Project description information and potential impacts are organized and discussed by each participating utility's portion of the project. GHG emissions were calculated and reported in carbon dioxide equivalents (CO_2e) for CO_2, nitrous oxide (N_2O), and methane (CH_4) emissions from on-road, off-road, and helicopter emissions. Additionally, operational emissions of SF_6 associated with potential leakage from gas-insulated circuit breakers at the substations are also estimated. The implementation of the APMs and BMPs described in Section 5.8.4.2, as well as those described in Section 5.3, Air Quality, will further reduce less-than-significant impacts.

The project's potential effects on GHG emissions were evaluated using the criteria set forth in Appendix G of the CEQA Guidelines. The conclusions are summarized in Table 5.8-1 and discussed in more detail in Section 5.8.4.

5.8.1 Methodology and Environmental Setting

5.8.1.1 Methodology

The effect each GHG has on global warming is a combination of the amount of their emissions and their global warming potential (GWP). GWP is a measure of how much energy the emissions of 1 ton of a gas would absorb over a given period of time, relative to the emissions of 1 ton of CO_2. GHG emissions are presented in terms of metric tons (MT) of CO_2e, which are calculated as the product of the mass emitted of a given GHG and its specific GWP (EPA 2022a). The GHG emissions were calculated using the 100-year GWP values from 40 CFR Appendix Table A-1 to Subpart A of Part 98 – Global Warming Potentials. These GWP values are the same as in the International Conference on Parallel Processing (ICPP) Fourth Assessment Report (ICPP 2017).

Short-term construction emissions of GHG were evaluated. Construction emissions of GHG from off-road construction equipment and fugitive dust for the PG&E portion of the project were estimated using the methodologies and emission factors described in the CalEEMod User's Guide (CAPCOA 2022). On-road vehicle emission factors were obtained from EMFAC2021 (CARB 2022a). Helicopter emissions were estimated using emissions factors obtained from the FOCA (FOCA 2009). Projected construction emissions were estimated for each year based on the anticipated project schedule and activities at each of the project construction site. While the construction activities would occur in 2026 to 2029, equipment and vehicle emission factors of 2016 were used for all construction years to be conservative. Detailed construction emissions calculations for the PG&E sites are presented in Appendix B1a, including the assumptions employed.

Long-term operational emissions of GHG from the PG&E sites were also evaluated. These emissions are a result of the O&M activities and leakage from SF_6-insulated circuit breakers. Operation emissions from PG&E potion of the project were estimated for the O&M activities in 2030 and beyond using the same methodology as discussed previously, with 2030 emission factors. Construction and operation emissions calculations for the PG&E portion of the project are provided in Appendix B1a.

Construction and operation emissions of GHG from the LEU portion of the project were modeled using CalEEmod (Version 2020.4.0) and the anticipated SF_6 leakage. GHG emission calculations for the construction and operation of the LEU portion in the project included in Appendix B1b.

GHG emission calculations in this document were based on worst-case estimates of emissions to ensure presentation of a conservative environmental analysis. This analysis may be revised, as needed, to reflect changes to the project plans.

5.8.1.2 Environmental Setting

GHGs are global concerns, unlike criteria air pollutants or toxic air contaminants that are of regional and/or local concern. Scientific research indicates that observed climate change is most likely a result of

increased GHG emissions associated with human activity (Intergovernmental Panel on Climate Change 2022). Global climate change describes a collection of phenomena, such as increasing temperatures and rising sea levels, occurring across the globe due to increasing anthropogenic emissions of GHGs. GHGs contribute to climate change by allowing ultraviolet radiation to enter the atmosphere and warm the Earth's surface, but also prevent some infrared radiation from the earth from escaping back into space. The largest anthropogenic source of GHGs is the combustion of fossil fuels, which result primarily in CO_2 emissions.

Global average temperature has increased about 1.8°F from 1901 to 2016. Changes of one or two degrees in the average temperature of the planet can cause potentially dangerous shifts in climate and weather. Many places have experienced changes in rainfall, resulting in more floods, droughts, or intense rain, as well as more frequent and severe heat waves. The planet's oceans and glaciers also have experienced changes—oceans are warming and becoming more acidic, ice caps are melting, and sea level is rising. As these and other changes become more pronounced in the coming decades, they will likely present challenges to our society and our environment (EPA 2023).

As defined in AB 32, "greenhouse gas" or "greenhouse gases" include, but are not limited to CO_2, CH_4, N_2O, hydrofluorocarbons, perfluorocarbons, and SF_6. California is a substantial contributor to global GHG emissions. In 2020, the annual California statewide GHG emissions were 369.2 million metric tons of CO_2e. The transportation sector accounts for about 38% of the statewide GHG emissions. The industrial and electric power sectors account for 23% and 11%, respectively, of the total statewide GHG emissions. The dominant GHG emitted is CO_2, primarily from fossil fuel combustion (CARB 2022b).

No existing infrastructure with potential or known GHG emissions would be upgraded or replaced by the project.

5.8.2 Regulatory Setting

5.8.2.1 Federal

The Supreme Court decision in *Massachusetts et al. v. Environmental Protection Agency et al.* (Supreme Court Case 05-1120) found that EPA has the authority to list GHGs as pollutants and to regulate emissions of GHGs under the federal CAA. On April 17, 2009, EPA found that CO_2, CH_4, N_2O, hydrofluorocarbons, perfluorocarbons, and SF_6 may contribute to air pollution and may endanger public health and welfare. EPA has established reporting regulations that require specific facilities and industries to report their GHG emissions annually.

5.8.2.2 State

Executive Order S-3-05

State Executive Order S-3-05 issued in 2005 established GHG reductions targets for the state of California. The targets called for a reduction of GHG emissions to 2000 levels by 2010; a reduction of GHG emissions to 1990 levels by 2020; and a reduction of GHG emissions to 80% below 1990 levels by 2050. The California Environmental Protection Agency (Cal/EPA) secretary is required to coordinate development and implementation of strategies to achieve the GHG reduction targets.

Global Warming Solutions Act of 2006

In 2006, the California State Legislature signed the Global Warming Solutions Act of 2006 (AB 32), which provides the framework for regulating GHG emissions in California. This law requires the CARB to design and implement emission limits, regulations, and other measures such that statewide GHG emissions are reduced in a technologically feasible and cost-effective manner to 1990 levels by 2020 (CARB 2014).

Part of CARB's direction under AB 32 was to develop a scoping plan that contains the main strategies California will use to reduce GHG emissions that cause climate change. The scoping plan includes a range of GHG reduction actions, which include direct regulations, alternative compliance mechanisms, monetary and non-monetary incentives, voluntary actions, market-based mechanisms such as a cap-and-trade

system, and an AB 32 cost of implementation fee regulation to fund the program. CARB first approved the AB 32 Scoping Plan in 2008 and its latest adopted plan is the *2022 Scoping Plan for Achieving Carbon Neutrality* (CARB 2022a). The *2022 Scoping Plan* is discussed further under the following section on AB 1279.

A *Regulation for Reducing Sulfur Hexafluoride (SF_6) Emissions from Gas Insulated Switchgear* was implemented as part of AB 32, mandating utilitywide reduction of SF_6 emissions to a 1% leak rate by 2020.

Executive Order B-30-15

In April 2015, Governor Brown signed Executive Order B-30-15 that added the intermediate target of reducing GHG emissions to 40% below 1990 levels by 2030.

Senate Bill 32 and Assembly Bill 197

On September 8, 2016, Governor Brown signed SB 32 and AB 197, which codified the 2030 GHG emissions reduction target of 40% below 1990 levels and provided additional direction for updating the scoping plan. The *2017 Scoping Plan* established a path that would get California to its 2030 target, which is reiterated in the 2022 draft update.

On December 30, 2009, the California Resources Agency adopted amendments to the CEQA guidelines to include analysis of GHG emissions in CEQA documents, deferring significance thresholds to the lead agency. The amendments became effective on March 18, 2010.

Assembly Bill 1279, the California Climate Crisis Act

AB 1279, signed into law on September 16, 2022, requires the state to achieve net zero GHG emissions as soon as possible, but no later than 2045, and achieve and maintain net negative GHG emissions thereafter. It also requires the state to reduce statewide GHG emission by 85% compared to 1990 levels and directs CARB to work with relevant state agencies to achieve these goals.

CARB's *2022 Scoping Plan* builds on the state's existing programs and integrates efforts to reduce both GHGs and air pollution. The *2022 Scoping Plan* lays out a path to achieve California's target for carbon neutrality and to reduce anthropogenic GHG emissions by 85% below 1990 levels no later than 2045, as directed by AB 1279. Per the *2022 Scoping Plan*, California's future climate strategy will focus on zero- and near-zero-emission vehicle technologies; continued investment in renewables, such as solar roofs, wind, and other types of distributed generation, further reductions in short-lived climate pollutants; integrated land conservation and development strategies; increased action on natural and working lands to reduce emissions; and increased actions to sequester, capture, and store carbon (CARB 2022c).

5.8.2.3 Regional

The California Air Pollution Control Officers Association (CAPCOA) has established the Greenhouse Gas Reduction Exchange (GHG Rx) for greenhouse gas emission credits in California. Credits listed on the GHG Rx come from voluntary emission reduction projects and can be purchased to offset GHG emissions.

Local air districts act under state law and their discretionary requirements apply to PG&E utility projects.

On December 17, 2009, the SJVAPCD adopted *Guidance for Valley Land-Use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA* (SJVAPCD 2009b). This guidance does not apply to the CPUC, which is lead agency for this project, and does not address construction impacts or performance standards for substations or other electrical facilities in any event. The guidance does not limit a lead agency's authority in establishing its own process and guidance for determining significance of project-related impacts on global climate change.

5.8.2.4 Local

Because the CPUC has exclusive jurisdiction over project siting, design, and construction, the project is not subject to local (city and county) discretionary regulations except for air districts and CUPAs with respect to air quality and hazardous waste regulations. However, local plans and policies are considered for informational purposes and to assist with the CEQA review process.

The City of Lodi is a local agency and must comply with its own local plans and policies. The City of Lodi released its Climate Change Plan in 2014 that quantified the city's GHG emissions and established action steps toward achieving a local emissions reduction target (City of Lodi 2014).

5.8.3 Impact Questions

The project's potential effects related to greenhouse gas emissions were evaluated using the significance criteria set forth in Appendix G of the CEQA Guidelines. The conclusions are summarized in Table 5.8-1 and discussed in more detail in Section 5.8.4.

Table 5.8-1. CEQA Checklist for Greenhouse Gas Emissions

Would the project:	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐
b) Conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☒	☐

5.8.3.1 Additional CEQA Impact Questions

None.

5.8.4 Potential Impact Analysis

Project impacts related to greenhouse gas emissions were evaluated against the CEQA significance criteria and are discussed in the following subsections. The impact analysis evaluates potential project impacts during the construction phase and the operation and maintenance phase. The impact discussion is organized to describe the effects that each participating utility's portion of the project has on the environment.

5.8.4.1 Significance Criteria

According to Section 15002(g) of the CEQA Guidelines, "a significant effect on the environment is defined as a substantial adverse change in the physical conditions which exist in the area affected by the proposed project." As stated in Section 15064(b) of the CEQA Guidelines, the significance of an activity may vary with the setting. CEQA allows for significance criteria established by the applicable air pollution control district(s) to be used to assess the impact of a project related to GHG emissions, at the discretion of the CEQA Lead Agency.

As noted, the SJVAPCD (as well as several other air districts) have not adopted or recommended GHG significance thresholds for construction emissions. Therefore, in several recent CEQA documents, the CPUC has elected to use an approach to determine the significance of GHG construction emissions based on guidance developed by the South Coast Air Quality Management District (SCAQMD). For construction-related GHGs, SCAQMD recommends that total emissions from construction be amortized over 30 years

and added to operational emissions, and then compared to the operation-based significance threshold of 10,000 metric tons CO_2e per year. The 10,000 metric tons CO_2e per year threshold was derived from emissions data from the four largest air districts in California and is based on the Executive Order S-3-05 GHG emissions reductions goal of 80% below 1990 levels by 2050, which is roughly equivalent to 90% below current levels by 2050. This emissions reduction goal goes beyond the AB 32 emissions reduction goal established for 2020. The emissions data suggest that approximately 1% of all stationary sources emit greater than 10,000 metric tons of CO_2e per year and are responsible for 90% of GHG emissions. This significance threshold represents a capture rate of 90% of all new and modified stationary source-related projects. A 90% emissions capture rate means 90% of the total emissions from all new or modified stationary source projects would be subject to analysis in an environmental impact report prepared pursuant to CEQA, including analysis of feasible alternatives and imposition of feasible mitigation measures (SCAQMD 2008).

Per Appendix G of the CEQA Guidelines, the potential significance of the project's GHG emissions were evaluated for each of the criteria listed in Table 5.8-1, as discussed in Section 5.8.4.3.

5.8.4.2 Applicant-Proposed Measures and Best Management Practices

Construction

APM GHG-1: PG&E Minimize GHG Emissions. PG&E will implement the following to minimize GHG emissions:

- Minimize unnecessary construction vehicle idling time. The ability to limit construction vehicle idling time will depend on the sequence of construction activities and when and where vehicles are needed or staged. Certain vehicles, such as large diesel-powered vehicles, have extended warm-up times following start-up that limit their availability for use following start-up. Where such diesel-powered vehicles are required for repetitive construction tasks, these vehicles may require more idling time. The project will apply a "common sense" approach to vehicle use, so that idling is reduced as far as possible below the maximum of 5 consecutive minutes allowed by California law; if a vehicle is not required for use immediately or continuously for construction activities, its engine will be shut off. Construction supervisors will include briefings to crews on vehicle use as part of pre-construction conferences. Those briefings will include discussion of a "common sense" approach to vehicle use.
- Maintain construction equipment in proper working conditions in accordance with manufacture specifications.
- Minimize construction equipment exhaust by using low-emission or electric construction equipment where feasible. Portable diesel fueled construction equipment with engines 50 horsepower or larger and manufactured in 2000 or later will be registered under the CARB Statewide Portable Equipment Registration Program.
- Minimize welding and cutting by using compression of mechanical applications where practical and within standards.
- Encourage use of natural gas-powered vehicles for passenger cars and light-duty trucks where feasible and available.
- On road and off-road vehicle tire pressures will be maintained to manufacturer specifications. Tires will be checked and re-inflated at regular intervals.
- Use line power instead of diesel generators at construction sites where line power is available.
- If suitable park-and-ride facilities are available in the project vicinity, construction workers will be encouraged to carpool to the job site.
- Encourage the recycling of construction waste where feasible.

BMP GHG-1: LEU Minimize GHG Emissions. LEU will implement the following to minimize GHG emissions:

- Minimize unnecessary construction vehicle idling time. The ability to limit construction vehicle idling time will depend on the sequence of construction activities and when and where vehicles are needed or staged. Certain vehicles, such as large diesel-powered vehicles, have extended warm-up times following start-up that limit their availability for use following start-up. Where such diesel-powered vehicles are required for repetitive construction tasks, these vehicles may require more idling time. The project will apply a "common sense" approach to vehicle use, so that idling is reduced as far as possible below the maximum of 5 consecutive minutes allowed by California law; if a vehicle is not required for use immediately or continuously for construction activities, its engine will be shut off. Construction supervisors will include briefings to crews on vehicle use as part of pre-construction conferences. Those briefings will include discussion of a "common sense" approach to vehicle use.
- Maintain construction equipment in proper working conditions in accordance with manufacture specifications.
- Minimize construction equipment exhaust by using low-emission or electric construction equipment where feasible. Portable diesel fueled construction equipment with engines 50 horsepower or larger and manufactured in 2000 or later will be registered under the CARB Statewide Portable Equipment Registration Program.
- Minimize welding and cutting by using compression of mechanical applications where practical and within standards.
- Encourage use of natural gas-powered vehicles for passenger cars and light-duty trucks where feasible and available.
- On road and off-road vehicle tire pressures will be maintained to manufacturer specifications. Tires will be checked and re-inflated at regular intervals.
- Use line power instead of diesel generators at construction sites where line power is available.
- If suitable park-and-ride facilities are available in the project vicinity, construction workers will be encouraged to carpool to the job site.
- Encourage the recycling of construction waste where feasible.

Operation and Maintenance

APM GHG-2: PG&E Minimize SF_6 Emissions. PG&E will employ standard best practices—such as minimizing vehicle trips through proper planning of O&M activities and keeping vehicles and equipment well maintained—during PG&E operations, and will comply with CARB Early Action Measures (CARB 2011c) as these policies become effective.

- Incorporate PG&E Thurman Switching Station and PG&E Lockeford Substation's modification into PG&E's systemwide SF_6 emission reduction program. CARB has adopted the *Regulation for Reducing Sulfur Hexafluoride Emissions from Gas Insulated Switchgear,* Sections 95350 to 95359, Title 17, CCR, which requires that the companywide SF_6 emission rate not exceed 1% by 2020. Since 1998, PG&E has implemented a programmatic plan to inventory, track, and recycle SF_6 inputs, and inventory and monitor systemwide SF_6 leakage rates to facilitate timely replacement of leaking breakers. PG&E has improved its leak detection procedures and increased awareness of SF_6 issues within the company. X-ray technology is now used to inspect internal circuit breaker components to eliminate dismantling of breakers, reducing SF_6 handling and accidental releases. As an active member of EPA's SF_6 Emission Reduction Partnership for Electrical Power Systems, PG&E has focused on reducing SF_6 emissions from its transmission and distribution operations and has reduced the SF_6 leak rate by 89% and absolute SF_6 emissions by 83%.
- Require that the breakers at PG&E Thurman Switching Station and PG&E Lockeford Substation have a manufacturer's guaranteed maximum leakage rate of 0.5% per year or less for SF_6.
- Maintain substation breakers in accordance with PG&E's maintenance standards.
- Comply with California Air Resources Board Early Action Measures as these policies become effective.

BMP GHG-2: LEU Minimize SF_6 Emissions. LEU will employ standard best practices—such as minimizing vehicle trips through proper planning of the O&M activities and keeping vehicles and equipment well maintained—during LEU operations, and will comply with CARB Early Action Measures (CARB 2011c) as these policies become effective.

- LEU has specified vacuum breakers for one additional 60 kV breaker and five 12 kV distribution feeder breakers all of which are currently oil filled. Additionally, as part of a 10-year capital improvement plan, LEU has a plan to replace fourteen 60 kV SF_6 insulated breakers from LEU Industrial Substation by the end of year 2024.
- Incorporate LEU Guild substation into LEU's systemwide SF_6 emission reduction program. CARB has adopted the *Regulation for Reducing Sulfur Hexafluoride Emissions from Gas Insulated Switchgear,* Sections 95350 to 95359, Title 17, CCR, which requires that companywide SF_6 emission rate not exceed 1% by 2020.
- Require that the breakers at LEU Guild Substation have a manufacturer's guaranteed maximum leakage rate of 0.5% per year or less for SF_6.
- Maintain substation breakers in accordance with LEU's maintenance standards.
- Comply with California Air Resources Board Early Action Measures as these policies become effective.

5.8.4.3 Potential Impacts

Potential project impacts related to GHG emissions were evaluated against the CEQA significance criteria and are discussed in further detail in the following paragraphs. The impact analysis evaluates potential project impacts during the construction phase and the operation and maintenance phase. In accordance with recent CPUC precedent, this analysis follows the SCAQMD's recommended approach for construction emissions by amortizing the construction emissions over a 30-year project lifetime then compares those emissions to the significance threshold of 10,000 metric tons CO_2e per year.

As described in Chapter 3, Project Description, the project will provide a new 230 kV transmission source in northern San Joaquin County, in central California. The project includes extending an existing PG&E 230 kV transmission line through PG&E Lockeford Substation to a new PG&E Thurman Switching Station in Lodi, California, by installing new tubular steel poles and conductors for approximately 11 miles. PG&E Lockeford Substation will be expanded on existing substation property to accommodate the new 230 kV facility. PG&E Thurman Switching Station will transfer the new 230 kV source to the new adjacent LEU 230/60 kV Guild Substation. LEU Guild Substation will transfer the 60 kV power to the existing adjacent LEU 60 kV Industrial Substation, which will be modified to receive the new LEU 60 kV lines (via the new 230 kV source) and to disconnect the existing PG&E 60 kV sources. When disconnected, the three existing PG&E 60 kV lines will be partially removed and reconfigured mainly within their existing alignments to continue operation between PG&E Lockeford and Lodi substations. LEU distribution and the third-party telecommunication underbuild on PG&E 60 kV line portions being removed will be relocated by the respective utility owner to within or adjacent to other existing alignments. An existing PG&E distribution line will be extended underground approximately 500 feet in franchise to provide a permanent secondary service line to PG&E Thurman Switching Station. PG&E project-related work to update communication between facilities and the protection scheme system also will occur within the existing fence lines of remote-end substations Brighton, Bellota, Lodi, and Rio Oso, and a communication facility, Clayton Hill Repeater Station.

a) Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment? *Less-than-Significant Impact.*

PG&E Potential Impact Discussion

Construction of the PG&E portion of the project will generate GHG emissions over the estimated 34-month construction period resulting from off-road construction equipment and machinery, helicopter activity, vehicular traffic generated by construction workers, and material hauling and disposal (Table 5.8-2). Following project completion, all construction emissions will cease. Approximately 3,519.52 metric

tons of CO_2e could be generated during the PG&E's 34-month construction period. Amortized over 30 years, the estimated PG&E GHG construction emissions are 117.32 metric tons of CO_2e per year.

Table 5.8-2. Estimated Construction-Related Greenhouse Gas Emissions – PG&E Sites

Construction Year	Emissions (MT CO_2e/Year)[a,b]
Total PG&E Emissions (Year 2026)	1,255.63
Total PG&E Emissions (Year 2027)	1,918.33
Total PG&E Emissions (Year 2028)	341.75
Total PG&E Emissions (Year 2029)	3.82
Total PG&E GHG Emissions Over 34-Months	3,519.52
Total PG&E GHG Emissions Amortized over 30 years	117.32

[a] 1 MT = 1,000 kg or 2,204.6 lbs

[b] CO_2e = carbon dioxide equivalent (calculated per EPA global warming potentials [GWP])

Reduction in GHG emissions associated with implementation of APM AIR-1 and APM AIR-2 may further reduce PG&E GHG emissions, but this potential reduction is not quantifiable and is not included in the emission estimates.

Operation GHG emissions from PG&E portion of the project include the periodic O&M activities and the potential leakage of SF_6 from PG&E Lockeford Substation, and PG&E Thurman Switching Station. Estimated GHG emissions for the PG&E operation are shown in Table 5.8-3. PG&E portion of the project would have 92.15 metric tons CO_2e per year during operation.

Table 5.8-3. Estimated Operation-Related Greenhouse Gas Emissions – PG&E Sites

Construction Year	Emissions (MT CO_2e/Year)[a]
PG&E Operation and Maintenance Emissions	11.97
PG&E SF_6 Leakage	80.17
Total PG&E GHG Emissions[b]	92.15

Notes:

[a] CO2e = carbon dioxide equivalent (calculated per EPA GWP)

[b] GHG emissions incorporated the SF_6 leakage rate of 0.5% in APM GHG-2.

The annual GHG emissions from the PG&E portion of the project, including the amortized construction emissions and the annual operation emissions, would be 194.06 MT CO_2e per year, lower than the threshold of 10,000 MT CO_2e per year. As shown, annual GHG emissions for the PG&E portion of the project would be lower than the SCAQMD GHG thresholds. In addition, implementation of the APM GHG-1 would further reduce or minimize the PG&E emissions. The impact will be less than significant.

LEU Potential Impact Discussion

The majority of GHG emissions from LEU portion of the construction are generated from construction equipment used for the various construction phases as well as on-road vehicle emissions associated with worker commuting and hauling trips. Table 5.8-4 summarizes the construction emissions calculated using CalEEMod in metric tons. LEU construction occurs over an estimated 13-month period. Approximately 502.54 MT CO_2e could be generated during the LEU's construction period. Amortized over 30 years, the estimated LEU GHG construction emissions are 16.75 MT CO_2e per year.

Detailed GHG emission calculations are shown in Appendix B1b.

Table 5.8-4. Estimated Construction-Related Greenhouse Gas Emissions – LEU Site

Activity	Annual Emissions (MT CO_2e/year)
LEU Emissions (Year 2027)	471.55
LEU Emissions (Year 2028)	31.00
Total LEU Emissions	502.54
Total LEU Emissions Amortized over 30 years	16.75

Reduction in GHG emissions associated with implementation of BMP AIR-1 and BMP AIR-2 may further reduce LEU GHG emissions, but this potential reduction is not quantifiable and is not included in the emission estimates.

GHG Emissions from operation of the LEU portion of the project will be generated from electricity usage at the new or modification facilities, monthly inspections (vehicle usage), and SF_6 leakage from circuit breakers at LEU Guild Substation. Table 5.8-5 summarizes the annual operational GHG emissions from the LEU portion of the project and includes the amortized construction emissions. The LEU portion of the project would have 484.49 MT CO_2e per year during operation. Detailed CalEEMod operational emissions calculations are included in Appendix B1b. Emission calculations of operations SF_6 emissions are shown in Appendix B1b.

Table 5.8-5. Estimated Operation-Related Greenhouse Gas Emissions – LEU Site

Activity	Annual Emissions (MT CO_2e/year)[a,b]
LEU Operation and Maintenance Emissions	455.63
LEU SF_6 Leakage	28.86
Total LEU GHG Emissions[c]	484.49

Notes:

[a] 1 MT = 1,000 kg or 2,204.6 lbs

[b] CO_2e = carbon dioxide equivalent (calculated per EPA GWP)

[c] GHG emissions incorporated the SF_6 leakage rate of 0.5% in BMP GHG-2.

The annual GHG emissions from the LEU portion of the project, including the amortized construction emissions and the annual operation emissions, would be 521.89 MT CO_2e per year, lower than the threshold of 10,000 MT CO_2e per year. As shown, annual GHG emissions for the LEU portion of the project would be lower than the SCAQMD GHG thresholds. In addition, implementation of the BMP GHG-1 would further reduce or minimize the LEU emissions. The impact will be less than significant.

Total Project Potential Emissions and Impacts

Total GHG emissions from the PG&E and LEU portions of the project are summarized in Table 5.8-6. As shown in the table, the total GHG emissions from the project is estimated to be 710.71 MT CO_2e per year, lower than the 10,000 MT CO_2e per year threshold. Therefore, the GHG emissions generated by the project will not be cumulatively considerable or significantly contribute to global climate change. As shown, annual GHG emissions for the project would be lower than the SCAQMD GHG thresholds. In addition, implementation of the APM GHG-1 and BMP GHG-1 would further reduce or minimize the project emissions. The impact will be less than significant.

Table 5.8-6. Total Project GHG Emissions – PG&E and LEU

Activity	Annual Emissions (MT CO_2e/year)
PG&E Construction (Amortized)	117.32
PG&E Operation	92.15
LEU Construction (Amortized)	16.75
LEU Operation	484.49
Total GHG Emissions	710.71

b) Would the project conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases? *No Impact.*

PG&E Potential Impact Discussion

To meet the GHG reduction goals, CARB prepared the *AB 32 Scoping Plan* and provided updates to the plan in 2014, 2017, and 2022 to guide statewide GHG reduction strategies. The *2022 Scoping Plan* is designed to reduce statewide anthropogenic GHG emissions in California by 85% as compared to the 1990 levels by 2045, as directed by AB 1279. The project will not conflict with the *2022 Scoping Plan*. GHG emissions from O&M of the project will minimally increase as a result of the installation of ten new circuit breakers. PG&E will implement APM GHG-2 to minimize its GHG emissions related to its portion of the project. O&M of the new and modified facilities is assumed to be incorporated into existing PG&E activities with minor addition of annual inspections for new facilities, such that GHG emissions from O&M activities are anticipated to have a minimal increase as a result of this project. Additionally, electrification of day-to-day operations in land use development projects and industrial processes is a method that potentially can reduce fossil fuel (including gasoline or diesel) combustion because of the use of a less carbon-intensive energy source (depending on the source of electricity production). By increasing reliability of the project area's power system, existing electricity customers will have access to safe and reliable electricity. This reliable electricity source may then support additional electrification of customer operations, which in turn may result in reduced GHG emissions. In addition, the project will improve the electric transmission infrastructure in the region, which can support existing or future renewable electric generation (for example, wind, solar, hydro, and thermal). Therefore, the project will be consistent with the goals of the *2022 Scoping Plan* and the impact will be less than significant.

LEU Potential Impact Discussion

To meet the GHG reduction goals, CARB prepared the *AB 32 Scoping Plan* and provided updates to the plan in 2014, 2017, and 2022 to guide statewide GHG reduction strategies. The *2022 Scoping Plan* is the primary plan to reduce GHG emissions throughout California and is designed to reduce statewide anthropogenic GHG emissions in California by 85% as compared to the 1990 levels by 2045, as directed by AB 1279. The project will not conflict with the *2022 Scoping Plan*. GHG emissions will minimally increase as a result of the installation of two new circuit breakers and one spare breaker filler tank. LEU will implement BMP GHG-2 to minimize its GHG emissions related to its portion of the project. O&M of the new LEU Guild Substation and modified LEU Industrial Substation and 12 kV feeder line facilities is assumed to be incorporated into existing LEU activities, such that GHG emissions from O&M activities are anticipated to result in a minimal increase as a result of this project. Additionally, electrification of day-to-day operations in land use development projects and industrial processes is a method that potentially can reduce fossil fuel (including gasoline or diesel) combustion because of the use of a less carbon-intensive energy source (depending on the source of electricity production). By increasing reliability of the project area's power system, existing electricity customers will have access to safe and reliable electricity. This reliable electricity source may then support additional electrification of customer operations, which in turn may result in reduced GHG emissions. In addition, the project will improve the electric transmission infrastructure in the region, which can support existing or future renewable electric generation (for example, wind, solar, hydro, and thermal). Therefore, the project will be consistent with the goals of the *2022 Scoping Plan* the impact will be less than significant.

5.9 Hazards, Hazardous Materials, and Public Safety

This section describes existing conditions and potential impacts related to hazards, hazardous materials, and public safety associated with construction, operation, and maintenance of the project. The analysis concludes that any impacts related to hazards, hazardous materials, and public safety will be less than significant; the implementation of APMs and BMPs described in Section 5.9.5.2 will further reduce less-than-significant impacts. The project's potential effects associated with hazards, hazardous materials, and public safety were evaluated using the significance criteria set forth in Appendix G of the CEQA Guidelines. The conclusions are summarized in Table 5.9-4 and Table 5.9-5 and discussed in more detail in Section 5.9.5.1. Project description information and potential impacts are organized and discussed by each participating utility's portion of the project. The Environmental Data Resources, Inc. (EDR) report for hazardous sites near the project areas is provided as Appendix G1. The Phase I Environmental Site Assessment (Phase I ESA) for PG&E Thurman Switching Station is provided as Appendix G2 (ERM 2022).

5.9.1 Methodology and Environmental Setting

5.9.1.1 Methodology

Potential impacts on the environment related to hazards, hazardous materials, and public safety were evaluated based on the type and location of anticipated project-related construction and operational activities. The evaluation was based on review of publicly available information about existing land uses, airports, wildfire hazard zones, and known soil and groundwater contamination sites within and near the substations and the project alignment. Information on hazards, hazards materials, and public safety in the project area was obtained from published studies prepared by state, county, and local agencies, including the following:

- *Lodi General Plan* (City of Lodi 2010a)
- Lodi General Plan, Draft Environmental Impact Report (City of Lodi 2010b)
- Hazardous Materials Sites Database, City of Lodi Electric Utility. (City of Lodi 2021)
- *General Plan*, Draft Environmental Impact Report (San Joaquin County 2014)
- *General Plan*, Policy Document (San Joaquin County 2016)
- San Joaquin County District viewer (San Joaquin County 2019a)
- San Joaquin County Natural Hazard Disclosure Information (San Joaquin County 2019b)
- San Joaquin County Zoning Codes (San Joaquin County 2019c)
- Lodi Zoning Maps (ArcGIS 2019)
- School Directory (California Department of Education 2019)
- Schools List (Lodi Unified School District 2019)

A report summarizing regulatory agency database listings was obtained from EDR and reviewed to screen for nearby hazardous sites and Recognized Environmental Conditions (RECs) that may exist within the project area (EDR 2022). The American Society for Testing and Materials (ASTM) standard for Phase I Site Assessment Process E-1527-21 identifies RECs as "(1) the presence of hazardous substances or petroleum products due to a release to the environment; (2) the *likely* presence of hazardous substances or petroleum products due to a *likely* release to the environment; or (3) the presence of hazardous substances or petroleum products under conditions that pose a material threat of a future release to the environment." The EDR report (EDR 2022) includes (1) information on sites within 0.25 mile of the project area that were identified in federal, state, and local databases related to the use, storage, or release of hazardous materials and wastes; and (2) a map showing the locations of these sites.

As specified by CEQA significance criterion d) (refer to Table 5.9-4), the EDR report was used to identify sites along the project area that are included on a list of hazardous materials sites compiled pursuant to

GC Section 65962.5 (“Cortese List”). Because the Cortese List is no longer specifically updated by the state, those requesting a copy of the Cortese List are now referred directly to the appropriate information resources contained on the Internet websites of the boards or departments that are referenced in the statute. The EDR report’s listing of regulated sites was supplemented by reviewing sites listed on the California Department of Toxic Substances Control (DTSC) EnviroStor website and the SWRCB GeoTracker website (DTSC 2019; SWRCB 2020). A copy of the EDR report is provided as Appendix G1.

PG&E plans to acquire a portion of parcel APN 04931009 from the City of Lodi to construct and operate the proposed PG&E Thurman Switching Station. A Phase I ESA was performed on approximately 17.19 acres (APN 04931009 and the adjacent APN 04931008) in the City of Lodi at and adjacent to the proposed PG&E switching station site (ERM 2022). The Phase I ESA was conducted in accordance with the scope and limitations of ASTM International Standard E1527-13, Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process (E1527-13). Refer to Appendix G2 for a copy of the Phase I ESA for PG&E Thurman Switching Station.

The potential for activities and equipment that could pose fire hazards was evaluated through review of state fire hazard maps, including the California Department of Forestry and Fire Protection (CAL FIRE) and the CPUC Fire-Threat Map. Public safety issues for the project that are associated with use of hazardous materials, risk of property damage by wildfires, and an increase in accidents were identified by reviewing San Joaquin County emergency documents.

5.9.1.2 Environmental Setting

The project is located in unincorporated San Joaquin County and the City of Lodi. The proposed PG&E Northern San Joaquin 230 kV Transmission Project consists of an approximately 10.8-mile-long PG&E transmission corridor extending the existing PG&E Brighton-Bellota 230 kV transmission line to a proposed PG&E Thurman Switching Station and adjacent proposed LEU Guild Substation located within the City of Lodi. The existing PG&E Lockeford Substation, existing PG&E 60 kV lines, existing PG&E remote-end substations, existing PG&E Clayton Hill Repeater Station, existing LEU Industrial Substation, and existing PG&E and LEU distribution lines will be all modified as part of the project. The predominant land uses in the project area include agricultural with retail, wineries, and rural and semirural residential development outside of the City of Lodi, and small concentrated areas of industrial and commercial business along transportation corridors.

Project activities at PG&E remote-end substations and PG&E Clayton Hill Repeater Station will occur within existing stations and generally are similar to existing operations and maintenance activities. Project activities at these PG&E stations will be addressed where activities are not similar or the remote setting warrants potential hazards, hazardous material, or public safety impact discussion (for example, wildfire risk).

5.9.1.3 Airports

The *San Joaquin County Airport Land Use Compatibility Plan* identifies three public airports near the City of Lodi: (1) Lodi Airpark, which is located approximately 4.3 miles southwest of proposed PG&E Structure W34; (2) Lodi Airport, which is located approximately 5.0 miles northwest of LEU Industrial Substation, and (3) Kingdon Airpark, which is located approximately 6.3 miles southwest of LEU Industrial Substation.

Lodi Airpark was constructed in 1945 as a public-use airport. Its primary function is as a base for a commercial aerial chemical application service for both agriculture and insect abatement. Lodi Airpark reported approximately 6,000 operations in 2008. Based on an interview with the airpark operator, operations are anticipated to increase to 12,000 by 2028 (Coffman Associates, Inc. 2009).

Lodi Airport was constructed in 1929 as the second largest privately owned airport in the state of California. The primary activities at the airport include skydiving operations, emergency response helicopters, and training. The airport reported approximately 54,000 operations in 2008. Based on an interview with the airpark operator, operations are anticipated to increase to 150,000 by 2028 (Coffman Associates, Inc. 2009).

Kingdon Airpark was constructed in the 1940s to support military training activity during World War II. Today, the primary activities include the aerial application of agricultural chemicals, training, and home of the Delta Flying Club. Kingdon Airpark reported approximately 24,000 operations in 2008. However, the airpark's management anticipates an increase in operations to approximately 84,500 by 2028 (Coffman Associates, Inc. 2009).

In addition to the public airports, there is a private airstrip, Wallom Field, located approximately 2.75 miles south of proposed PG&E Structure W23. There are no land use plans associated with Wallom Field because it is a private facility.

5.9.1.4 Wildland Fire Hazards

As described in Section 5.20.2, the CAL FIRE Hazard Severity Zone maps identify federal responsibility areas (FRAs), state responsibility areas (SRAs), or local responsibility areas (LRAs) for preventing or suppressing fires. Within SRAs, the Director of CAL FIRE has designated areas as moderate, high, and very high fire hazard severity zones based on factors such as potential fuel sources, terrain, weather, fire behavior characteristics, burn probabilities, and the likelihood of vegetation exposure. Within LRAs, CAL FIRE has recommended the locations of very high FHSZs that may or may not be adopted by local governing agencies. The CAL FIRE maps also show FRAs and fire hazard designations within those federal areas.

According to the CAL FIRE maps, all LEU and PG&E project components with the exception of one component, PG&E Clayton Hill Repeater Station, are located entirely within LRAs, but not located within an identified severity zone (CAL FIRE 2022). The three PG&E remote-end substations (Brighton, Bellota, and Rio Oso) are located within LRAs outside of the main project area in northern San Joaquin County. Additionally, none of the PG&E remote-end substations are within an identified very high Fire Hazard Severity Zone. The existing PG&E Clayton Hill Repeater Station (in Contra Costa County) is located in an SRA and identified as being in a high fire severity area. Project-related work at this repeater station will occur within the fenced, paved station yard and does not involve ground disturbance. The San Joaquin County GIS also has mapped fire severity zones, and results show none of the main portions of the project are within an identified severity zone (SJC GIS 2020).

Additional information regarding wildland fires and risks is presented in Section 5.20.

5.9.1.5 Metallic Objects

No metallic pipelines or cables within 25 feet of the project have been identified that would create a hazard, hazardous materials, or a public safety issue.

5.9.1.6 Schools

No schools are located within 0.25 mile of the project.

5.9.1.7 Existing Hazardous Materials and Sites

The EDR report lists two closed leaking underground storage tank sites within 0.25 mile of the project. The sites are at 5950 East Kettleman Lane (Delta Packing Company), approximately 0.15 mile west of PG&E Structure W36, and at 213 South Kelly Street (Lodi Metal Tech, Inc.), approximately 0.25 mile northwest of the PG&E work on PG&E Lodi-Industrial Line pole 2 along East Lodi Avenue. The PG&E Phase I ESA for the 1215 Thurman Street site identified two additional sites within 0.25 mile. The sites are at 851 East Lodi Avenue (Lodi Ready Mix), approximately 0.20 mile west of LEU Industrial Substation, and at 1025 Industrial Way (Lodi Lumber Company), approximately 0.21 mile south of the proposed PG&E Thurman Switching Station. All sites are closed, and no further action is needed.

The EDR report lists two EnviroStor sites within 0.25 mile of the project with no further action required at either site. The project activity at existing PG&E Lodi-Industrial Line pole 2 is the closest project location to the two sites. The pole is approximately 650 feet north of 100 South Cluff Avenue (B&G Industries) and approximately 0.22 mile from 213 South Kelly Street (Lodi Metal Tech, Inc.) (EDR 2022). The PG&E Phase

I ESA for the 1215 Thurman Street site also identified B&G Industries and Lodi Metal Tech, Inc. as the nearest facilities within 0.25 mile.

The EDR report lists one Clean Program Site (or Spills, Leaks, Investigations, and Cleanup sites) at 305 South Guild Avenue (CCT Railroad), which is between the existing PG&E Industrial Tap and PG&E Lockeford-Industrial 60 kV lines when immediately east of South Guild Avenue. Cleanup has been completed and the case is closed as of March 17, 2023. In addition, the report identified one facility within 0.25 mile, B&G Industries, south at 100 South Cluff Avenue, approximately 650 feet away from PG&E Lodi-Industrial Line pole 2. The report also identified a second site, B&G Industries, southbound at 100 South Cluff Road; however, that address does not exist in the City of Lodi and, therefore, it is assumed to be a duplicate facility. No additional facilities were identified in the PG&E Phase I ESA for the 1215 Thurman Street site.

There are two Cortese Hazardous Waste and Substance Sites within 0.25 mile of the property. They are at 5950 East Kettleman Lane (Delta Packing Company), approximately 700 feet from proposed PG&E transmission structure W35, and at 213 South Kelly Street (Lodi Metal Tech, Inc.), approximately 0.22 mile away from existing PG&E Lodi-Industrial Line pole 2. The PG&E Phase I ESA for the 1215 Thurman Street site identified two additional sites within 0.25 mile. Lodi Lumber Company at 1025 Industrial Road, approximately 0.21 mile south of the proposed PG&E Thurman Switching Station, and Lodi Ready Mix at 851 East Lodi Avenue, approximately 0.23 mile west of LEU Industrial Substation. All cases are closed and completed and no further action is required at these sites.

The EDR report and the Phase I ESA list multiple facilities that fall under the Resource Conservation and Recovery Act (RCRA) of 1976 Hazardous Waste Program. These sites are located within 0.25 mile of the proposed project, including both PG&E and LEU project components, and are shown in Table 5.9-1.

Table 5.9-1. RCRA Hazardous Waste Program Facilities within 0.25 Mile of the Proposed Project

PG&E's Portion of the Project[a]	
• Brea Agri Serv Inc, 5991 East Kettleman Lane • Crop Production Services Inc., 6042 East Kettleman Lane • Delta Packing Co, 6021 East Kettleman Lane • George Perlegos, 15506 North Curry Avenue • Heckenlaible Farms, 14117 N Locust Tree Road	• Mia Brown, 14281 Vintage Road • Pacific Gas & Electric, Lockeford Substation, Manifests, 12861 East Kettleman Lane • Silvestres Mechanical Co Inc., 6030 East Kettleman Lane

Table 5.9-1. RCRA Hazardous Waste Program Facilities within 0.25 Mile of the Proposed Project

PG&E Portions and LEU Portions of Project within the City of Lodi	
• American Master Tech, 1330 East Thurman Road[a] • Buchco Precision Machining Inc., 21 Commerce Street[a] • Bushco Precision, 21 Commerce Street[a] • Certainteed Corporation, 300 Beckman Road[b] • Central Valley Painting Inc, 67 South Guild Avenue[a] • Cepheid, 1330 East Thurman Road[c] • E F Kludt & Sons Incorporated, 1126 East Pine Street[b] • FWS Construction, 111 South Guild Avenue[a] • Guarantee Repair Service, 101 Commerce Street[c] • Heartland Steel Products, 213 South Kelly Street[b] • Hondas Plus, 922 #K Industrial Way[b] • Joes Automotive of Lodi, 200 Commerce Street[b] • Knife River Lodi, 851 East Lodi Avenue[b] • Lodi Metal Tech, Incorporated, 213 South Kelly Street[b]	• Lustre Cal Nameplate, 715 South Guild Avenue[b] • Miller Parking Company, 112b Industrial Way[b] • North American Specialty Products LLC, 300 Beckman Road[c] • Pacific Coast Producers Distribution Center, 650 South Guild Avenue[c] • R & L Carriers, 1330 East Thurman Road[b] • R&R McCullough Mobil, 177 Kelly Street[b] • Shands Diesel Truck Repair, 885 East Lodi Avenue[c] • Sweetener Products I, 1150 East Thurman Road[c] • Scientific Specialties Inc, 1310 East Thurman Road[a] • Schaefer Systems LLC, 1250 East Thurman Road[c] • Western Radiator Service, 12 South Cluff Street[b]

Notes:
[a] Identified in Appendix G1: EDR Area/Corridor Report for Northern San Joaquin 230 kV Transmission Project, September 2, 2022.
[b] Identified in Appendix G2: PG&E Phase I ESA for 1215 Thurman Road, June 22, 2022.
[c] Identified in both the EDR Area/Corridor Report and the PG&E Phase I ESA for 1215 Thurman Road.

5.9.1.8 Project-Related Hazardous Materials

Hazardous Material Use

Construction of the project would require the use of hazardous materials, such as fuels, lubricants, and cleaning solvents, as shown in Table 5.9-2 and Table 5.9-3. These would be used to power internal combustion engines, lubricate internal combustion engines and other construction equipment and hardware, and clean vehicles and equipment. It is anticipated that no pesticides or herbicides will be needed during construction activities. If needed, material will be transported in specialty trucks or in other approved containers. In addition, approximately 34,000 gallons of mineral oil will be required for LEU Guild Substation's two transformers.

Table 5.9-2. Types, Uses, and Volumes of Hazardous Materials – PG&E Construction

Hazardous Material	Use	Approximate Volume (gallons)
Diesel	Engine fuel	280,915
Gasoline	Engine fuel	22,051
Jet fuel	Fuel	11,101
Hydraulic Fluids/Lubricants	Engine and equipment lubrication and powering of hydraulic equipment	15,703
Other Construction Fluids (solvents)	Cleaning, lubricating hardware, etc.	785

Notes:
Hazardous Materials identified will not be stored onsite. All fueling and storage will occur offsite. Diesel and gasoline fuel volumes are from Appendix B1a. Hydraulic fluids and lubricants volumes are anticipated to be 5% of total fuel volumes. Other construction fluids volumes are anticipated to be 5% of hydraulic fluids and lubricants volumes.

Table 5.9-3. Types, Uses, and Volumes of Hazardous Materials – LEU Construction

Hazardous Material	Use	Approximate Volume (gallons)
Diesel	Engine fuel	98,640
Gasoline	Engine fuel	3,164
Hydraulic Fluids/Lubricants	Engine and equipment lubrication and powering of hydraulic equipment	5,090
Other Construction Fluids (solvents)	Cleaning, lubricating hardware, etc.	255

Notes:
Hazardous Materials identified will not be stored on site. All fueling and storage will occur offsite. Diesel and gasoline fuel volumes are from Appendix B1b. Hydraulic fluids and lubricants volumes are anticipated to be 5% of total fuel volumes. Other construction fluids volumes are anticipated to be 5% of hydraulic fluids and lubricants volumes.

When not in use, hazardous materials will be properly stored to prevent drainage or accidents as instructed by SDSs that will be provided to onsite personnel in case of emergency. The anticipated volume of hazardous liquid materials, such as fuel, are calculated based on the equipment and vehicles expected to be used during construction. These hazardous liquid materials would not be stored onsite at the total approximate volume. As hazardous liquid materials are needed, they would be obtained by construction vehicles at a gas station, and other materials such as hydraulic fluids/liquids would be ordered at volumes that are appropriate for storage on a maintenance truck and dispensed at one or more staging areas during a routine maintenance activity. An SPCC Plan or a Hazardous Materials Business Plan (HMBP) is not expected to be required for construction (in accordance with 40 CFR Parts 112.1-112.7 and California Health and Safety Code [CA HSC] Section 25507, respectively). If a contractor elects to have larger volumes on site, plans would be developed as appropriate.

During operations, the total volume of hazardous materials expected to be used for the PG&E facilities is approximately 1,315 gallons of gasoline, diesel, and jet fuel. None of these hazardous materials are expected to be stored onsite at PG&E project facilities. During PG&E operations and maintenance, vehicles and equipment will obtain fuel from commercial gas stations or airports.

During LEU operations and maintenance, existing maintenance trips to existing LEU station and line facilities will review the adjacent new and modified LEU project facilities. No additional LEU trips or use of hazardous material is planned for the continuation of LEU routine maintenance and inspections.

Hazardous Waste

Limited hazardous waste will be generated during both project construction and operations and will be handled and disposed of in accordance with local, state, and federal requirements.

Treated wood waste has the potential to be classified as hazardous waste if it contains elevated levels of arsenic, chromium, copper, pentachlorophenol, or creosote. Treated wood waste often can be visually identified by tags or markings on the wood, when cut staining is visible around the perimeter only, or by discoloration or odor. If encountered, treated wood waste will be managed in accordance with applicable California and federal regulations. PG&E will dispose of utility-generated waste, including treated wood waste, under the Hazardous Waste Fee Health and Safety Code (CA HSC Chapter 6.5, Section 25143 et seq.). Under this exemption, the wood waste would be disposed of in a composite lined portion of a municipal solid waste landfill that meets requirements imposed by the state policy adopted pursuant to Section 13140 of the Water Code and regulations adopted pursuant to Sections 13172 and 13173 of the Water Code. Further the solid waste landfill used for disposal is authorized to accept the wood waste under waste discharge requirements issued by the RWQCB pursuant to Division 7 (commencing with Section 13000) of the Water Code.

5.9.2 Regulatory Setting

The following sections contain an overview of regulations related to the use of hazardous materials and the disposal of hazardous wastes.

5.9.2.1 Federal

Resource Conservation and Recovery Act

Under RCRA (42 USC Section 6901 et seq.), individual states may implement their own hazardous waste programs in lieu of RCRA, as long as the state program is at least as stringent as the federal RCRA requirements. The federal government approved California's RCRA program, called the Hazardous Waste Control Law (HWCL), in 1992. In California, the RCRA program is administered by the Cal/EPA and DTSC, per direction of the federal EPA.

Comprehensive Environmental Response, Compensation, and Liability Act

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) (42 USC Chapter 103) and associated Superfund Amendments provide the EPA with the authority to identify hazardous sites, to require site remediation, and to recover the costs of site remediation from polluters. CERCLA also enabled the revision of the National Oil and Hazardous Substances Pollution Contingency Plan, also known as the National Contingency Plan (NCP). The NCP provides the guidelines and procedures needed to respond to releases and threatened releases of hazardous substances, pollutants, or contaminants.

Clean Water Act

The CWA gives EPA the authority to regulate the discharge of pollutants and hazardous materials into the waters of the United States. As part of the CWA, EPA oversees and enforces the Oil Pollution Prevention regulation (40 CFR Part 112). The regulations describe the requirements for facilities to prepare, amend, and implement SPCC Plans to describe a comprehensive spill prevention program that minimizes the potential for discharges from specific sources, such as oil-containing transformers.

Federal Water Pollution Control Act

The EPA designates hazardous substances under the Federal Water Pollution Control Act (40 CFR Chapter I, Subchapter D, Parts 116 and 117) and determines quantities of designated hazardous substances that must be reported (40 CFR Part 116) or that may be discharged into waters of the United States (40 CFR Part 117).

U.S. Department of Transportation Hazardous Materials Regulations

The U.S. Department of Transportation (DOT) Hazardous Materials Regulations (Title 49 CFR Parts 100-185) cover all aspects of hazardous materials packaging, handling, and transportation.

Federal Aviation Administration Regulations

The FAA regulates the safe use and preservation of navigable airspace. The FAA must be notified of any structures located in the airspace of an airport as defined in 14 CFR Section 77.9 (b)(1), (2), and (3), or new structures taller than 200 feet in height, to confirm that the proposed structures will not pose a threat to safety.

5.9.2.2 State

Hazardous Waste Control Law

The HWCL (CA HSC Chapter 6.5, Section 25100 et seq.) authorizes Cal/EPA and the DTSC, a department within Cal/EPA, to regulate the generation, transportation, treatment, storage, and disposal of hazardous wastes. DTSC also can delegate enforcement responsibilities to local jurisdictions that enter into agreements with DTSC for the generation, transport, and disposal of hazardous materials under the authority of HWCL. Businesses that store more than threshold quantities of hazardous materials must prepare an HMBP, which includes spill prevention and response provisions.

Hazardous Substance Account Act

The Hazardous Substance Account Act (HSAA) (CA HSC Chapter 6.8, Section 25300 et seq.) is California's equivalent to CERCLA. It addresses hazardous waste sites and apportions liability for them. The HSAA also provides that owners are responsible for the cleanup of such sites and the removal of toxic substances, where possible.

The two state agencies with primary responsibility for enforcing federal and state regulations related to hazardous material transport and responding to hazardous materials transportation emergencies are the CHP and Caltrans, respectively.

Occupational Safety and Health

The California Division of Occupational Safety and Health (Cal/OSHA) assumes primary responsibility for developing and enforcing workplace safety regulations within the state (CCR Title 8). Cal/OSHA standards are more stringent than federal Occupational Safety and Health Administration regulations and take precedence. Section 1518 of the California PRC requires that suitable protection equipment or devices will be provided or used on or near energized equipment for the protection of employees where there is a recognized hazard of electrical shock or burns.

Hazardous Materials Management

The California Office of Emergency Services is the state office responsible for establishing emergency response and spill notification plans related to hazardous materials accidents. Title 26 of the CCR is a compilation of the chapters or titles of the CCR that are applicable to hazardous materials management.

Porter-Cologne Water Quality Control Act

As discussed in more detail in Section 5.10, Hydrology and Water Quality, the Porter-Cologne Water Quality Control Act (California Water Code, Division 7) is the provision of the California Water Code that regulates water quality in California and authorizes the SWRCB and nine Regional Water Quality Control Boards (RWQCBs) to implement and enforce the regulations. The Porter-Cologne Act provides several means of enforcement for unauthorized discharge of pollutants to waters of the state, including cease and desist orders, cleanup and abatement orders, administrative civil liability orders, civil court actions, and criminal prosecution. The project area is under the jurisdiction of the Central Valley RWQCB (Region 5).

Unified Hazardous Waste and Hazardous Materials Management Regulatory Program

The Unified Hazardous Waste and Hazardous Materials Management Regulatory Program (Unified Program) (CCR Title 27) was mandated by the state of California in 1993. The Unified Program was created to consolidate, coordinate, and make consistent the administrative requirements, permits, inspections, and enforcement activities for six hazardous materials programs. The program has six elements, including:

- Hazardous Waste Generators and Hazardous Waste On-site Treatment
- Underground Storage Tanks
- Aboveground Petroleum Storage Act
- Hazardous Materials Release Response Plans and Inventories
- California Accidental Release Prevention
- Uniform Fire Code Hazardous Materials Management Plans and Hazardous Materials Inventory Statements

At the local level, implementation if a Unified Program is accomplished by identifying a CUPA that coordinates all of these activities to streamline the process for local businesses. The San Joaquin County Environmental Health Department (SJCEHD) is approved by Cal/EPA as the CUPA for San Joaquin County.

Hazardous Waste Fee Health and Safety Code

The Hazardous Waste Fee Health and Safety Code (CA HSC Chapter 6.5, Section 25143 et seq.) provides definition and guidance on wood waste and its disposal. Wood waste is defined in part as poles, crossarms, pilings, and fence posts that have been previously treated with a preservative.

Wood waste materials removed from electric, gas, or telephone service are exempt from the requirements for disposal provided certain conditions are met, including:

- If the wood waste is not subject to regulation as a hazardous waste under a federal act and it is disposed of in a composite-lined portion of a municipal solid waste landfill that meets any requirements imposed by the state policy adopted pursuant to Section 13140 of the Water Code and regulations adopted pursuant to Sections 13172 and 13173 of the Water Code
- If the solid waste landfill used for disposal is authorized to accept the wood waste under waste discharge requirements issued by the RWQCB pursuant to Division 7 (commencing with Section 13000) of the Water Code

Rules for Overhead Electric Line Construction

Under Section 35 of General Order (GO) 95, the CPUC regulates all aspects of design, construction, operation, and maintenance of electrical power lines and fire safety hazards for utilities subject to its jurisdiction.

Public Resources Code

PRC Sections 4292–4293 identify construction, operation, and maintenance requirements to minimize fire hazards for power lines located in SRAs.

PRC Section 4292 addresses power line hazard reduction. It identifies the requirements for firebreaks around "any pole or tower which supports a switch, fuse, transformer, lightning arrester, line junction, or dead end or corner pole" in wildland areas.

PRC Section 4293 provides specific clearances for power lines in wildland areas.

Fire Prevention Standards for Electric Utilities

The Fire Prevention Standards for Electric Utilities (CCR Title 14, Sections 1250-1258) provide definitions, maps, specifications, and clearance standards for projects under the jurisdiction of PRC Sections 4292 and 4293 in SRAs.

Additional regulations related to fire prevention are discussed in detail in Section 5.20 Wildfire.

Government Code Sections 51177, 51178, 51182, 51183, and 51189

These GC sections identify construction, operation, and maintenance requirements to minimize fire hazards for structures located in very high fire hazard severity zones. These sections apply to buildings only. They do not regulate power or transmission lines.

California Fire Code

The California Fire Code 2010 (CCR Title 24, Part 9) is based on the International Fire Code from the International Code Council and contains consensus standards related to establishing good practices to safeguard the public health, safety, and general welfare from the hazards of fire, explosion, or dangerous conditions in new or existing buildings, structures, and premises.

5.9.2.3 Local

Because the CPUC has exclusive jurisdiction over project siting, design, and construction, PG&E's portion of the project is not subject to local (city and county) discretionary regulations except for CUPAs with respect

hazardous waste regulations. However, local plans and policies are considered for informational purposes and to assist with the CEQA review process.

The City of Lodi is a local agency and must comply with its own local plans and policies.

County Office of Emergency Services (OES)

The responsibility of the San Joaquin County Office of Emergency Services (OES) includes effective planning for emergencies and preparing a Local Hazardous Mitigation Plan that meets the state and federal requirement of the Disaster Mitigation Act of 2000. The OES provides training for governmental agencies, including California Department of Public Health, the County Public Works Department, and the SJCEHD.

San Joaquin County Multi-Hazard Plan

The San Joaquin County Multi-Hazard Plan, revised in August of 1994, addresses each of the four phases of emergency management: mitigation, preparedness, response, and recovery. The common emergency management systems, currently being developed by the Governor's Office of Emergency Services, is an integral part of the County response system. This Plan identifies those organizations, agencies, and individuals that are responsible for responding to emergencies. Additionally, it provides guidance on how emergencies will be managed by the County. The Plan, using the Multi-Agency Coordination System and Incident Command System as its basis, is designed to allow County government to respond to any size or type of emergency.

San Joaquin County Environmental Health Department

The SJCEHD, under the CUPA Program, enforces state regulations governing hazardous materials storage, hazardous waste generators, hazardous waste treatment, and hazardous substance underground storage tanks.

The SJCEHD assists businesses in preparing Hazardous Materials Release Response Plans and Inventories (Business Plans). The SJCEHD performs oversight of investigation and cleanup activities at soil and groundwater contaminated sites under a contract with the SWRCB.

City of Lodi Fire Department

The Fire Department provides a wide range of emergency and nonemergency services, including hazardous materials response, public education, and related safety services. The Department conducts Uniform Fire Code inspections of hazardous facilities.

San Joaquin County Airport Land Use Plan (1997)

The 1997 San Joaquin County Airport Land Use Plan (ALUP) created and updated by the San Joaquin County Airport Land Use Commission (ALUC) establishes Airport Land Use Zones for each airport in the plan. The zones are based on 14 CFR Part 77 airspace standards. Within each zone, the airport land use guidelines control both the heights of structures and the type of land uses. The plan also includes intensity restrictions that limit the number of people who may congregate within a specific area. The ALUP provides guidelines and land use restrictions to ensure that no new land use resulting in a hazard to aircraft or to the health or safety of persons on the ground is permitted within any part of an airport's area of influence. These guidelines also ensure that lands needed for airport facilities and airport-related land uses are reserved for those uses. These restrictions are meant to both reduce risk to people on the ground in the event of an aircraft accident and to minimize hazards to aircraft flight.

While the ALUP does not apply to this project, the ALUC has adopted 14 CFR Part 77, Objects Affecting Navigable Airspace, using imaginary surfaces to determine height restrictions for natural and artificial objects. These federal regulations govern project design, and PG&E will comply with all FAA requirements.

Although the ALUP regulates the construction or alteration of any structure or natural growth at a height that exceeds the obstruction standards set forth in the regulations of the FAA relating to objects affecting

navigable airspace contained in 14 CFR 77, Subpart C, the regulations do not apply to a pole, pole line, distribution or transmission tower, or tower line or substation of a public utility. Applicable federal regulations allow utility line facilities within the height limits proposed for this project.

5.9.2.4 Touch Thresholds

The U.S. Occupational Safety and Health Administration (OSHA) general industry electrical safety standards are published in Title 29 CFR Part 1910.302 through 1910.308, Design Safety Standards for Electrical Systems, and 1910.331 through 1910.335, Electrical Safety-Related Work Practices Standards (National Archives and Records Administration Office of the Federal Register [NARA OFR], 2021). OSHA's electrical standards are based on the National Fire Protection Association (NFPA) codes and standards: NFPA 70 – National Electrical Code and NFPA 70E – Standard for Electrical Safety in the Workplace (NFPA 2022).

Cal/OSHA regulations on electrical safety require California employers to provide workers with a safe and healthful workplace. These regulations are contained in Title 8 of the CCR. Most of the electrical health and safety regulations can be found in Chapter 4, Subchapter 5 in the Electrical Safety Orders, Sections 2299 through 2989. Cal/OSHA regulations on electrical safety are grouped by electrical voltage. Regulations for low voltage (0 to 600 V) are given in Sections 2299–2599 and the regulations for high voltage (greater than 600 V) are given in Sections 2700–2989. Section 1518 addresses the safety requirements for the protection of workers and others from electric shock in construction.

The project will be designed to all applicable standards and regulations that will provide for adequate horizontal and vertical clearances from electrical equipment. All authorized personnel working onsite, during either construction or O&M, would be trained according to OSHA, Cal/OSHA, NFPA, PG&E, and LEU standards. To minimize potential exposure of the public to electric shock hazards, an 8-foot-tall chain-link fence topped with 1 to 2 feet of barbed wire would extend around the perimeter of new and modified stations, thus restricting site access. Warning signs would be posted to alert persons of potential electrical hazards. All electric power lines will be designed in accordance with CPUC GO 95 guidelines for safe ground clearances established to protect the public from electric shock.

5.9.3 Impact Questions

The project's potential effects on hazards, hazardous materials, and public safety were evaluated using the significance criteria set forth in Appendix G of the CEQA Guidelines. The criteria and conclusions are summarized in Table 5.9-4 and discussed in more detail in Section 5.9.4.

Table 5.9-4. CEQA Checklist for Hazards, Hazardous Materials, and Public Safety

Would the project:	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☒	☐
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☒

Would the project:	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☒
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, 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 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?	☐	☐	☒	☐

5.9.3.1 Additional CEQA Impact Questions

The project's potential effects on hazards, hazardous materials, and public safety also were evaluated using the CPUC's Additional CEQA Impact Questions for Hazards, Hazardous Materials, and Public Safety in the Guidelines for Energy Project Applications Requiring CEQA Compliance: Pre-filing and Proponent's Environmental Assessments (CPUC 2019). These additional impact questions are evaluated using the significance criteria set forth in Appendix G of the CEQA Guidelines. The conclusions are summarized in Table 5.9-5 and discussed in more detail in Section 5.9.4.

Table 5.9-5. Additional CEQA Impact Questions for Hazards, Hazardous Materials, and Public Safety

Would the project:	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a) Create a significant hazard to air traffic from the installation of new power lines and structures?	☐	☐	☒	☐
b) Create a significant hazard to the public or environment through the transport of heavy materials using helicopters?	☐	☐	☐	☒
c) Expose people to a significant risk of injury or death involving unexploded ordnance?	☐	☐	☐	☒

Would the project:	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
d) Expose workers or the public to excessive shock hazards?	☐	☐	☒	☐

5.9.4 Potential Impact Analysis

Project impacts related to hazards, hazardous materials, and public safety were evaluated against the CEQA significance criteria and are discussed in the following sections. The impact analysis evaluates potential project impacts during the construction phase and the O&M phase. The impact discussion is organized to describe the effects of each participating utility's portion of the project on the environment.

5.9.4.1 Significance Criteria

According to Section 15002(g) of the CEQA Guidelines, "a significant effect on the environment is defined as a substantial adverse change in the physical conditions which exist in the area affected by the proposed project." As stated in Section 15064(b) of the CEQA Guidelines, the significance of an activity may vary with the setting. Per Appendix G of the CEQA Guidelines, the potential significance of project impacts related to hazards, hazardous materials, and public safety were evaluated for each of the criteria listed in Table 5.9-4, as discussed in Section 5.9.4.2.

5.9.4.2 Applicant-Proposed Measures and Best Management Practices

The project will implement the following APMs and BMPs to avoid or reduce impacts to resources:

APM HAZ-1. PG&E Development and Implementation of Hazardous Material and Emergency Response Procedures. PG&E will implement construction controls, training, and communication to minimize the potential exposure of the public and site workers to potential hazardous materials during all phases of project construction and, as appropriate, during the O&M phase. Construction procedures that will be implemented include worker training appropriate to the worker's role, and containment and spill control practices in accordance with the SWPPP (APM HYD-1). If required, a site-specific SPCC Plan and an HMBP will be developed before the operation of the expanded PG&E Lockeford Substation and new PG&E Thurman Switching Station (APM HYD-4).

BMP HAZ-1. LEU Development and Implementation of Hazardous Material and Emergency Response Procedures. LEU will implement construction controls, training, and communication to minimize the potential exposure of the public and site workers to potential hazardous materials during all phases of project construction and, as appropriate, during the O&M phase. Construction procedures that will be implemented include worker training appropriate to the worker's role, and containment and spill control practices in accordance with the SWPPP (BMP HYD-1). A site-specific SPCC Plan and an HMBP will be developed before the operation of the new LEU Guild Substation (BMP HYD-4).

APM HAZ-2. PG&E Emergency Spill Supplies and Equipment. Materials will be available on the project site during construction to contain, collect, and dispose of any minor spill at PG&E's project components. Oil-absorbent material, tarps, and storage drums will be available on the project site during construction and will be used to contain and control any minor releases of oil. If excess water and liquid concrete escape during pouring, they will be directed to adjacent lined and bermed areas, where the concrete will dry and then be transported for disposal per applicable regulations.

BMP HAZ-2. LEU Emergency Spill Supplies and Equipment. Materials will be available on the project site during construction to contain, collect, and dispose of any minor spill at LEU's project components. Oil-absorbent material, tarps, and storage drums will be available on the project site during construction and will be used to contain and control any minor releases of oil. If excess water and liquid concrete escape

during pouring, they will be directed to adjacent lined and bermed areas, where the concrete will dry and then be transported for disposal per applicable regulations.

APM HAZ-3. PG&E Shock Hazard Safety Measures. All authorized personnel working on site, during either construction or O&M, will be trained according to PG&E standards. To minimize potential exposure of the public to electric shock hazards, a 9-foot-tall chain-link fence topped with 1 foot of barbed wire (total height of approximately 10 feet) will be installed around the perimeter of the expanded PG&E Lockeford Substation and the new PG&E Thurman Switching Station before the new electric equipment is energized.

BMP HAZ-3. LEU Shock Hazard Safety Measures. All authorized personnel working on site, during either construction or O&M, will be trained according to LEU standards. To minimize potential exposure of the public to electric shock hazards, an 8-foot-tall chain-link fence topped with 1 to 2 feet of barbed wire (up to approximately 10 feet in height) will be installed around the perimeter of the new LEU Guild Substation before the new electric equipment is energized.

APM HAZ-4. PG&E Worker Environmental Awareness Training Program. A PG&E WEAP will be developed and implemented prior to construction. The WEAP program will be established to communicate environmental concerns and appropriate work practices to all construction field personnel. The training program will emphasize site-specific physical conditions to improve hazard prevention and will include a review of the SWPPP, which also will address spill response and proper implementation of best practices and measures. The PG&E WEAP program will be provided separately to CPUC staff prior to construction. If it is necessary to store chemicals, they will be managed in accordance with all applicable regulations. SDSs will be maintained and kept available onsite, as applicable.

BMP HAZ-4. LEU Worker Environmental Awareness Training Program. An LEU WEAP will be developed and implemented prior to construction. The WEAP program will be established to communicate environmental concerns and appropriate work practices to all construction field personnel. The training program will emphasize site-specific physical conditions to improve hazard prevention and will include a review of the SWPPP, which also will address spill response and proper implementation of best practices and measures. If it is necessary to store chemicals, they will be managed in accordance with all applicable regulations. SDSs will be maintained and kept available onsite, as applicable.

APM HAZ-5. PG&E Potentially Contaminated Soil or Groundwater. Soil occurring at PG&E project components that is suspected of being contaminated (based on existing analytical data or visual, olfactory, or other evidence) and is removed during excavation activities will be segregated and tested; if the soil is contaminated above hazardous levels, it will be contained and disposed of offsite at a licensed waste facility. The presence of known or suspected contaminated soil will require testing and investigation procedures to be supervised by a qualified person, as appropriate, to meet state and federal regulations. Groundwater is not expected to be encountered during construction. However, if it is encountered, groundwater will be collected during construction, contained, and disposed of in accordance with all applicable regulations. Non-contaminated groundwater will be released to a combined sanitary and stormwater drainage system in the area (with prior approval) or will be contained, tested, and disposed of in accordance with applicable regulations.

BMP HAZ-5. LEU Potentially Contaminated Soil or Groundwater. Soil occurring at LEU project components that is suspected of being contaminated (based on existing analytical data or visual, olfactory, or other evidence) and is removed during excavation activities will be segregated and tested; if the soil is contaminated above hazardous levels, it will be contained and disposed of offsite at a licensed waste facility. The presence of known or suspected contaminated soil will require testing and investigation procedures to be supervised by a qualified person, as appropriate, to meet state and federal regulations. Groundwater is not expected to be encountered during construction. However, if it is encountered, groundwater will be collected during construction, contained, and disposed of in accordance with all applicable regulations. Non-contaminated groundwater will be released to the City's combined sanitary and stormwater drainage system (with prior approval) or will be contained, tested, and disposed of in accordance with applicable regulations.

5.9.4.3 Potential Impacts

As described in Chapter 3, Project Description, the project will provide a new 230 kV transmission source in northern San Joaquin County, in central California. The project includes extending an existing PG&E 230 kV transmission line through PG&E Lockeford Substation to a new PG&E Thurman Switching Station in Lodi, California, by installing new tubular steel poles and conductors for approximately 11 miles. PG&E Lockeford Substation will be expanded on existing substation property to accommodate the new 230 kV facility. PG&E Thurman Switching Station will transfer the new 230 kV source to the new adjacent LEU 230/60 kV Guild Substation. LEU Guild Substation will transfer the 60 kV power to the existing adjacent LEU 60 kV Industrial Substation, which will be modified to receive the new LEU 60 kV lines (via the new 230 kV source) and to disconnect the existing PG&E 60 kV sources. When disconnected, the three existing PG&E 60 kV lines will be partially removed and reconfigured mainly within their existing alignments to continue operation between PG&E Lockeford and Lodi substations. LEU distribution and the third-party telecommunication underbuild on PG&E 60 kV line portions being removed will be relocated by the respective utility owner to within or adjacent to other existing alignments. An existing PG&E distribution line will be extended underground approximately 500 feet in franchise to provide a permanent secondary service line to PG&E Thurman Switching Station. PG&E project-related work to update communication between facilities and the protection scheme system also will occur within the existing fence lines of remote-end substations Brighton, Bellota, Lodi, and Rio Oso, and a communication facility, Clayton Hill Repeater Station.

a) Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials? *Less-than-Significant Impact.*

PG&E Potential Impact Discussion

Construction

Construction of the PG&E portion of the project would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials. Table 5.9-2 identifies hazardous materials expected to be used onsite during construction and operation.

Construction of project facilities would require the use of motorized heavy equipment, including trucks, cranes, backhoes, and air compressors. Although this equipment requires the use of hazardous materials, such as gasoline, diesel, oil, hydraulic fluid, antifreeze, transmission fluid, lubricating grease, and other fluids, these materials will be transported to the work sites according to DOT standards and used in designated construction staging areas or other suitable locations identified prior to the onset of construction. APM HAZ-2 and APM HAZ-4 require construction crews to be trained in safe handling of hazardous materials prior to the initiation of construction, which will further reduce the small risk of minor exposures to the environment, the public, or site workers to potentially hazardous materials during construction. PG&E would follow its existing worker training programs.

The project is not expected to use or store large quantities of hazardous materials. During construction, typical petroleum-based products such as gasoline, diesel fuel, crankcase oil, lubricants, and cleaning solvents will be used to fuel, lubricate, and clean vehicles and equipment, and will be transported in specialty trucks or in other approved containers. When not in use, hazardous materials will be properly stored to prevent drainage or accidents as instructed by SDSs that will be provided to onsite personnel in case of emergency. The anticipated volume of hazardous liquid materials, such as fuel, are calculated based on the equipment and vehicles expected to be used during construction. These hazardous liquid materials would not be stored onsite at the total approximate volume. As hazardous liquid materials are needed, they would be obtained by construction vehicles at a gas station, and other materials such as hydraulic fluids/liquids would be ordered at volumes that are appropriate for storage on a maintenance truck and dispensed at one or more staging areas during a routine maintenance activity. During construction, an SPCC Plan or an HMBP is not expected to be required (in accordance with 40 CFR Parts 112.1–112.7 and CA HSC Section 25507, respectively). If a contractor elects to have larger volumes on site, plans would be developed as appropriate.

Because hazardous materials will be transported, used, and disposed of in accordance with appropriate procedures, the project will not create a significant hazard to the public or environment. Any impacts will be less than significant, and PG&E's existing worker safety training programs described in APM HAZ-2, APM HAZ-3, and APM HAZ-4 will further reduce less-than-significant impacts.

There would be no large volumes of known hazardous waste resulting from project construction. Removal of the RO1 tower is expected to generate approximately 13 yd^3 of hazardous waste. Minor volumes of hazardous waste will be disposed of using the appropriate methods of handling and transportation, with disposal at a certified hazardous waste disposal facility. Treated wood waste removed from the project area during construction will be managed under the utility exemption of the California Hazardous Waste Fee Health and Safety Code. Treated wood waste will be transported offsite and will be collected in project-specific containers either at a PG&E service center that is designated as a PG&E consolidation site or the project's primary staging area. When the containers are filled, the waste will be transported to an appropriate licensed Class I or Class II landfill or the composite-lined portion of a solid waste landfill. The transport and disposal of hazardous waste and the treated wood waste will not pose a significant hazard to the environment or the public.

In accordance with APM HAZ-5, potentially contaminated soil that has not been precharacterized will be stockpiled separately to be tested, managed, and transported for disposal as appropriate. If suspected hazardous substances or waste are unexpectedly encountered during trenching activities (using indicators such as sheen, odor, and soil discoloration), work will be stopped until the material is properly characterized and appropriate measures are taken to protect human health and the environment. Appropriate personal protective equipment will be used, and waste management will be performed in accordance with applicable regulations. If excavation of hazardous materials is required, the materials will be disposed of in accordance with applicable regulations.

Operation and Maintenance

Monthly maintenance activities occurring at PG&E Lockeford Substation and PG&E Thurman Switching Station may include use of hazardous materials, including oils, paints, and solvents used for routine maintenance. The materials would be handled in accordance with the existing PG&E Lockeford Substation HMBP and SPCC (APM HAZ-1), which would be updated to include the expanded PG&E Lockeford Substation, and other standard safety practices. PG&E Thurman Switching Station is not expected to store hazardous materials onsite that require an HMBP or SPCC. No changes are expected to occur to existing maintenance activities at PG&E remote-end substations or PG&E Clayton Hill Repeater Station.

Other potential hazards associated with the PG&E electrical facilities include the presence of high voltage, open-air conductors, transmission line, power lines, and distribution lines. Proposed upgrades to the existing facilities will update and conform with the Institute of Electrical and Electronic Engineers' safety standards. Additionally, all workers will be trained in appropriate safety procedures, as described in existing PG&E safety training programs and in APM HAZ-4, and the PG&E station sites will be fenced to prevent public access and electric lines will be designed in accordance with CPUC GO 95 guidelines for safe ground clearances established to protect the public from electric shock. All materials used during O&M will be applied, stored, and disposed of consistent with manufacturer recommendations and in accordance with applicable regulations. This impact will be less than significant. Additionally, the impact from substances associated with motor vehicles that will be used for annual line inspection will be less than significant.

LEU Potential Impact Discussion

Construction

Construction of the LEU portion of the project would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials. Table 5.9-3 identifies hazardous materials expected to be used onsite during construction and operation.

Construction of these project facilities would require the use of motorized heavy equipment, including trucks, cranes, backhoes, and air compressors. Although this equipment requires the use of hazardous

materials, such as gasoline, diesel, oil, hydraulic fluid, antifreeze, transmission fluid, lubricating grease, and other fluids, these materials will be transported to the substation work site according to DOT standards and used in designated construction staging areas or other suitable locations identified prior to the onset of construction. BMP HAZ-2 and BMP HAZ-4 require construction crews to be trained in safe handling of hazardous materials prior to the initiation of construction, which will further reduce the small risk of minor exposures to the environment, the public, or site workers to potentially hazardous materials during construction. LEU would follow its existing worker training programs.

The project is not expected to use or store large quantities of hazardous materials. During construction, typical petroleum-based products such as gasoline, diesel fuel, crankcase oil, lubricants, and cleaning solvents will be used to fuel, lubricate, and clean vehicles and equipment, and will be transported in specialty trucks or in other approved containers. When not in use, hazardous materials will be properly stored to prevent drainage or accidents as instructed by SDSs that will be provided to onsite personnel in case of emergency. The anticipated volume of hazardous liquid materials, such as fuel, are calculated based on the equipment and vehicles expected to be used during construction. These hazardous liquid materials would not be stored onsite at the total approximate volume. As hazardous liquid materials are needed, they would be obtained by construction vehicles at a gas station, and other materials such as hydraulic fluids/liquids would be ordered at volumes that are appropriate for storage on a maintenance truck and dispensed at one or more staging areas during a routine maintenance activity. During construction, an SPCC Plan or an HMBP is not expected to be required (in accordance with 40 CFR Parts 112.1–112.7 and CA HSC Section 25507, respectively). If a contractor elects to have larger volumes on site, plans would be developed as appropriate.

Because hazardous materials will be transported, used, and disposed of in accordance with appropriate procedures, the project will not create a significant hazard to the public or environment. Any impacts will be less than significant, and LEU's existing worker safety training programs described in BMP HAZ-2, BMP HAZ-3, and BMP HAZ-4 will further reduce less-than-significant impacts.

There would be no large volumes of known hazardous waste used for or resulting from project construction. Minor volumes of hazardous waste will be disposed of using the appropriate methods of handling and transportation, with disposal at a certified hazardous waste disposal facility. Treated wood waste is not expected to be encountered by LEU during its portion of the project.

In accordance with BMP HAZ-5, potentially contaminated soil that has not been precharacterized will be stockpiled separately to be tested, managed, and transported for disposal as appropriate. If suspected hazardous substances or waste are unexpectedly encountered during trenching activities (using indicators such as sheen, odor, and soil discoloration), work will be stopped until the material is properly characterized and appropriate measures are taken to protect human health and the environment. Appropriate personal protective equipment will be used, and waste management will be performed in accordance with applicable regulations. If excavation of hazardous materials is required, the materials will be disposed of in accordance with applicable regulations.

Operation and Maintenance

Maintenance activities occurring monthly at LEU Industrial and LEU Guild substations will be incorporated into existing LEU substation maintenance activities. These existing LEU substation maintenance activities may include use of hazardous materials, including oils, paints, and solvents used for routine maintenance. The materials would be handled in accordance with the existing LEU Industrial Substation HMBP and SPCC (BMP HAZ-1), which would be updated to include the project components, and other standard safety practices. As part of the project, the older oil-filled circuit breakers and the existing substations will be replaced with newer circuit breakers so that, in the future, oil-filled circuit breakers that could contain small amounts of polychlorinated biphenyls will no longer be used.

The two LEU Guild Substation transformers also would require a maximum amount of approximately 17,000 gallons of mineral oil each, for a total of approximately 34,000 gallons. The mineral oil would be used, stored, and disposed of in accordance with state guidelines and LEU policy. The mineral oil will be utility grade, low-volatility mineral oil. Based on the anticipated volume of dielectric fluid/mineral oil in excess of 1,320 gallons to be used at LEU Guild Substation, an SPCC Plan will be required in accordance

with CFR Title 40, Parts 112.1–112.7, and will address the project spill prevention and containment design measures and practices. LEU Guild Substation will be constructed with secondary containment design in accordance with SPCC requirements for oil containment in the event of a spill. A concrete secondary containment basin will provide mineral oil containment for the transformer and will be designed to allow sufficient freeboard to include the oil volume of the transformer plus the precipitation from a 25-year, 24-hour storm event. The secondary oil containment will be integrated in the proposed percolation type retention basin. An oil/ water separator structure will be used to separate spilled oil from the stormwater before the stormwater drains into the retention basin. The oil/water separator will be visually inspected periodically for any contamination. The oil would form a separate layer that then can be removed by skimmers, pumps, or other similar method. The effluent oil from the oil/water separator would be discharged to the sanitary sewer system.

Maintenance associated with the relocated LEU 12 kV feeder line segment would continue to be performed on the existing LEU schedule for the entire feeder line. Additional hazardous materials are not expected to be used or required given another portion of the feeder line from South Guild Avenue and East Thurman Road into LEU Industrial Substation is in an existing underground configuration.

Other potential hazards associated with LEU Industrial and LEU Guild substations include the presence of high voltage, open-air conductors and power lines. Proposed upgrades to the existing substations are being implemented, in part, to maintain conformance with the Institute of Electrical and Electronic Engineers' safety standards. Additionally, all workers will be trained in appropriate safety procedures, as described in existing LEU safety training programs and in BMP HAZ-4, and the substation site will continue to be fenced to prevent public access. All materials used during O&M will be applied, stored, and disposed of consistent with manufacturer recommendations and in accordance with applicable regulations. This impact will be less than significant. Additionally, the impact from substances associated with motor vehicles that will be used for annual line inspection will be less than significant.

b) Would the project create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment? *Less-than-Significant Impact.*

PG&E Potential Impact Discussion

Construction

Project construction will require the use of motorized heavy equipment, including trucks. During construction activities, there is an increased potential for an accidental release of fluids from a vehicle or motorized piece of equipment. To reduce the likelihood and significance of an accident involving hazardous materials, APM HAZ-1, APM HAZ-2, and APM HAZ-4 will provide crews with knowledge, preparation, technique, and materials to avoid exposing the public, project crews, and environmental resources to hazardous materials. In the event of an accidental release of hazardous material caused by an upset or accident, crews would follow protocol outlined by APM HAZ-1, APM HAZ-2, and APM HAZ-4 to minimize the effects of an accidental spill. These measures include having spill kits in all active work areas to be used to prevent materials from draining onto the ground or into drainage areas in the event of a spill.

If underground or aboveground storage tanks are found to be located along the PG&E transmission line route or other PG&E portions of the project and the facility cannot be adjusted to avoid disturbance, the tanks will be removed prior to project construction or segregated from the work area and not disturbed. If it is determined that removal of tanks is necessary, a separate work plan describing the proper decommissioning and removal of the tanks and removal of any associated impacted soil will be prepared prior to removal.

Construction of the project would include mechanisms intended to protect the public from accidents or failure of project components. Guard structures would be installed on the sides of roadways and potentially in other public areas to provide protection in the event of a dropped cable. Shoring would be installed at trenching and excavation sites. Further, the public would not be permitted near construction activities through the use of fencing, signage, and traffic control.

Operation and Maintenance

The existing PG&E O&M policies addressing the potential release of hazardous materials in upset or accident conditions will be implemented after the project is complete. These policies include requirements based on current hazardous material handling practices and accidental release containment and cleanup. The policies provide the framework for crews to follow to protect the public, crews, infrastructure, and environmental resources from exposure to hazardous materials. All PG&E crews are required to be familiar with the policies.

Current and updated PG&E O&M policies to address the potential release of hazardous materials in upset or accident conditions will be implemented prior to completion of project construction. These policies are developed to protect the public, PG&E crews, and the environment from hazardous materials by equipping PG&E crews with knowledge and procedures to follow to prevent accidents and failures or minimize potential impacts of an accident or failure. As a result, impacts associated with creating 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 from operation of the project will be less than significant.

Further, the project is designed and maintained to withstand degrees of failure within portions of the system. Crews digitally monitor and operate the system with controls in place to proactively identify potential issues and minimize the hazard exposure to the public from failure of project components as the result of an accident. Regular maintenance by PG&E crews further reduces the likelihood and severity of failures. The risk of significant hazard to the public or the environment caused by a system accident or failure is less than significant.

LEU Potential Impact Discussion

Construction

Project construction will require the use of motorized heavy equipment, including trucks. During construction activities, there is an increased potential for an accidental release of fluids from a vehicle or motorized piece of equipment. To reduce the likelihood and significance of an accident involving hazardous materials, BMP HAZ-1, BMP HAZ-2, and BMP HAZ-4 will provide crews with knowledge, preparation, technique, and materials to avoid exposing the public, project crews, and environmental resources to hazardous materials. In the event of an accidental release of hazardous material caused by an upset or accident, crews would follow protocol outlined by BMP HAZ-1, BMP HAZ-2, and BMP HAZ-4 to minimize the effects of an accidental spill. These measures include having spill kits in all active work areas to be used to prevent materials from draining onto the ground or into drainage areas in the event of a spill.

If underground or aboveground storage tanks found during construction of the LEU portion of the project cannot be adjusted to avoid disturbance, the tanks will be removed prior to project construction or segregated from the work area and not disturbed. If it is determined that removal of tanks is necessary, a separate work plan describing the proper decommissioning and removal of the tanks and removal of any associated impacted soil will be prepared prior to removal.

Construction of the project would include mechanisms intended to protect the public from accidents or failure of project components. Guard structures would be installed on the sides of roadways and potentially in other public areas to provide protection in the event of a dropped cable. Shoring would be installed at trenching and excavation sites. Further, the public would not be permitted near construction activities through the use of fencing, signage, and traffic control.

Operation and Maintenance

The existing LEU O&M policies addressing the potential release of hazardous materials in upset or accident conditions will be implemented after the project is complete. These policies include requirements based on current hazardous material handling practices and accidental release containment and cleanup. The policies provide the framework for crews to follow to protect the public, crews, infrastructure, and

environmental resources from exposure to hazardous materials. All LEU crews are required to be familiar with the policies.

Current and updated LEU O&M policies to address the potential release of hazardous materials in upset or accident conditions will be implemented prior to completion of project construction. These policies are developed to protect the public, LEU crews, and the environment from hazardous materials by equipping LEU crews with knowledge and procedures to follow to prevent accidents and failures or minimize potential impacts of an accident or failure. As a result, impacts associated with creating 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 from operation of the project will be less than significant.

Further, the project is designed and maintained to withstand degrees of failure within portions of the system. Crews digitally monitor and operate the system with controls in place to proactively identify potential issues and minimize the hazard exposure to the public from failure of project components as the result of an accident. Regular maintenance by LEU crews further reduces the likelihood and severity of failures. The risk of significant hazard to the public or the environment caused by a system accident or failure is less than significant.

c) Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school? *No Impact.*

PG&E Potential Impact Discussion

There are no existing or proposed schools located within one-quarter mile of the proposed PG&E 230 kV transmission line, existing PG&E Lockeford Substation, proposed PG&E Thurman Switching Station, PG&E Clayton Hill Repeater Station, existing PG&E 60 kV and 12 kV lines, or PG&E remote-end stations. Therefore, the PG&E project components would not emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school. There would be no impact.

LEU Potential Impact Discussion

There are no existing or proposed schools located within one-quarter mile of the proposed LEU Guild Substation, existing LEU Industrial Substation, or existing LEU distribution lines. Therefore, the LEU project components would not emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school. There would be no impact.

d) Would the project be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment? *No Impact.*

PG&E Potential Impact Discussion

As shown in the EDR report and Phase I ESA, none of the PG&E project components would be located on a site that is included on a list of hazardous materials sites compiled pursuant to GC Section 65962.5. No active Superfund or state response sites are known to exist within 0.25 mile of the project area (EDR 2022). No impact would occur.

LEU Potential Impact Discussion

As shown in the EDR report and Phase I ESA, none of the LEU project components would be located on a site that is included on a list of hazardous materials sites compiled pursuant to GC Section 65962.5. No active Superfund or state response sites are known to exist within 0.25 mile of the project area (EDR 2022). No impact would occur.

e) For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area? *No Impact.*

PG&E Potential Impact Discussion

The San Joaquin County Airport Land Use Compatibility Plan identifies three airports within the vicinity of the PG&E portion of the project: Lodi Airpark which is located approximately 4.3 miles southwest of the proposed PG&E Structure W34; Lodi Airport, which is located approximately 5 miles northwest of the proposed PG&E Thurman Switching Station; and Kingdon Airpark, which is located approximately 6.3 miles southwest of the proposed PG&E Thurman Switching Station. These project components would not be located within any airport land use plan or within 2 miles of a public airport or public use airport. No safety hazards that would affect people residing or working in the project area would result from the project.

LEU Potential Impact Discussion

The San Joaquin County Airport Land Use Compatibility Plan identifies three airports within the vicinity of the LEU portion of the project: Lodi Airpark, which is located approximately 4.5 miles southwest of LEU Industrial Substation; Lodi Airport, which is located approximately 5 miles northwest of LEU Industrial Substation; and Kingdon Airpark, which is located approximately 6.3 miles southwest of LEU Industrial Substation. These project components would not be located within an airport land use plan or within 2 miles of a public airport or public use airport; therefore, there would be no safety hazards which would affect people residing or working in the area, resulting in no impact.

f) Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan? *No Impact.*

PG&E Potential Impact Discussion

Construction

The proposed project would not conflict with an adopted emergency response plan or evacuation plan. The San Joaquin County OES Emergency Operations Plan establishes a County incident management structure, establishes the overall operational concepts, and provides a flexible platform for planning and response to hazards, incidents, events, and emergencies (San Joaquin County Office of Emergency Services 2019). The proposed project would establish electrical infrastructure and would not interfere with incident management structure or operational concepts. Project-related activities at PG&E remote-end substations and PG&E Clayton Hill Repeater Station would occur within existing facilities and would not obstruct an adopted emergency response plan or emergency evacuation plan.

Emergency access would not be directly impacted during construction of PG&E project components since streets will remain open to emergency vehicles at all times throughout construction. Although lane closures may be required, at least one lane will remain open to provide access for emergency vehicles and evacuation. If road closures are necessary, they will occur in accordance with regulations and will not impede emergency response. In addition, any lane closures will be temporary and short term, and these closures will be coordinated with Caltrans and local jurisdictions to reduce the potential temporary and short-term effects on emergency access. During an evacuation event, construction activities would allow for efficient evacuation of the public and project personnel. The project will not impair the implementation of or physically interfere with an adopted emergency response or evacuation plan; therefore, no impact will occur.

Operation and Maintenance

No negative impact to emergency access would result from operation of the project. The project will not impair the implementation of or physically interfere with an adopted emergency response or evacuation plan; therefore, no impact will occur.

LEU Potential Impact Discussion

Construction

The proposed project would not conflict with an adopted emergency response plan or evacuation plan. The San Joaquin County OES Emergency Operations Plan establishes a County incident management structure, establishes the overall operational concepts, and provides a flexible platform for planning and response to hazards, incidents, events, and emergencies (San Joaquin County Office of Emergency Services 2019). The proposed project would establish electrical infrastructure and would not interfere with incident management structure or operational concepts.

Emergency access would not be directly impacted during construction of LEU project components since streets will remain open to emergency vehicles at all times throughout construction. Although lane closures may be required, at least one lane will remain open to provide access for emergency vehicles and evacuation. If road closures are necessary, they will occur in accordance with regulations and will not impede emergency response. In addition, any lane closures will be temporary and short term, and these closures will be coordinated with local jurisdictions to reduce the potential temporary and short-term effects on emergency access. During an evacuation event, construction activities would allow for efficient evacuation of the public and project personnel. The project will not impair the implementation of or physically interfere with an adopted emergency response or evacuation plan; therefore, no impact will occur.

Operation and Maintenance

No negative impact to emergency access would result from operation of the project. The project will not impair the implementation of or physically interfere with an adopted emergency response or evacuation plan, therefore, no impact will occur.

g) Would the project 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? *Less-than-Significant Impact.*

PG&E Potential Impact Discussion

The proposed project passes through flat areas of long-term agricultural and residential use when outside of the industrial area in the City of Lodi. The primary risk for potential fire hazards would be associated with the use of vehicles and equipment during construction that could generate heat or sparks that could ignite dry vegetation and cause a fire.

All PG&E project components with the exception of one component, PG&E Clayton Hill Repeater Station, are located entirely within an LRA, but not located within an identified severity zone (CAL FIRE 2022). The PG&E Clayton Hill Repeater Station is located in an SRA and identified as being in a high fire severity area.

During construction, PG&E will implement APM WFR-1 and APM WFR-2, requiring workers to be trained in fire prevention practices and carry emergency fire suppression equipment to reduce the wildland fire risk in the project area.

The risk for potential fire hazards associated with O&M of the new and modified PG&E facilities is low given that facilities are engineered and will operate according to current standards to avoid wildfire risk. PG&E will continue to comply with its 2022 Wildfire Mitigation Plan, as updated yearly. Impacts to people and structures from wildland fires is less than significant.

LEU Potential Impact Discussion

According to the CAL FIRE maps, all LEU project components are located entirely within an LRA, but not located within an identified severity zone (CAL FIRE 2022). The proposed LEU project components occur on existing and disturbed industrial use lands. The primary risk for potential fire hazards would be associated with the use of vehicles and equipment during construction that could generate heat or sparks that could ignite dry vegetation and cause a fire.

During construction, LEU will implement BMP WFR-1 and BMP WFR-2, requiring workers to be trained in fire prevention practices and carry emergency fire suppression equipment to reduce the wildland fire risk in the project area.

The risk for potential fire hazards associated with O&M of the new and modified LEU facilities is low given that facilities are engineered and will operate according to current standards to avoid wildfire risk. LEU will continue to comply with its 2021 Wildfire Mitigation Plan, as updated yearly. Impacts to people and structures from wildland fires is less than significant.

5.9.4.4 Additional Impact Questions

a) Would the project create a significant hazard to air traffic from the installation of new power lines and structures? *No Impact.*

PG&E Potential Impact Discussion

The project construction and operation activities will not create a significant hazard to air traffic from the installation of PG&E project components. While PG&E does not anticipate structures at or above 200 feet, PG&E has coordinated with the FAA, and submitted a Notice of Proposed Construction or Alteration, pursuant to Title 14 CFR, Section 77, for each expected new 230 kV structure. The new PG&E microwave tower (approximately 125-150 feet aboveground) within PG&E Thurman Switching Station is within approximately 400 feet of W48 and W49, which are expected to be between approximately 140-145 feet aboveground. The FAA has made a determination of No Hazard to Air Navigation and have determined there is no need for any marking or lighting on the expected structures (Appendix G3). Further, PG&E will coordinate with nearby airports regarding helicopter flight plans for construction and maintenance activities. No impact will occur.

LEU Potential Impact Discussion

The project construction and operation activities will not create a significant hazard to air traffic from the installation of LEU project components. LEU project components are expected to be up to approximately 65 feet aboveground (two new 60 kV poles within existing LEU Industrial Substation). The LEU components will be within approximately 800 feet from the new PG&E western 230 kV structures W48 and W49 which will be approximately 40 to 145 feet aboveground, which would be at a height for which the FAA does not require marking or lighting. This height is significantly lower than the typical 200-foot aboveground threshold for FAA required marker ball, lighting, or similar requirements for structures exceeding 200 feet in height aboveground. No impact will occur.

b) Would the project create a significant hazard to the public or environment through the transport of heavy materials using helicopters? *No Impact.*

PG&E Potential Impact Discussion

A light-duty helicopter (Hughes MD 500 or equivalent) is expected to be used to support construction survey staking and as part of the conductor stringing activities during construction. A light-duty helicopter (Hughes MD 500 or equivalent) has a load capacity of approximately 1,200 pounds.

The use of helicopters to lift and transport structure components, materials, or equipment is not anticipated as the helicopters will only be used to pull a small sock line during stringing activities. Operation and maintenance of the project may require inspections and routine patrols and transmission structure insulator washing via helicopter; however, helicopters would not be required to transport heavy materials for O&M activities.

Because helicopters are not proposed for lifting and transporting components, materials, or equipment, and will only be used to pull a small sock line during stringing activities, no hazard to the public or environment would result from helicopters transporting heavy materials.

LEU Potential Impact Discussion

Construction and operation of LEU project components would not involve use of a helicopter to transport heavy materials. Therefore, there is no impact.

c) Would the project expose people to a significant risk of injury or death involving unexploded ordnance? *No Impact.*

PG&E Potential Impact Discussion

Based on preliminary geotechnical borings, blasting is not anticipated for construction of PG&E project components, including foundation installation. No portion of PG&E project components overlies a current or former military installation (State of California Office of Governor Gavin Newsom 2022). Therefore, no unexploded ordnance is expected to be encountered. Operation and maintenance of the project would not require the use of explosives. As a result, PG&E project components would not expose people to a significant risk of injury or death involving unexploded ordnance, resulting in no impact.

LEU Potential Impact Discussion

Based on preliminary geotechnical borings, blasting is not anticipated for construction of LEU project components, including foundation installation. No portion of LEU project components overlies a current or former military installation (State of California Office of Governor Gavin Newsom 2022). Therefore, no unexploded ordnance is expected to be encountered. Operation and maintenance of the project would not require the use of explosives. As a result, LEU project components would not expose people to a significant risk of injury or death involving unexploded ordnance, resulting in no impact.

d) Would the project expose workers or the public to excessive shock hazards? *Less-than-Significant Impact.*

PG&E Potential Impact Discussion

The design and construction of PG&E project components would comply with federal and state regulations and standards. All authorized personnel working onsite during either construction or O&M would be trained according to OSHA safety standards (U.S. Department of Labor [DOL] 2019), which are based on applicable federal, state, and local safety regulations. To reduce shock hazards and avoid electrocution of workers or the public, PG&E would comply with the provisions found in Cal/OSHA Title 8 of the CCR, particularly the electrical health and safety regulations found in Chapter 4, Subchapter 5 in the Electrical Safety Orders, Sections 2700–2989, which are relevant to high-voltage work.

Existing infrastructure that may be susceptible to induced current is metallic in nature and, for the new PG&E Thurman Switching Station and expanded PG&E& Lockeford Substation, will be located within a station fence. A ground study will be performed to evaluate fault current conditions and a ground grid will be designed to lower the Ground Potential Rise (GPR) to meet the IEEE 80 guidelines for step and touch voltages inside and around the modified PG&E Lockeford Substation and new PG&E Thurman Switching Station. Some possible designs include the use of cooper ground grid, grounding the exterior fence, nonconductive fence panels, and ground wells. Any personnel with access will be properly trained according to PG&E standard practices. Other potential construction hazards include the presence of high-voltage, open-air conductors, which can create a high-temperature electrical arc between the electrical conductor and persons or objects. PG&E's power lines and station facilities are designed and constructed with grounding devices, and in the event of a lightning strike on a power line, this safety feature ensures that the strike is discharged to appropriate ground, and all workers will be trained in appropriate safety procedures, as described in APM HAZ-3.

To minimize potential exposure of the public to electric shock hazards, a 9-foot-tall chain-link fence topped with 1-foot of barbed wire would extend around the perimeter of the proposed PG&E Thurman Switching Station and the expanded PG&E Lockeford Substation, thereby restricting site access. The pedestrian and vehicle entrance into the stations will be gated and monitored remotely; thus, access would be restricted to only authorized personnel. Warning signs would be posted around the perimeter of

the stations' fence and gate to alert PG&E of potential electrical hazards. No change to the existing perimeter fence is expected to occur at PG&E Bellota, PG&E Brighton, PG&E Lodi, or PG&E Rio Oso substations or PG&E Clayton Hill Repeater Station.

As part of final design of the CPUC-approved transmission line route, PG&E will review parallel metal infrastructure such as pipeline and railroads. Typical design considerations include arranging the conductor phasing to minimize induction from a three-phase transmission line or adding a grounded conductor (a fourth wire on a short arm) under the three conductor phases along the side of the parallel metal infrastructure while maintaining all required code or specified clearances. Induced current on this grounded conductor generates a counter-electromotive force opposing the original field, thereby offsetting the net effect of induced voltage on the parallel metal infrastructure. Although not expected, a buried conductor can be used if the aerial solutions are not feasible or additional offsetting is needed. This buried conductor creates the same offsetting force as the aerial conductor but can be positioned even closer to the metal infrastructure, thereby being even more effective in reducing induced voltages. One advantage of the buried option is that it doesn't have the same aboveground clearance requirements and is often installed approximately 5 to 10 feet away from the edge of ballast, for example.

During O&M facilities inspections, station perimeter fencing would be examined, and repairs would be made as necessary. Because the station facilities are unstaffed, the project facilities would be remotely monitored by PG&E 24 hours a day, 7 days a week. If equipment malfunctions, existing PG&E O&M personnel would be available to be dispatched to the site to investigate the problem and take appropriate corrective action. PG&E has qualified operations personnel who are trained to avoid and minimize arc flash situations and are provided the appropriate arc flash personal protective equipment (PPE) (for example, fire resistant clothing, gloves, and insulated tools). Proper PPE would be required when anyone is in the facility. PG&E uses high-speed relay equipment that evaluates electrical fault locations and opens circuit breakers to de-energize the line in milliseconds. As such, impacts associated with exposure to workers and the public to excessive shock hazards would be less than significant.

LEU Potential Impact Discussion

The design and construction of LEU project components would comply with federal and state regulations and standards. All authorized personnel working onsite during either construction or O&M would be trained according to OSHA safety standards (U.S. DOL 2019), which are based on applicable federal, state, and local safety regulations. To reduce shock hazards and avoid electrocution of workers or the public, LEU would comply with the provisions found in Cal/OSHA Title 8 of the CCR, particularly the electrical health and safety regulations found in Chapter 4, Subchapter 5 in the Electrical Safety Orders, Sections 2700-2989, which are relevant to high voltage work.

The Lodi Water Facility to the west and the adjacent railroads on the north side of LEU Guild Substation could be susceptible to induced current. During final design, a ground study will be completed using a computer-aided ground modeling program to evaluate fault current conditions and a ground grid will be designed to lower the GPR to meet the IEEE 80 Guidelines for step and touch voltages inside and around the substation to reduce shock hazards and avoid electrocution of workers or the public. Some possible designs include the use of cooper ground grid, isolation fence panels, grounding the exterior fence, ground wells, and insulating rock layers. Along with reducing the GPR, the new ground grid will provide cathodic protection to the surrounding area.

Other potential construction hazards include the presence of high-voltage, open-air conductors, which can create a high-temperature electrical arc between the electrical conductor and persons or objects. LEU's power lines and station facilities are designed and constructed with grounding devices, and in the event of a lightning strike on a power line, this safety feature ensures that the strike is discharged to appropriate ground, and all workers will be trained in appropriate safety procedures, as described in BMP HAZ-3.

The existing LEU Industrial Substation perimeter fence will be modified with the installation of a pedestrian gate into the adjacent LEU Guild Substation fenced yard. To minimize potential exposure of the public to electric shock hazards, an 8-foot-tall chain-link fence topped with 1 to 2 feet of barbed wire would extend around the perimeter of the proposed LEU Guild Substation, thereby restricting site access. The pedestrian and vehicle entrance into the stations will be gated and monitored remotely; thus, access

would be restricted to only authorized personnel. Warning signs would be posted around the perimeter of the stations fence and gate to alert of potential electrical hazards.

During O&M facilities inspections, station perimeter fencing would be examined, and repairs would be made as necessary. Because the station facilities are unstaffed, the project facilities would be remotely monitored by LEU 24 hours a day, 7 days a week. If equipment malfunctions, existing LEU O&M personnel would be available to be dispatched to the site to investigate the problem and take appropriate corrective action. LEU has qualified operations personnel who are trained to avoid and minimize arc flash situations and are provided the appropriate arc flash PPE (for example, fire resistant clothing, gloves, and insulated tools). Proper PPE would be required when anyone is in the facility. LEU uses high-speed relay equipment that evaluates electrical fault locations and opens circuit breakers to de-energize the line in milliseconds. As such, impacts associated with exposure to workers and the public to excessive shock hazards would be less than significant.

5.10 Hydrology and Water Quality

This section describes existing conditions and potential impacts to hydrological resources, water quality, and flood control as a result of construction, operation, and maintenance of the project. The analysis concludes that impacts will be less than significant in these areas; the implementation of APMs and BMPs described in Section 5.10.4 will further reduce less-than-significant impacts. The project's potential effects on hydrology, water quality, and flood control were evaluated using the significance criteria set forth in Appendix G of the CEQA Guidelines. Project description information and potential impacts are organized and discussed by each participating utility's portion of the project. The conclusions are summarized in Table 5.10-1 and discussed in more detail in Section 5.10.4.

5.10.1 Methodology and Environmental Setting

Methodology and environmental setting focus on the main project components in northeastern San Joaquin County. The Pacific Gas and Electric Company's (PG&E's) end substations and telecommunication tower within a repeater station will be minor modifications within facility fence lines. PG&E's work at remote stations is assessed where potential for impacts is anticipated for a minor facility modification activity.

5.10.1.1 Methodology

Information on surface water and groundwater in the project area was obtained from published studies prepared by state, county, and local water and related agencies, including the following:

- San Joaquin County General Plan (San Joaquin County 2016)
- *City of Lodi General Plan* (City of Lodi 2010a, 2010b)
- California Department of Water Resources (DWR)
- Eastern San Joaquin Groundwater Authority (ESJGA)
- Federal Emergency Management Agency (FEMA)
- Northern San Joaquin Water Conservation District (NSJWCD)
- U.S. Environmental Protection Agency (EPA)
- U.S. Geological Survey (USGS)

5.10.1.2 Regional Setting

The main project components (project or project area) are in northeastern San Joaquin County and in the eastern portion of the City of Lodi within the Central Valley of California. The Central Valley is bounded by the Cascade Range to the north, the Sierra Nevada Range to the east, the Tehachapi Mountains to the south, and the Coast Ranges and San Francisco Bay to the west. The Central Valley's northern valley is the Sacramento River Hydrologic Region and the southern valley is the San Joaquin Valley, with its San Joaquin River Hydrologic Region and Tulare Lake Region (DWR 2020). The central area is the Delta where the Sacramento and San Joaquin Rivers meet. The combined discharge of the Sacramento and San Joaquin Rivers flows through the Central Valley's one natural outlet, the Carquinez Strait, on its way to San Francisco Bay and the Pacific Ocean (USGS 2022a). The project is within the Eastside Streams area where several streams from the Sierra Nevada Range flow west to the Delta area (USGS 2022b).

The Delta and Eastside Streams area includes most of Sacramento and San Joaquin counties and some areas of Alameda, Amador, Calaveras, Contra Costa, Solano, Stanislaus, and Yolo counties. This area is drained toward the Delta by the Sacramento, San Joaquin, Consumes, Mokelumne, and Calaveras rivers. With multiple rivers coming together, the Delta is an estuary instead of a typical delta that is one river expanding outside of its channel width (USGS 2022c).

The project is entirely within the Eastern San Joaquin Subbasin of the San Joaquin Valley Hydrologic Region (DWR 2020) as shown on Figure 5.10-1. The Consumes Subbasin of the San Joaquin Valley Groundwater Basin is north of the Mokelumne River.

The local topography generally is flat with rolling hills rising to the east. Elevation ranges from approximately 135 feet above sea level at the eastern end of the project to approximately 60 feet above sea level at the western end of the project.

The majority of the project area consists of agricultural lands with some isolated rural residential and single-family residential land use throughout San Joaquin County. The land uses are predominantly industrial where the project is within the City of Lodi.

5.10.1.3 Climate

The project area is in a Mediterranean-type climate zone typical of central California. This zone is characterized by cool, wet winters and hot, dry summers, with winds typically blowing from the northwest. Typical of the San Joaquin Valley, the project site is situated in the rain shadow of the Coast Ranges, resulting in average annual precipitation of 13.45 inches in the Stockton area between 1991 and 2020 (NOAA 2022). Periods of abundant rainfall and prolonged droughts are frequent in the historical record.

5.10.1.4 Waterbodies

The project area is south of the Mokelumne River (refer to Figure 5.10-2). Regionally, the Mokelumne River and streams drain to the San Joaquin River, or some steams drain to closed basins in the San Joaquin Valley. All but the larger streams are dry during the summer. Much of the natural hydrology in the vicinity of the project has been altered by channel realignments, diversions for irrigation, and other water control measures. Surface hydrology within the project area is influenced primarily by stormwater runoff into drainage channels, some of which then drain to larger linear features. Paddy Creek drains westward to Bear Creek, which continues flowing to the southwest. Bear Creek outlets into Pixley Slough approximately 9 miles southwest of the project area, which then drains to the San Joaquin River.

The dominant hydrologic features within the project area include the intermittent Paddy Creek and the perennial Bear Creek, as well as constructed irrigation pipeline, canals, and ditches, as shown on Figure 5.10-2. PG&E poles, or PG&E or LEU station areas, will not be located within these waterbodies; however, the project's new PG&E 230 kV transmission line will cross over Paddy Creek, Bear Creek, and several irrigation features.

The project traverses the Lower Mokelumne River, Middle River-San Joaquin River, and Bear Creek watersheds and is within 3 miles of the Calaveras River and Fivemile Creek-San Joaquin River watersheds, as shown on Figure 5.10-3. The Calaveras River and Fivemile Creek-San Joaquin River watersheds drain south away from the project toward and through the City of Stockton. The drainage basin of the Lower Mokelumne River watershed encompasses more than 221 square miles north of the Comanche Reservoir to the San Joaquin River. The drainage basin of the Middle River-San Joaquin River watershed includes approximately 212 square miles and is mainly to west-southwest of the project area, where the San Joaquin River enters the Delta and joins the Sacramento River. The drainage basin of the Bear Creek watershed covers about 127 square miles from south of the Comanche Reservoir to north of Stockton (CWIP 2022). The existing LEU Industrial Substation, the new LEU Guild Substation, the new PG&E Thurman Switching Station, the existing PG&E 60 kV lines, and about 0.5 mile of the westernmost end of the new PG&E 230 kV transmission line, Lockeford-Thurman, all lie in a southern portion of the Lower Mokelumne River watershed (Figure 5.10-3). Moving eastward along the proposed PG&E Lockeford-Thurman Line, about 1.8 miles of the new line is in the Middle River-San Joaquin River watershed. The eastern portion of PG&E's Lockeford-Thurman Line (about 4.25 miles), PG&E Lockeford Substation, and all of the new PG&E Brighton/Bellota-Lockeford line is within the Bear Creek watershed. For a description of wetlands in the project area, refer to Section 5.4, Biological Resources.

Paddy and Bear Creeks

The proposed PG&E Brighton/Bellota-Lockeford Line crosses Paddy Creek approximately 0.7 mile east of PG&E Lockeford Substation and PG&E's proposed Lockeford-Thurman Line crosses Bear Creek approximately 1.3 miles southwest of PG&E Lockeford Substation. Both creeks are within the Bear Creek watershed. Where the proposed PG&E transmission line crosses these creeks, the creeks are concrete-lined with levees. Paddy Creek originates as a natural stream about 3.5 miles east of the eastern end of the project at PG&E's Brighton-Bellota Line. The drainage area of the segment of Paddy Creek that traverses the project area is 14.45 square miles (EPA 2019a). After crossing the project area, Paddy Creek becomes channelized as it converges with the Middle Paddy and South Paddy creeks prior to connecting to Bear Creek.

Where the PG&E transmission line crosses over non-navigable canals or waterways, the PG&E 230 kV crossings will be designed to meet the GO 95 vertical clearance requirement of 28 feet. PG&E Brighton-Bellota Line extension (E17-E18) will cross over the channelized Paddy Creek and PG&E Thurman-Lockeford Line (W10-W11) will cross over the channelized Bear Creek. These two creeks are CVFPB regulated streams and federal levees. The planned vertical clearance exceeds the Title 23 (23 CCR Section 120 and Section 123) vertical clearance requirement of 25 feet for aerial levee crossings of power lines that are more than 75 kV. Additionally, the PG&E 230 kV structures and temporary work areas are all designed to be more than 25 feet from the landward side of the landside levee toe to each side of the channelized non-navigable canals, which exceeds the Title 23 distance of 10 feet. PG&E 230 kV structures are setback from the landside toe of the channelized creeks with structure E18 at approximately 100 feet, structure W7 at approximately 160 feet, structure W9 at approximately 290 feet, and structure W11 at approximately 60 feet.

Bear Creek originates in the region near Valley Springs, California. It runs downstream for 45 miles and is a tributary to the San Joaquin River. Bear Creek has levee improvements on both banks upstream to the confluence of Paddy Creek. The segment of Bear Creek in the project area has a watershed drainage area of 80.61 square miles (EPA 2019b). Refer to Table 5.10-1.

Table 5.10-1. Waterbodies in the Project Area

Waterbody Name	Distance from, and Name of Nearest Project Component	Waterbody Type	Water Quality Classification
Paddy Creek	Approximately 100 feet from levee slope toe to PG&E Brighton/Bellota-Lockeford Structure E18, at milepost 3.20 from the east end of the alignment	Ephemeral	n/a
Bear Creek	Approximately 65 feet from levee slope toe to PG&E Lockeford-Thurman Structure W11, at milepost 5.24 from the east end of the alignment	Perennial	n/a

Note:
n/a = not applicable

Other Irrigation Canals/Pipelines

The project is within the NSJWCD. There are no District canals in the project vicinity; however, the NSJWCD – along with San Joaquin County, East Bay Municipal Utility District, and Eastern Water Alliance – developed a piping system to move water from the Mokelumne River's South Pump Station to farmers for irrigation through the South Pipeline, which traverses agricultural areas east of the City of Lodi. These canals/pipes provide an important source of water for the surrounding agricultural lands. The PG&E 230 kV transmission line, Lockeford-Thurman, would cross the South Pipeline aboveground near PG&E Structure W22 along an existing farm road between Alpine Road and North Locust Tree Road, north of Harney Lane (NSJWCD 2020).

Pixley Slough

Pixley Slough is a stream tributary to the San Joaquin River and the Sacramento-San Joaquin River Delta. It originates at Bear Creek south of East Harney Lane and near SR 88 (refer to Figure 5.10-2). Pixley Slough is approximately 2 miles south of the proposed PG&E Lockeford-Thurman Line and PG&E's Lockeford Substation. Pixley Slough is within the Bear Creek watershed (refer to Figure 5.10-3).

Mokelumne River

The Mokelumne River is a major tributary of the Sacramento-San Joaquin River Delta that meanders north of the project site and is approximately 0.5 mile north of the northernmost point of the project, the northern end of PG&E's Industrial Tap 60 kV line in Lodi. Its headwaters lie at the Camanche Reservoir and it flows westward from its source in the central Sierra Nevada Range through San Joaquin County, meandering westward into the San Joaquin River approximately 22 miles west of the project (refer to Figure 5.10--2).

5.10.1.5 Flooding

FEMA administers the National Flood Insurance Program (NFIP), which subsidizes flood insurance to communities that limit development in floodplains. As part of this program, FEMA maps all U.S. areas that fall within a 100-year floodplain (that is, areas with a greater-than-1% annual probability of flooding). Flood hazard areas identified on the Flood Insurance Rate Map (FIRM) are identified as a special flood hazard area (SFHA), which is defined as the area that will be inundated by the flood event having a 1% chance of being equaled or exceeded in any given year. The 1% annual-chance flood also is referred to as the base flood or 100-year flood and the area is labeled as a FEMA Zone A type. Moderate flood hazard areas, labeled Zone B or Zone X (shaded), also are shown on the FIRM and are the areas between the limits of the base flood and the 0.2% annual-chance flood (or 500-year flood). The flood hazards of the project area are shown on Figure 5.10-4.

The eastern extent of the project, from the eastern endpoint at PG&E's Brighton-Bellota Line to PG&E's proposed Brighton/Bellota-Lockeford Structure E15, is in FEMA Zone X, which is an area of minimal flood hazard determined to be outside the 0.2% annual-chance floodplain (FEMA 2021). Moving westward, PG&E proposed Brighton/Bellota-Lockeford Structures E15, E16, and E17 are within FEMA Zone A, an SFHA without base flood elevation. Structure E18 is within a regulatory floodway Zone AH, an area subject to inundation by 1% annual chance of shallow flooding (usually areas of ponding) where average depths are between 1 and 3 feet. The project is again within a FEMA Zone X (that is within the 0.2% annual-chance floodplain) from PG&E's Brighton/Bellota-Lockeford Structure E19 into PG&E's Lockeford Substation. As the PG&E Lockeford-Thurman Line leaves PG&E's Lockeford Substation, Structures W2, W3, W4, W5, and W11 are within a FEMA Zone X, that is an area with reduced flood risk because of the Bear Creek – Paddy Creek west bank levee. PG&E Lockeford-Thurman Structures W6, W7, W8, W9, and W10 are within FEMA Zone AH again. West of SR 88, the PG&E Lockeford-Thurman Line (Structures W12 to W18) again enters FEMA Zone X within the 0.2% annual-chance floodplain. Moving west, the PG&E Lockeford-Thurman Line traverses back into FEMA Zone X outside of the 0.2% annual-chance floodplain from Structure W19 near North Locust Road to Structure W33 near Curry Avenue. From PG&E Structure W34, where the new Lockeford-Thurman Line turns north, the proposed PG&E line is in FEMA Zone X (with 0.2% annual-chance floodplain) along with the PG&E 60 kV lines, proposed PG&E Thurman Switching Station, proposed LEU Guild Substation, and existing LEU Industrial Substation within the City of Lodi.

5.10.1.6 Water Quality

Paddy and Bear Creeks are not on the Section 303(d) impaired waters list. San Joaquin River is on the Section 303(d) impaired waters list for segments upstream of the confluence with Bear Creek. No known downstream segments of the San Joaquin River are on the Section 303(d) impaired waters list.

5.10.1.7 Groundwater Basin

The project is entirely within the Eastern San Joaquin Groundwater Subbasin of the San Joaquin Groundwater Basin. The state-designated subbasin (basin number 5-022.01) is west of the Sacramento-

San Joaquin River Delta and is bounded by the Sierra Nevada foothills to the east, the San Joaquin River to the west, Dry Creek to the north, and the Stanislaus River to the south. In the eastern part of the subbasin, groundwater flows from east to west and generally mirrors the eastward-sloping topography of the geologic formations. In the western part of the subbasin, groundwater flows eastward toward areas with relatively lower groundwater elevation (San Joaquin County Department of Public Works 2004). Groundwater levels in some areas of the subbasin have declined over the years, while groundwater levels in other areas within the subbasin were stable or increased within recent years (ESJGA 2022). For example, the central portion of the subbasin experienced the greatest declines in groundwater levels while the western and southern portions of the subbasin experienced less change in groundwater levels because of lower groundwater pumping in the western subbasin and the use of surface water for agricultural and urban uses (ESJGA 2022). The location of the project within the basin and the subbasin is shown on Figure 5.10-1.

5.10.1.8 Groundwater Wells and Springs

Within 150 feet of the project, one municipal groundwater well and one water supply well were identified, as shown on Figure 5.10-5 (SWRCB 2021). The municipal well is immediately south of LEU's Industrial Substation at a City of Lodi well tank and pump station, and the water supply well is mapped west of PG&E's Lockeford-Thurman Line near Structure W42. A potential irrigation well, observed during field reviews in 2019 along North Jory Road, would be avoided by the span between PG&E's Brighton/Bellota-Lockeford Structures E9-E10. The nearest spring is approximately 3.8 miles to the northeast of the project (USGS 2023).

5.10.1.9 Groundwater Management

In 2014, the California legislature enacted the Sustainable Groundwater Management Act (SGMA) in response to continued overdraft of California's groundwater resources. The Eastern San Joaquin Groundwater Subbasin is one of 21 basins and subbasins identified by the California DWR as being in a state of critical overdraft. SGMA requires preparation of a Groundwater Sustainability Plan (GSP) to address measures necessary to attain sustainable conditions in the subbasin. The ESJGA was formed in 2017 in response to SGMA. SGMA requires development of a GSP that achieves groundwater sustainability in the subbasin by 2040. The GSP outlines the need to reduce overdraft conditions and has identified 23 projects for potential development that either replace groundwater use (offset) or supplement groundwater supplies (recharge) to meet current and future water demands (ESJGA 2019).

Groundwater resources in the Eastern San Joaquin Groundwater Subbasin have not been adjudicated. The ESJGA developed the *Eastern San Joaquin Groundwater Sustainability Plan* (Eastern San Joaquin GSP) to meet SGMA regulatory requirements by the January 31, 2020, deadline for critically overdrafted basins, while reflecting local needs and preserving local control over water resources. The Eastern San Joaquin GSP provides a path to achieve and document sustainable groundwater management within 20 years following adoption, promoting the long-term sustainability of locally managed groundwater resources now and into the future. Groundwater sustainability agencies within the project area include the City of Lodi and NSJWCD (ESJGA 2019). DWR determined the Eastern San Joaquin GSP to be incomplete in January 2022 (DWR 2022). Subsequently, in March 2023, DWR informed San Joaquin County Public Works that staff anticipate recommending approval of the resubmitted Eastern San Joaquin GSP (DWR 2023). The Eastern San Joaquin GSP has established a network of monitors to evaluate progress on sustainable management criteria. Groundwater elevations generally decreased throughout the Water Year (WY) 2021 for almost all wells in the representative monitoring network with groundwater level data available; no wells reported groundwater levels below the minimum thresholds established in the GSP (ESJGA 2022). From the beginning to the end of WY 2021, storage in the Eastern San Joaquin Subbasin decreased by 157,000 acre-feet (AF). This volume represents about 0.3% of the total fresh groundwater in storage, which was estimated to be more than 50 million acre-feet (MAF) in 2015 (ESJGA 2022).

The City of Lodi's primary source of water is groundwater that it pumps using 28 groundwater production wells distributed throughout the water service area. The 28 wells, which draw from the Eastern San Joaquin Groundwater Subbasin, have a combined capacity of 38,355 gallons per minute, with a maximum capacity at this rate of approximately 62,000 AFY (City of Lodi 2021). The wells operate automatically on

water pressure demand and pump directly into the distribution system. In 2020, the City pumped 7,475 AF of groundwater.

5.10.2 Regulatory Setting

5.10.2.1 Federal

Clean Water Act Section 303(d)

Section 303(d) of the CWA (33 USC 1251-1376) requires states, territories, and authorized tribes to develop a list of impaired waters within their boundaries that do not meet water quality standards and objectives, even after point sources of pollution have installed the minimum required levels of pollution control technology. The Section 303(d) list is the state's list of impaired and threatened waters (stream/river segments, lakes). States are required to submit their lists for EPA consideration every 2 years. For each water on the list, the state identifies the pollutant causing the impairment, when known. The law further requires that these jurisdictions establish priority rankings for waters on the list and develop action plans, called Total Maximum Daily Loads, to improve water quality (SWRCB 2012). The RWQCBs and the SWRCB implement this federal regulation in California.

Clean Water Act Section 401

Under CWA Section 401, a federal agency may not issue a permit or license to conduct any activity that may result in any discharge into waters of the United States unless a Section 401 water quality certification is issued, or certification is waived. States and authorized tribes where the discharge would originate are generally responsible for issuing water quality certifications. Major federal licenses and permits subject to Section 401 include CWA Section 402 and Section 404 permits issued by EPA or the USACE. In making decisions to grant, grant with conditions, or deny certification requests, certifying authorities consider whether the federally licensed or permitted activity will comply with applicable water quality standards, effluent limitations, new source performance standards, toxic pollutant restrictions, and other appropriate water quality requirements of state or tribal law.

Clean Water Act Section 402

Under CWA Section 402 (33 USC 1251 et seq.), the National Pollutant Discharge Elimination System (NPDES) controls water pollution by regulating point sources of pollution to waters of the U.S. The SWRCB administers the NPDES permit program in California. Projects that disturb 1 acre or more of soil are required to obtain coverage under the state NPDES General Permit for Discharges of Stormwater Associated with Construction Activity. An SWPPP must be developed and implemented for each project covered by the Construction General Permit (CGP). The SWPPP must include best practices that are designed to reduce potential impacts to surface water quality during project construction and operation.

Some local agencies operate stormwater systems under a federal municipal separate storm sewer system (MS4) permit issued by the SWRCB and/or RWQCB. To comply with the permit, the local agency may impose post-construction stormwater requirements for new facilities, such as substations, through municipal ordinances and regulations. The City of Lodi's Stormwater Management Program requires construction site runoff control for sites disturbing more than 1 acre to be managed through development, implementation, and enforcement of a program to reduce pollutants in any stormwater runoff (City of Lodi 2012). If stormwater runoff from utility projects cannot be infiltrated onsite, the City of Lodi's *Post Construction Stormwater Standards Manual* requires excess stormwater runoff from newly created impervious surfaces greater than 5,000 contiguous square feet to be managed through the use of practices identified in the EPA's *Managing Wet Weather with Green Infrastructure Municipal Handbook Green Streets* (EPA 2021). A Project Stormwater Plan is required for a Hydromodification Management Project (a project creating more than or equal to1 acre of impervious surface) as a part of the Operations and Maintenance Plan to design for and control stormwater (Cities 2015). Although PG&E will comply with stormwater requirements derived from state and federal law, local ordinances do not otherwise apply to the project.

Clean Water Act Section 404

CWA Section 404 establishes a program to regulate the discharge of dredged or fill material into waters of the United States, including wetlands. Activities in waters of the United States regulated under this program include fill for development, water resource projects (such as dams and levees), infrastructure development (such as highways and airports) and mining projects. Section 404 requires a permit before dredged or fill material may be discharged into waters of the United States, unless the activity is exempt from Section 404 regulation. No discharge of dredged or fill material may be permitted if a practicable alternative exists that is less damaging to the aquatic environment or if the nation's waters would be significantly degraded.

National Flood Insurance Program

FEMA is responsible for determining flood elevations and floodplain boundaries based on USACE studies. FEMA also is responsible for distributing the FIRMs used in the NFIP (42 USC Chapter 50, Section 4102). These maps identify the locations of SFHAs, including 100-year floodplains. FEMA allows nonresidential development in the floodplain; however, FEMA has criteria to "… constrict the development of land which is exposed to flood damage where appropriate" and to "… guide the development of proposed construction away from locations which are threatened by flood hazards." Federal regulations governing development in a floodplain are set forth in 44 CFR Part 60, enabling FEMA to require municipalities that participate in the NFIP to adopt certain flood hazard reduction standards for construction and development in 100-year floodplains.

Oil Pollution Prevention Regulation

Originally published in 1973 under the authority of Section 311 of the CWA, the Oil Pollution Prevention regulation sets forth requirements for the prevention of, preparedness for, and response to oil discharges at specific nontransportation-related facilities that store oil at certain volume thresholds (total aggregate capacity of aboveground oil storage containers is greater than 1,320 gallons or completely buried storage tanks is greater than 42,000 gallons). The goal of this regulation (40 CFR 112) is to prevent oil from reaching navigable waters and adjoining shorelines, and to contain discharges of oil. The regulation requires these facilities to develop and implement SPCC plans and establishes procedures, methods, and equipment requirements.

5.10.2.2 State

Porter-Cologne Water Quality Control Act (California Water Code, Division 7)

Under this state law, the SWRCB has authority over state waters and water quality. "Waters of the state" are defined as "any surface water or groundwater, including saline waters, within the boundaries of the state" (California Water Code Section 13050[e]). Examples include rivers, streams, lakes, bays, marshes, mudflats, unvegetated and seasonally ponded areas, drainage swales, sloughs, wet meadows, natural ponds, vernal pools, diked baylands, seasonal wetlands, and riparian woodlands. The RWQCBs have local and regional authority. The Central Valley RWQCB has authority in the project area. The RWQCBs prepare and periodically update Basin Plans (water quality control plans), which establish:

- Beneficial uses of water designated for each protected waterbody
- Water quality standards for both surface water and groundwater
- Actions necessary to maintain these water quality standards

Projects that will discharge waste to waters of the state must file a report of waste discharge with the appropriate RWQCB, if the discharge could affect the quality of waters of the state (Article 4, Section 13260). The RWQCB will issue waste discharge requirements or a waiver of the waste discharge requirements for the project. The requirements will implement any relevant water quality control plans that have been adopted and must take into consideration the beneficial uses to be protected and the water quality objectives reasonably required for that purpose (Article 4, Section 13263).

Fish and Game Code, Section 1602

This section of California law protects the natural flow, bed, channel, and bank of any river, stream, or lake under the jurisdiction of the CDFW. Notification to CDFW is required for activities that would:

- Substantially divert or obstruct the natural flow of a jurisdictional river, stream, or lake
- Substantially change or use material from the bed, channel, or bank of a jurisdictional river, stream, or lake
- Deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it can flow into a river, stream, or lake

CDFW reviews the notification and determines if the activity may substantially adversely affect fish and wildlife resources. If so, CDFW will issue a Streambed Alteration Agreement for the activity.

Fish and Game Code, Section 5650

This section of California law makes is unlawful to deposit in, to permit to pass into, or to place where it can pass into waters of the state specific pollutants or any substance or material deleterious to fish, plant life, mammals, or bird life.

Central Valley Water Quality Control Plan

The objective of the *Central Valley Water Quality Control Plan* for the Central Valley Region, the Sacramento River Basin, and the San Joaquin River Basin (RWQCB 2019) is to guide how the quality of surface and groundwaters in the region should be managed. The Basin Plan identifies various beneficial water uses and the water quality that must be maintained to allow those uses to continue. The Basin Plan also describes an implementation plan necessary to achieve the standards established in the plan and summarizes SWRCB and RWQCB plans and policies to protect water quality. The Central Valley RWQCB implements the plan by issuing and enforcing waste discharge requirements based on either state waste discharge requirements or federally delegated NPDES permits for discharges to surface water.

Urban Water Management Planning Act

California's DWR reviews submitted Urban Water Management Plans (UWMPs) that are prepared by urban water suppliers every 5 years. These plans support the suppliers' long-term resource planning to ensure that adequate water supplies are available to meet existing and future water needs. The requirements for UWMPs are found in California Water Code, Section 10608 and Section 10610 through 10656. Every urban water supplier that either provides more than 3,000 acre-feet of water annually or serves more than 3,000 urban connections is required to submit a UWMP. Urban water suppliers must meet the following criteria in their UWMPs:

- Assess the reliability of water sources over a 20-year planning time frame.
- Describe demand management measures and water shortage contingency plans.
- Report progress toward meeting a targeted 20% reduction in per-capita (per-person) urban water consumption by the year 2020.
- Discuss the use and planned use of recycled water.

The information collected from the submitted UWMPs is useful for local, regional, and statewide water planning.

Sustainable Groundwater Management Act

In September 2014, legislation was passed to strengthen local management and monitoring of groundwater basins most critical to the state's water needs. The SGMA prioritizes groundwater basins that currently are overdrafted and sets a timeline for implementation:

- By 2017, local groundwater management agencies must be identified.

- By 2020, overdrafted groundwater basins must have sustainability plans.
- By 2022, other high- and medium-priority basins not currently in overdraft must have sustainability plans.
- By 2040, all high- and medium-priority groundwater basins must achieve sustainability.

The SGMA also provides measurable objectives and milestones to reach sustainability and a state role of limited intervention when local agencies are unable or unwilling to adopt sustainable management plans.

5.10.2.3 Local

Because the CPUC has exclusive jurisdiction over project siting, design, and construction, PG&E's portion of the project is not subject to local (city and county) discretionary regulations except for air districts and CUPAs with respect to air quality and hazardous waste regulations. However, local plans and policies are considered for informational purposes and to assist with the CEQA review process.

The City of Lodi is a local agency and must comply with its own local plans and policies. The Public Works Department of the City of Lodi and the San Joaquin County Department of Public Works both require and enforce standards contained in the California Building Code related to grading and construction, including those that may directly or indirectly affect surface water quality by contributing to erosion or siltation or alter existing drainage patterns.

Eastern San Joaquin Groundwater Sustainability Plan

As discussed in Section 5.10.1.9, the ESJGA developed the Eastern San Joaquin GSP to meet SGMA regulatory requirements by the January 31, 2020, deadline for critically overdrafted basins, while reflecting local needs and preserving local control over water resources. In March 2023, DWR informed San Joaquin County Public Works that staff anticipate recommending approval of the resubmitted Eastern San Joaquin GSP, which includes sustainable management criteria, defines monitoring networks and data management systems, and identifies projects for implementation.

5.10.3 Impact Questions

The project's potential effects on hydrology and water quality were evaluated using the significance criteria set forth in Appendix G of the CEQA Guidelines. The criteria and conclusions are summarized in Table 5.10-2 and discussed in more detail in Section 5.10.4.

Table 5.10-2. CEQA Checklist for Hydrology and Water Quality

Would the project:	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
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?	☐	☐	☐	☒

Would the project:	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:	☐	☐	☒	☐
i. result in substantial erosion or siltation on- or off-site	☐	☐	☒	☐
ii. substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site	☐	☐	☒	☐
iii. create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or	☐	☐	☒	☐
iv. impede or redirect flood flows?	☐	☐	☒	☐
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	☐	☐	☒	☐
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☐	☐	☒	☐

5.10.3.1 Additional CEQA Impact Questions

None.

5.10.4 Potential Impacts Analysis

The following subsections describe significance criteria for hydrology and water quality impacts derived from Appendix G of the CEQA Guidelines; provide APMs and BMPs; and assess potential project-related construction, operation, and maintenance impacts on hydrology and water resources. The impact discussion is organized to describe the effects that each participating utility's portion of the project has on the environment.

5.10.4.1 Significance Criteria

According to Section 15002(g) of the CEQA Guidelines, "a significant effect on the environment is defined as a substantial adverse change in the physical conditions which exist in the area affected by the proposed project." As stated in Section 15064(b) of the CEQA Guidelines, the significance of an activity may vary with the setting. Per Appendix G of the CEQA Guidelines, the potential significance of project-related impacts on hydrology and water quality resources were evaluated for each of the criteria listed in Table 5.10-2, as discussed in Section 5.10.4.3.

5.10.4.2 Applicant-Proposed Measures and Best Management Practices

The project will implement the following APMs and BMPs:

APM HYD-1: Prepare and Implement an SWPPP for PG&E Project Components. Stormwater discharges associated with project construction activities are regulated under the CGP. Cases in which construction will disturb more than 1 acre of soil require submittal of a Notice of Intent, development of an SWPPP (both certified by the Legally Responsible Person), periodic monitoring and inspections, retention of monitoring records, reporting of incidences of noncompliance, and submittal of annual compliance reports. PG&E will comply with all CGP requirements for construction of PG&E project components.

Following project approval, PG&E will prepare and implement a SWPPP, which will address erosion and sediment control concerns to minimize construction impacts on surface water quality, as well as reduce the potential for stormwater runoff to impact adjacent properties. The SWPPP will be designed specifically for the hydrologic setting of the proposed project (surface topography, storm drain configuration, and other factors) at PG&E project components. Implementation of the SWPPP will help stabilize graded areas and reduce erosion and sedimentation. The SWPPP will propose best practices that will be implemented during construction activities. Erosion and sediment control measures– such as straw wattles, erosion control blankets, and silt fences – will be installed in compliance with the SWPPP. Suitable soil stabilization measures will be used to protect exposed areas during construction activities, as specified in the SWPPP. During construction activities, measures will be implemented to reduce exposure of construction materials and wastes to stormwater. Measures will be installed following manufacturer's specifications and according to standard industry practice.

Erosion and sediment control measures may include the following:

- Straw wattle, silt fence, or gravel bag berms
- Trackout control at all entrances and exits
- Stockpile management
- Effective dust control measures
- Good housekeeping measures
- Stabilization measures, which may include wood mulch, gravel, and/or seeding

Identified erosion and sediment control measures will be installed prior to the start of construction activities and will be inspected and improved as required by the CGP Temporary sediment control measures intended to minimize sediment transport from temporarily disturbed areas such as silt fences or wattles will remain in place until disturbed areas are stabilized. In areas where soil is to be temporarily stockpiled, soil will be placed in a controlled area and will be managed using industry-standard stockpile management techniques. Where construction activities occur near a surface waterbody or drainage channel, the staging of construction materials and equipment and excavation spoil stockpiles will be placed and managed in a manner to minimize the risk of sediment transport to the drainage. Any surplus soil will be transported from the site and disposed of in accordance with federal, state, and local regulations.

The SWPPP will identify areas where refueling and vehicle-maintenance activities and storage of hazardous materials will be permitted, if necessary. A copy of the SWPPP will be provided to CPUC for recordkeeping. The plan will be maintained and updated during construction as required by the CGP.

BMP HYD-1: Prepare and Implement an SWPPP for LEU Project Components. Stormwater discharges associated with project construction activities are regulated under the CGP. Cases in which construction will disturb 1 acre or greater of soil require submittal of a Notice of Intent, development of an SWPPP (both certified by the Legally Responsible Person), periodic monitoring and inspections, retention of monitoring records, reporting of incidences of noncompliance, and submittal of annual compliance reports. LEU will comply with all CGP requirements for construction of LEU project components.

Following project approval, LEU will prepare and implement a SWPPP, which will address erosion and sediment control concerns to minimize construction impacts on surface water quality, as well as reduce the potential for stormwater to impact adjacent properties. The SWPPP will be designed specifically for the hydrologic setting of the proposed project (surface topography, storm drain configuration, and other factors) at LEU project components. Implementation of the SWPPP will help stabilize graded areas and

reduce erosion and sedimentation. The SWPPP will propose best practices that will be implemented during construction activities. Erosion and sediment control measures – such as straw wattles, erosion control blankets, and silt fences – will be installed in compliance with the CGP. Suitable soil stabilization measures will be used to protect exposed areas during construction activities, as specified in the SWPPP. During construction activities, measures will be implemented to reduce exposure of construction materials and wastes to stormwater. Measures will be installed following manufacturer's specifications and according to standard industry practice.

Erosion and sediment control measures may include the following:

- Straw wattle, silt fence, or gravel bag berms
- Trackout control at all entrances and exits
- Stockpile management
- Effective dust control measures
- Good housekeeping measures
- Stabilization measures, which may include wood mulch, gravel, and/or seeding

Identified erosion and sediment control measures will be installed prior to the start of construction activities and will be inspected and improved as required by the CGP. Temporary sediment control measures intended to minimize sediment transport from temporarily disturbed areas such as silt fences or wattles will remain in place until disturbed areas are stabilized. In areas where soil is to be temporarily stockpiled, soil will be placed in a controlled area and will be managed using industry-standard stockpile management techniques. Where construction activities occur near a surface waterbody or drainage channel, the staging of construction materials and equipment and excavation spoil stockpiles will be placed and managed in a manner to minimize the risk of sediment transport to the drainage. Any surplus soil will be transported from the site and disposed of in accordance with federal, state, and local regulations.

The SWPPP will identify areas where refueling and vehicle-maintenance activities and storage of hazardous materials will be permitted, if necessary. The plan will be maintained and updated during construction as required by the CGP.

APM HYD-2: PG&E Worker Environmental Awareness Program. The PG&E worker environmental awareness program will be developed and provided separately to CPUC staff prior to construction. The worker environmental awareness program will communicate environmental issues and appropriate work practices specific to PG&E project components to all field personnel. These will include spill prevention and response measures and proper implementation of best practices. A copy of the PG&E worker environmental awareness program record will be provided to CPUC for recordkeeping at the completion of the project. A PG&E environmental monitoring program also will be implemented to ensure that the plans are followed throughout the construction period for PG&E project components.

BMP HYD-2: LEU Worker Environmental Awareness Program. LEU's worker environmental awareness program will communicate environmental issues and appropriate work practices specific to LEU project components to all field personnel. These will include spill prevention and response measures and proper implementation of best practices. An LEU environmental monitoring program also will be implemented to ensure that the plans are followed throughout the construction period for LEU project components.

APM HYD-3: Project Site Restoration. As part of the final construction activities, PG&E will restore all removed curbs and gutters, repave, and restore landscaping or vegetation as necessary for its portion of the project.

BMP HYD-3: Project Site Restoration. As part of the final construction activities, LEU will restore all removed curbs and gutters, repave, and restore landscaping or vegetation as necessary for its portion of the project.

APM HYD-4: SPCC Plan for PG&E Thurman Switching Station and SPCC Plan Modification for PG&E Lockeford Substation. PG&E will prepare an SPCC plan for PG&E Thurman Switching Station for implementation during operation, and the existing PG&E Lockeford Substation SPCC Plan will be modified prior to operation of the expanded facility, as required by applicable regulations (40 CFR 112). An SPCC plan includes engineered and operational methods for preventing, containing, and controlling potential releases (for example, construction of a retention pond, moats, or berms) as well as provisions for quick and safe cleanup.

BMP HYD-4: SPCC Plan for LEU Guild Substation and SPCC Plan Modification for LEU Industrial Substation. LEU will prepare an SPCC plan for LEU Guild Substation for implementation during operation, and the existing LEU Industrial Substation SPCC Plan will be modified prior to operation of the expanded facility, as required by applicable regulations (40 CFR 112). An SPCC plan includes engineered and operational methods for preventing, containing, and controlling potential releases (for example, construction of a retention pond, moats, or berms) as well as provisions for quick and safe cleanup.

APM HYD-5: Project Stormwater Plan for PG&E Thurman Switching Station. PG&E will prepare a Project Stormwater Plan for PG&E's Thurman Switching Station to submit to the City of Lodi as part of it building permit and to align with the City of Lodi's Stormwater Management and Discharge Control Code, Lodi Municipal Code Chapter 13.14. The plan will include proposed site design and control measures and postconstruction stormwater runoff calculations showing pre-project and post-project volumes.

BMP HYD-5: Project Stormwater Plan for LEU Guild Substation. LEU will prepare a Project Stormwater Plan for LEU Guild Substation to align with the City of Lodi's Stormwater Management and Discharge Control Code, Lodi Municipal Code Chapter 13.14. The plan will include proposed site design and control measures and postconstruction stormwater runoff calculations showing pre-project and post-project volumes.

5.10.4.3 Potential Impact Analysis

Project impacts related to hydrology and water quality were evaluated against the CEQA significance criteria, as discussed in the following sections. Potential project impacts from the construction phase and the operation and maintenance phase are evaluated. For impacts to federally protected wetlands and other sensitive natural communities, refer to Section 5.4.

As described in Chapter 3, Project Description, the project will provide a new 230 kV transmission source in northern San Joaquin County, in central California. The project includes extending an existing PG&E 230 kV transmission line through PG&E's Lockeford Substation to a new PG&E Thurman Switching Station in Lodi, California, by installing new tubular steel poles and conductors for approximately 11 miles. PG&E's Lockeford Substation will be expanded on existing substation property to accommodate the new 230 kV facility. PG&E's Thurman Switching Station will transfer the new 230 kV source to the new adjacent LEU 230/60 kV Guild Substation. LEU's Guild Substation will transfer the 60 kV power to the existing adjacent LEU 60 kV Industrial Substation, which will be modified to receive the new LEU 60 kV lines (via the new 230 kV source) and to disconnect the existing PG&E 60 kV sources. When disconnected, the three existing PG&E 60 kV lines will be partially removed and reconfigured mainly within their existing alignments to continue operation between PG&E's Lockeford and Lodi substations. LEU distribution and third-party telecommunication underbuild on PG&E 60 kV line portions being removed will be relocated by the respective utility owner to within or adjacent to other existing alignments. An existing PG&E distribution line will be extended underground approximately 500 feet in franchise to provide a permanent secondary service line to PG&E Thurman Switching Station. PG&E project-related work to update communication between facilities and the protection scheme system also will occur within the existing fence lines of remote-end substations, Brighton, Bellota, Lodi, and Rio Oso, and a communication facility, Clayton Hill Repeater Station.

Project work at PG&E remote-end substations will include updating system protection schemes within control rooms, extending existing fiber telecommunication line, and potentially removing redundant telecommunication equipment within existing fenced station facilities in area of previous ground-disturbance with existing station stormwater onsite containment. Project work at PG&E's Clayton Hill

Repeater Station will be adding two new antennas to an existing telecommunication tower and will not impact hydrology or water quality.

a) Would the project violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality? *Less-than-Significant Impact.*

PG&E Potential Impact Discussion

The project will not violate any water quality standards or waste discharge requirements. Project temporary and permanent areas and access have been sited to avoid surface water, including waterways and wetlands. The project will have no impact on riparian habitats or wetlands, as described in Section 5.4. Additionally, while the proposed PG&E 230 kV alignment spans over Paddy and Bear creeks, these are not on the Section 303(d) impaired waters list. No known downstream segments of the San Joaquin River are on the Section 303(d) list. Wastewater generated during construction will be contained within portable restrooms and disposed of by a licensed contractor. No wastewater would be discharged from the project work areas.

No work is proposed within Paddy Creek or Bear Creek. The new transmission lines will span Paddy Creek and Bear Creek to meet the vertical clearance requirement of 28 feet. The PG&E 230 kV structures and temporary work areas are all designed to be more than approximately 25 feet from the landward side of the landside levee toe on either side of the waterways, which exceeds the Title 23 distance of 10 feet. Temporary guard structures, described in Section 3.5.5.4 and shown in Figure 3.5-3, will be installed over waterways during pull-and-tension activities should the conductor fall from the structures during construction. The temporary guard structures also would be installed outside the waterbodies.

Potential impacts during project construction include erosion, increased runoff and sedimentation, and release of hazardous materials from construction equipment and vehicles. The project will include station grading in the main project area; excavations for station equipment, line structures, and guard structures; and limited soil disturbance at pull and tension sites, structure work areas, staging areas, and along unpaved roads and temporary access routes. HDD work and trenching for the PG&E 12 kV secondary service line will occur within paved roadway where nearby stormwater catch basins will be protected per the PG&E SWPPP. Ground-disturbing work at PG&E's Bellota, Brighton, and Rio Oso substations will only occur if the retiring telecommunication equipment is removed instead of disconnected and retired in place. These ground-disturbance areas will be included in the PG&E SWPPP. Removal will include excavation to a 4-foot depth to excavate around the footings and cut them off below ground. The ground would be recontoured, soil compacted, and station rock base applied after the equipment and footings are removed. The remote-end substations are designed to contain runoff onsite and impacts to hydrology and water quality are unlikely. A small, temporary stockpile of excavated soil may be located near an excavation to be used for backfill or salvaged agricultural topsoil. Construction activities conducted during the rainy season have the potential for increasing erosion and sediment transport locally.

PG&E will assess the risk to water quality based on site-specific soil characteristics and slope and will develop an SWPPP to address potential water quality concerns, as described in APM HYD-1. The SWPPP will specify measures for activities with the potential to degrade surrounding water quality through erosion, sediment runoff, and the presence of other pollutants. Accidental releases of hazardous materials that are used during construction – for example, diesel fuel, hydraulic fluid, or oils and grease – will have the potential to occur. An accidental release of fuel or lubricant at the surface or within excavations poses minimal risk to groundwater quality, given the small amounts of material used, depth to groundwater, and spill response procedures, as described in Section 5.9. This potential impact will be avoided and minimized by implementing best practices adopted to control nonstormwater discharges under APM HYD-1 and by APM HAZ-1, which is discussed in Section 5.9.5.2. The PG&E SWPPP measures will be implemented and monitored throughout the project's construction by a qualified SWPPP practitioner. Additionally, the generally flat topography further reduces the potential for construction-related impacts.

Although it is not expected to occur, if groundwater is encountered during construction, APM HAZ-5 will be implemented.

The project is not expected to use or store large quantities of hazardous materials. Fuel, grease, and fluids needed for equipment operation will be onsite periodically; these will be handled, in keeping with the PG&E SWPPP and APM HAZ-1, APM HYD-1, and APM HYD-2, for proper use, storage, and cleanup (if warranted).

In summary, during construction the potential impact under this criterion is associated with an accidental nonstormwater discharge, which is expected to be minimal and any impact further minimized with implementation of APM HYD-1 and APM HAZ-1. Therefore, the project is not expected to violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality; and the potential impact will be less than significant.

During the operation and maintenance phase, site restoration will be complete (refer to APM HYD-3) and additional runoff within Thurman Switching Station and Lockeford Substation will be directed to the new and expanded onsite detention basins, avoiding the potential for impact to water quality. Water quality could potentially be impacted through inadvertent spills or discharges from equipment malfunctions or from vehicles or equipment used during inspections or maintenance, which could wash into nearby stormwater inlets or drainages or infiltrate soil to the water table. With implementation of PG&E SPCC plans for Thurman Switching Station and Lockeford Substation described in APM HYD-4, an accidental release during operation and/or maintenance of the project is unlikely to occur; therefore, impacts would be less than significant. Maintenance activities may use limited amounts of water for washing equipment as well as use pollutant sources, including oils, paints, and solvents used for routine maintenance. If transmission line insulator washing is required every 5 years at most, the majority of water sprayed would evaporate after washing the insulator. Depending on humidity and wind, typically a minimal amount of dispersed water droplets would fall to the ground. Washing is usually less than 1 minute per insulator. Assuming no wind and high humidity, the amount of water under a transmission structure after its conductors are washed would have the appearance of a minimal amount of water applied for dust management. The water would include the dirt and other material that had collected on the insulator instead of landing elsewhere previously. Pollutant sources would be applied, stored, and disposed of with appropriate containment in a manner consistent with manufacturer recommendations by licensed professionals, if necessary, and in accordance with applicable regulations. Project operation and maintenance activities will be covered activities under PG&E's SJVHCP (PG&E 2006). Required SJVHCP measures such as SJVHCP AMM-1, AMM-6, and AMM-9 (listed in Section 5.4) provide controls to avoid and minimize activities that may impact water quality. No changes would occur to the existing operation and maintenance activities at PG&E remote-end substations and at the repeater station. Therefore, impacts under this criterion will be less than significant.

LEU Potential Impact Discussion

LEU's portion of the project will not violate any water quality standards or waste discharge requirements. Project temporary and permanent areas and access have been sited to avoid surface water, including waterways and wetlands. The project will have no impact on riparian habitats or wetlands, as described in Section 5.4. No LEU project components are located within or span over waterways. No known downstream segments of the San Joaquin River are on the Section 303(d) impaired waters list. Wastewater generated during construction will be contained within portable restrooms and disposed of by a licensed contractor. No wastewater would be discharged from the project work areas.

Potential impacts during project construction include erosion, increased runoff and sedimentation, and release of hazardous materials from construction equipment and vehicles. The LEU project components will include station grading; excavating station equipment and relocating and removing existing 12 kV feed line segments; and limited soil disturbance at staging areas and along temporary access routes. A small, temporary stockpile of excavated soil may be located near an excavation to be used for backfill. Construction activities conducted during the rainy season have the potential for increasing erosion and sediment transport locally.

LEU will assess the risk to water quality based on site-specific soil characteristics and slope and will develop an SWPPP to address potential water quality concerns, as described in BMP HYD-1. The SWPPP will specify measures for activities with the potential to degrade surrounding water quality through erosion, sediment runoff, and the presence of other pollutants. Accidental releases of hazardous materials

that are used during construction – for example, diesel fuel, hydraulic fluid, or oils and grease – will have the potential to occur. An accidental release of fuel or lubricant at the surface or within excavations poses minimal risk to groundwater quality, given the small amounts of material used, depth to groundwater, and spill response procedures, as described in Section 5.9. This potential impact will be avoided and minimized by implementing best practices adopted to control nonstormwater discharges under BMP HYD-1 and by BMP HAZ-1, which is discussed in Section 5.9.5.2. The LEU SWPPP measures will be implemented and monitored throughout the project's construction by a qualified SWPPP practitioner. Additionally, the generally flat topography further reduces the potential for construction-related impacts.

Although it is not expected to occur, if groundwater is encountered during construction, BMP HAZ-5 will be implemented.

The project is not expected to use or store large quantities of hazardous materials. Fuel, grease, and fluids needed for equipment operation will be onsite periodically; these will be handled, in keeping with the LEU SWPPP and BMP HAZ-1, BMP HYD-1, and BMP HYD-2, for proper use, storage, and cleanup (if warranted).

In summary, during construction the potential impact under this criterion is associated with an accidental nonstormwater discharge that is expected to be minimal and any impact further minimized with implementation of BMP HYD-1 and BMP HAZ-1. Therefore, the project is not expected to violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality; and the potential impact will be less than significant.

During the operation and maintenance phase, site restoration will be complete (refer to BMP HYD-3) and additional runoff within new and modified stations will be directed to the onsite detention basin, avoiding the potential for impact to water quality. Water quality could potentially be impacted through inadvertent spills or discharges from equipment malfunctions or from vehicles or equipment used during inspections or maintenance, which could wash into nearby stormwater inlets or drainages or infiltrate soil to the water table. With implementation of the LEU SPCC plan described in BMP HYD-4, an accidental release during operation and/or maintenance of the project is unlikely to occur; therefore, impacts would be less than significant. Maintenance activities may use limited amounts of water for washing equipment as well as use pollutant sources, including oils, paints, and solvents used for routine maintenance. Pollutant sources would be applied, stored, and disposed of with appropriate containment in a manner consistent with manufacturer recommendations by licensed professionals, if necessary, and in accordance with applicable regulations. No changes would occur to the existing operation and maintenance activities at LEU Industrial Substation. Therefore, impacts under this criterion will be less than significant.

b) Would the project 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 Impact*.

PG&E Potential Impact Discussion

A water truck, typically with a capacity of 3,000 gallons, will be available to support project construction activities and dust suppression. Three to four water trucks per day would be used during peak construction periods. The water is expected to be obtained from local municipal sources, which could include surface water or groundwater; Lodi Lake; water supply vendor trucks; or recycled water from the WWTP. As discussed in Section 5.10.1.9, more than 50 MAF of fresh groundwater is estimated to be available in the Eastern San Joaquin County Subbasin. This can easily accommodate all construction water needs.

PG&E operation and maintenance visits will be conducted occasionally, and insulator washing is the only known activity that would require water. If an inspector requires that insulators be washed as part of the 5-year PG&E transmission line, PG&E Thurman Switching Station, or PG&E Lockeford Substation inspection findings, a pumper truck (3,000-gallon volume) of distilled water would be used to clean insulators that required washing. The minimal water needed for potential insulator washing no more than once every 5 years will not exceed available supplies.

Based on DWR data, regional groundwater is expected to be relatively deep (greater than 70 feet) and would not be impacted by the installation of tubular steel pole foundations along most of the project area. The HDD construction associated with the extended secondary service line is expected to be up to at least

15 feet when crossing under the railway. Localized areas of perched groundwater, particularly in the vicinity of streams and irrigation canals, could be encountered during tubular steel pole construction, but any impacts to groundwater supplies or recharge would be negligible. Based on the project geotechnical investigations, regional groundwater was not encountered at any of the Substation sites. Two of the four geotechnical borings at PG&E Lockeford Substation encountered perched groundwater at 5 feet. The project's negligible water use during construction will not deplete or interfere with groundwater supply or recharge.

Grading and/or excavation activities will be required for the new transmission structures, reconfigured 60 kV lines, the proposed Thurman Switching Station (approximately 5.50 acres) with its extended secondary station service line, and the expanded Lockeford Substation (approximately 2.32 acres). In addition, staging areas may require improvement that includes blading the surface of the area, compacting soil, and/or applying gravel. Scraping and grading during preparation of the station sites and staging areas may disturb the soil surface, which will result in a temporary reduction in the infiltration and absorption capacity of the localized affected area. Localized compaction of soil from construction activities, including the use of heavy equipment, also could diminish the stormwater infiltration capacity. The effects would be localized to the project areas and create a minor reduction in groundwater recharge potential (approximately 8.57 acres of new or modified station area) in comparison to the size of the basin and recharge ability of surrounding agricultural land. Work at PG&E remote-end substations and the repeater station will have no impact on groundwater. During operation and maintenance activities, the project will not use groundwater or interfere with groundwater recharge. Therefore, project impacts on groundwater supply and recharge would be less than significant.

LEU Potential Impact Discussion

LEU's Guild and Industrial substations are located within a water district or sewer service area. Water required for construction may come from several sources, including a municipal water source, delivery by water trucks, or from Lodi Lake located on the north side of the City of Lodi. Another potential water source for construction will be recycled water from the City's newly upgraded wastewater treatment plant.

It is estimated that construction of LEU Guild Substation will require approximately 40,000 gallons of water (approximately 3 acre-feet). Approximately 25% of the total water used will be for construction (concrete mixing), with the remaining 75% used for dust control during the construction period. All the water sources described previously have adequate capacity to serve the project either independently or in combination.

Daily water use during the LEU construction period will vary based on the construction phase, but it is estimated that the average water use per day will be approximately 200 gallons over the course of the estimated 13 months of construction.

Based on DWR data and LEU's preliminary subsurface geotechnical information, groundwater is expected to be relatively deep (greater than 70 feet). LEU's portion of the project is not expected to involve excavation greater than 16 feet.

Grading and/or excavation activities will be required for the proposed LEU Guild Substation (approximately 3.25 acres), modified LEU Industrial Substation, and relocated LEU 12 kV feeder line. In addition, work areas within Guild Substation may require improvement that includes blading the surface of the area, compacting soil, and/or applying gravel. Scraping and grading during preparation of the station sites may disturb the soil surface, which will result in a temporary reduction in the infiltration and absorption capacity of the localized affected area. Localized compaction of soil from construction activities, including the use of heavy equipment, also could diminish the stormwater infiltration capacity. The effects would be localized to the project areas and create a minor reduction potential (approximately 3.25 acres of new station footprint) in groundwater recharge in comparison to the size of the basin and recharge ability of surrounding agricultural land. LEU's negligible water use during construction will not deplete or interfere with groundwater supply or recharge. During operation and maintenance activities, the project will not use groundwater or interfere with groundwater recharge. Therefore, project impacts are less than significant.

c) Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:

i) result in substantial erosion or siltation on- or off-site? *Less-than-Significant Impact*.

PG&E Potential Impact Discussion

PG&E project components are located on flat land. On average, there is less than 2 feet of variation in existing elevation within stations or at line structure locations. Grading activities will not substantially alter the drainage pattern of a site or the project area by altering the course of a stream or river or through addition of impervious surfaces resulting in substantial erosion or siltation onsite or offsite.

The existing drainage and retention basin at PG&E Lockeford Substation will be extended and expanded to contain additional drainage from the expanded facilities located on a crushed-rock surface and rock placed on the existing western interior road. The proposed PG&E Thurman Switching Station will include an onsite retention basin that will alter the existing site drainage pattern by collecting and retaining onsite drainage. The site drainage system and stormwater detention basin for each station are designed to collect and allow infiltration of the volume of runoff generated by the facility during a 25-year, 24-hour storm event.

PG&E's Thurman Switching Station will be finished with a crushed-rock surface and interior access roads will be asphalt. Minor surface contouring is expected at some locations along the new or modified electric lines to improve construction access or establish construction work areas to accommodate equipment. Appropriate dust control and PG&E SWPPP measures will be implemented at project work areas and access, as described in APM AIR-1 and APM HYD-1, will be implemented to control erosion onsite. As described in APM HYD-3, site restoration at the end of construction will reestablish contours, replace vegetation, or otherwise stabilize areas distributed during line construction and no permanent change would occur. The impact will be less than significant.

During PG&E operation and maintenance, runoff rates could increase based on the construction of up to approximately 8.57 acres of semipermeable and impermeable surface at the stations. However, stormwater runoff from the impervious portion of the proposed PG&E Thurman Switching Station and PG&E Lockeford Substation will be contained through drainage ditch(es) and an onsite retention basin. Overland flows onto the station facilities are not expected given the relatively flat terrain. The installation of the 72 TSPs would result in up to approximately 2,770 square feet (0.06 acre) of new impervious surface, bringing the total increase in semipermeable and impermeable surfaces to 8.63 acres. The replacement of RO1 lattice steel tower to a tubular pole is expected to slightly decrease its existing impervious footprint. Work at PG&E remote-end substations and at the repeater station will not alter the potential for erosion or siltation onsite or offsite. As a result, no impacts to erosion or siltation onsite or offsite will occur during operation and maintenance.

LEU Potential Impact Discussion

LEU project components are located on flat land. On average, there is less than 2 feet variation in existing elevation within stations. Grading activities will not substantially alter the drainage pattern of a site or the project area by altering the course of a stream or river or through addition of impervious surfaces resulting in substantial erosion or siltation onsite or offsite.

LEU's Industrial Substation modification will not change the existing drainage pattern of the site. The proposed LEU Guild Substation will include an onsite retention basin that will alter the existing site drainage pattern by collecting and retaining onsite drainage. The site drainage system and stormwater detention basin for each station are designed to collect and allow infiltration of the volume of runoff generated by the facility during a 25-year, 24-hour storm event.

The LEU station yards in Lodi will be finished with a crushed-rock surface and interior access roads will be asphalt. Appropriate dust control and LEU SWPPP measures will be implemented at project work areas and access as described in BMP AIR-1 and BMP HYD-1 will be implemented to control erosion onsite. As described in BMP HYD-3, site restoration at the end of construction will reestablish contours, replace

vegetation, or otherwise stabilize areas distributed during line construction and no permanent change would occur. The impact will be less than significant.

During LEU operation and maintenance, runoff rates could increase based on the construction of up to approximately 3.25 acres of semipermeable and impermeable surface at Guild Substation. However, stormwater runoff from the impervious portion of the proposed LEU Guild Substation will be contained through drainage ditch(es) and an onsite retention basin. Overland flows onto the station facility are not expected given the relatively flat terrain. The equipment modification at LEU Industrial Substation will not alter the potential for erosion or siltation onsite or offsite. As a result, no impacts to erosion or siltation onsite or offsite will occur during operation and maintenance.

ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site? *Less-than-Significant Impact.*

PG&E Potential Impact Discussion

The project will not substantially alter existing drainage patterns, increase impervious surfaces, or otherwise cause increased surface water runoff rates, or require substantial modification of any upland sites that would increase the potential for any onsite or offsite flooding. Grading will occur in select PG&E line structure locations to level project access and temporary work areas to accommodate equipment and pole placement; however, this grading will be limited in scope and will not substantially alter site drainage or result in flooding. A conservative estimate assumes that 5,605 cubic yards will be offloaded to create level work areas at 230 kV pole locations for safety. No grading is expected for PG&E 60 kV or service line work areas.

Based on the preliminary grading design, earthwork activities for PG&E Thurman Switching Station and PG&E Lockeford Substation are anticipated to result in approximately 5,794 cubic yards of cut and fill. Onsite drainage will be modified such that flows will be consolidated into onsite retention basins. Stormwater flows in the general project area are relatively infrequent and will remain largely unchanged. However, in the event of a large storm, there is potential for increased surface runoff at the stations during construction before the retention basins are built or expanded. PG&E SWPPP best practices will be implemented during construction to reduce the rate and amount of surface runoff to prevent flooding onsite or offsite.

During PG&E operation and maintenance, runoff rates could increase based on the construction of up to 8.57 acres of semipermeable and impermeable surface at the stations. However, surface runoff from the impervious portion of the proposed PG&E Thurman Switching Station and Lockeford Substation will be contained through drainage ditch(es) and an onsite retention basin to prevent onsite flooding 25-year, 24 hour storm event. The stormwater basin capacity is unlikely to be exceeded and create offsite flooding. Work at PG&E remote-end substations and at the repeater station will not increase the rate or amount of surface runoff in a manner that would result in flooding onsite or offsite. The potential impact to the rate or amount of surface runoff in a manner which would result in flooding onsite or offsite will be less than significant.

LEU Potential Impact Discussion

The project will not substantially alter existing drainage patterns, increase impervious surfaces, or otherwise cause increased surface water runoff rates, or require substantial modification of any upland sites that would increase the potential for any onsite or offsite flooding. Based on the preliminary grading design, earthwork activities for LEU Guild and Industrial substations are anticipated to result in approximately 6,100 cubic yards of cut and fill. Onsite drainage will be modified such that flows will be consolidated into specified retention basins. Stormwater flows in the general project area are relatively infrequent and will remain largely unchanged. However, in the event of a large storm, there is potential for increased surface runoff at the stations during construction before the retention basins are built or expanded. LEU SWPPP best practices will be implemented during construction to reduce the rate and amount of surface runoff to prevent flooding onsite or offsite. During LEU operation and maintenance, runoff rates could increase based on the construction of up to 3.25 acres of semipermeable and impermeable surface at Guild Substation. However, surface runoff from the impervious portion will be

contained in an onsite retention basin to prevent onsite flooding 25-year, 24 hour storm event. The stormwater basin capacity is unlikely to be exceeded and create offsite flooding. The equipment modification at LEU Industrial Substation will not increase the rate or amount of surface runoff in a manner that would result in flooding onsite or offsite. The potential impact to the rate or amount of surface runoff in a manner that would result in flooding onsite or offsite will be less than significant.

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? ***Less-than-Significant Impact.***

PG&E Potential Impact Discussion

Construction activities will not create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems. Water will be used conservatively during construction and will be limited to the minimum needed for dust control such that runoff into offsite locations is not expected. Sources that could contribute to polluted runoff during construction will be managed onsite to prevent runoff. PG&E construction workers will receive training and have material at work areas to respond if a spill or release occurs to avoid or minimize runoff from work areas (refer to APM HAZ-1, APM HAZ-2, and APM HAZ-4). Construction activities have the potential to minimally increase runoff of stormwater contaminated with sediments or other pollutants if stormwater comes into contact with materials onsite and discharges contaminants into storm drains. Potential sources of pollution include oil leaked from heavy equipment and vehicles; grease; hydraulic fluid; fuel; construction materials and products; waste materials; HDD nontoxic, water-based lubricant; and erosion of disturbed soil. Grading and/or excavation activities will be required for the proposed and modified lines and the proposed PG&E Thurman Switching Station, modified PG&E Lockeford Substation, and potentially PG&E remote-end substations. In addition, staging areas may require improvement that includes blading the surface of the area, compacting soil, and/or applying gravel. Grading and blading will level the ground surface within facilities, work areas, or access locations, not increase the potential for runoff. During construction, the project will control construction site runoff through the development and implementation of the PG&E SWPPP (refer to APM HYD-1 and APM HYD-2).

Within the City of Lodi, PG&E's project development and implementation of the PG&E SWPPP will be consistent with the City's MS4 Phase II General Permit requirements. The project's ground-disturbing activities outside the City of Lodi are located within rural or undeveloped parcels where municipal or otherwise developed stormwater collection systems are not established, or at existing substations with stormwater management systems. The stormwater conveyance systems that exist currently generally consist of agricultural ditches along field roads and other local roads. Project activities will have a less-than-significant impact to existing or planned stormwater drainage systems, including the potential for providing substantial additional sources of polluted runoff given that activities are temporary and limited by the scale of construction activities. The implementation of APM HYD–1, APM HYD-2, APM HAZ–1, APM HAZ-2, and APM HAZ-4 will further reduce potential less-than-significant impacts.

For operation of PG&E Thurman Switching Station within the City of Lodi, PG&E will develop a PG&E Stormwater Plan as required as part of the PG&E Operation and Maintenance Plan associated with the building permit (refer to APM HYD-5). Current PG&E switching station design has stormwater contained onsite and stormwater runoff is not expected during operations. During operation and maintenance, the project will not create or contribute to runoff water that will exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; no impact will occur.

LEU Potential Impact Discussion

Construction activities will not create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems. Water will be used conservatively during construction and will be limited to the minimum needed for dust control such that runoff into offsite locations is not expected. Sources that could contribute to polluted runoff during construction will be managed onsite to prevent runoff. LEU construction workers will receive training and have material at work areas to respond if a spill or release occurs to avoid or minimize runoff from work areas (refer to BMP HAZ-1, BMP HAZ-2, and BMP

HAZ-4). Construction activities have the potential to minimally increase runoff of stormwater contaminated with sediments or other pollutants if stormwater comes into contact with materials onsite and discharges contaminants into storm drains. Potential sources of pollution include oil leaked from heavy equipment and vehicles; grease; hydraulic fluid; fuel; construction materials and products; waste materials; HDD non-toxic, water-based lubricant; and erosion of disturbed soil. Grading and/or excavation activities will be required for the proposed LEU Guild Substation. In addition, staging areas may require improvement that includes blading the surface of the area, compacting soil, and/or applying gravel. Grading and blading will level the ground surface within facilities, work areas, or access locations, not increase the potential for runoff. During construction, the project will control construction site runoff through the development and implementation of the LEU SWPPP (refer to BMP HYD-1 and BMP HYD-2).

Within the City of Lodi, the LEU's development and implementation of the LEU SWPPP will be consistent with the City's MS4 Phase II General Permit requirements. Project activities will have a less-than-significant impact to existing or planned stormwater drainage systems, including the potential for providing substantial additional sources of polluted runoff given the activities are temporary and limited by the scale of construction activities. The implementation of BMP HYD–1, BMP HYD-2, BMP HAZ–1, BMP HAZ-2, and BMP HAZ-4 will further reduce potential less-than-significant impacts.

For operation of LEU Guild Substation within the City of Lodi, LEU will develop a Project Stormwater Plan as required as part the LEU Operation and Maintenance Plan associated with the building permit (refer to BMP HYD-5). During operation and maintenance, the project will not create or contribute to runoff water that will exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; no impact will occur.

iv) impede or redirect flood flows? ***Less-than-Significant Impact.***

PG&E Potential Impact Discussion

Eight new PG&E 230 kV structures and associated work areas, staging areas, and access in the vicinity of PG&E's Lockeford Substation are within mapped FEMA Zone A 100-year flood hazard zones, as shown on Figure 5.10-4. Construction areas and overland access will be removed when construction is completed and they will be restored to their natural states. Project grading or blading will not significantly alter the drainage pattern in those project areas within 100-year flood zones, nor will they redirect the course of a stream or river that would impede or redirect flood flows. Therefore, the impact to the hydrology, inundation, and flow path of the floodplain is temporary and negligible.

The permanent PG&E transmission structures that will be located in approximately 1.25 miles of mapped 100-year floodplains include monopole structures (ranging from 3 to 7 feet in diameter at base), for an expected eight structures. This is roughly one structure per 825 feet of floodplain. The structures will have a small footprint and cross-section and will not significantly impede or redirect flood flows. Therefore, impacts will be less than significant.

LEU Potential Impact Discussion

LEU project components are located within a 500-year flood hazard zone. No LEU project components are located within a mapped FEMA Zone A 100-year flood hazard zone, as shown on Figure 5.10-4. Therefore, impacts will be less than significant.

d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation? ***Less-than-Significant Impact.***

PG&E Potential Impact Discussion

The project is not located in tsunami or seiche zones and would not risk release of pollutants from inundation. The project will use materials – such as oil, grease, hydraulic fluid, fuel, construction materials and products, waste materials, and loose soil – that could risk release during project inundation from flood hazards in select PG&E construction areas or access, or sections of the PG&E transmission line. Furthermore, the PG&E SWPPP and SPCC will consider the project's potential flood hazard and address the risk release of pollutants from project inundation to align with federal and state regulations that manage

and control pollutants during construction and facility operations. The potential for risk release of pollutants from project inundation caused by flood hazard will be less than significant.

LEU Potential Impact Discussion

The LEU project components are not located in tsunami or seiche zones and would not risk release of pollutants from inundation. The project will use materials – such as oil, grease, hydraulic fluid, fuel, construction materials and products, waste materials, and loose soil – that could risk release during project inundation from flood hazard in select work areas. The LEU SWPPP and SPCC will consider the project's potential flood hazard and address the risk release of pollutants from project inundation to align with federal and state regulations that manage and control pollutants during construction and facility operations. The potential for risk release of pollutants from project inundation caused by flood hazard will be less than significant.

e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan? *Less-than-Significant Impact*.

PG&E Potential Impact Discussion

The project area is in the San Joaquin River Basin, which is covered by the water quality control plan (Revised Basin Plan) for the Central Valley RWQCB (RWQCB 2018). This plan was last updated in May 2018. PG&E's project components do not include any waste discharges that could conflict with the Basin Plan. Activities associated with project construction, including as-needed surface contouring of access roads and laydown areas, will not provide substantial additional sources of polluted runoff. As described previously, a PG&E SWPPP will be prepared and implemented to further reduce any impacts. The project's negligible water use during construction and operation and maintenance will not deplete or interfere with groundwater supply or recharge. The project will not conflict with or obstruct implementation of the *Eastern San Joaquin Groundwater Sustainability Plan.* Therefore, the project will not conflict with or obstruct the water quality control plan or a sustainable groundwater management plan and the potential impacts will be less than significant.

LEU Potential Impact Discussion

The project area is in the San Joaquin River Basin, which is covered by the water quality control plan (Revised Basin Plan) for the Central Valley RWQCB (RWQCB 2018). This plan was last updated in May 2018. The LEU project components do not include any waste discharges that could conflict with the Basin Plan. Activities associated with LEU project construction, including as-needed surface contouring of access roads and laydown areas, will not provide substantial additional sources of polluted runoff. As described previously, an LEU SWPPP will be prepared and implemented to further reduce any impacts. The project's negligible water use during construction and operation and maintenance will not deplete or interfere with groundwater supply or recharge. The project will not conflict with or obstruct implementation of the *Eastern San Joaquin Groundwater Sustainability Plan.* Therefore, the project will not conflict with or obstruct the water quality control plan or a sustainable groundwater management plan and the potential impacts will be less than significant.

5.11 Land Use and Planning

This section describes existing conditions and potential impacts on land use resources as a result of construction, operation, and maintenance of the project. The analysis concludes that no impacts on land use would occur. The project's potential effects on land use resources were evaluated using the significance criteria set forth in Appendix G of the CEQA Guidelines. Project description information and potential impacts are organized and discussed by each participating utility's portion of the project. The conclusions are summarized in Table 5.11-2 and discussed in more detail in Section 5.11.4.

5.11.1 Methodology and Environmental Setting

5.11.1.1 Methodology

Aerial photographs, area plans, land use maps, zoning ordinances, and redevelopment plans were reviewed for all areas traversed by the project.

Further analysis of land use and planning included a review of the following plans and policies:

- San Joaquin County General Plan
- City of Lodi General Plan
- San Joaquin County Zoning Ordinance
- City of Lodi Zoning Ordinance (Municipal Code)
- California Department of Fish and Wildlife, Natural Community Conservation Plan (NCCP) Map
- San Joaquin County Multi-Species Habitat Conservation and Open Space Plan (SJMSCP)

In addition, a field visit to the site was conducted in March 2021 to gather relevant information pertaining to the land uses at the project site and surrounding areas. Meetings between PG&E and applicable agencies have been conducted and are summarized in Section 2.2.

5.11.1.2 Regional Land Use Setting

The project would be located within unincorporated areas of northeastern San Joaquin County and partially within an industrial area of the City of Lodi (refer to Figure 3.1-1). The foothills of the Diablo Range define the southwestern corner of the County, and the foothills of the Sierra Nevada Range lie along the County's eastern boundary. Major geographic features in the project area include the Mokelumne River, Bear Creek, SR 99, SR 88, and SR 12. The topography in the area generally is flat with rolling hills rising in elevation to the east. Elevation ranges from approximately 135 feet above sea level at the eastern end of the project to approximately 60 feet above sea level at the western end of the project. Northeastern San Joaquin County is predominantly agricultural with retail, wineries, and rural and semirural residential development outside of the City of Lodi, and small concentrated areas of industrial and commercial business along transportation corridors.

5.11.1.3 Local Land Use Setting (Existing Land Use)

Major land uses in the City of Lodi (excluding White Slough, streets, and other rights-of-way) are residential (50%); public/quasi-public, including schools (13%); industrial (12%); commercial, including retail and office (9%); vacant land (7%); miscellaneous land, including county, state, and parking areas (6%); agriculture and wineries (1%); utilities (<1%); and mixed uses (<1%) (City of Lodi 2010). Within the City of Lodi, the land uses near the proposed project area include industrial, open space, and public/quasi-public.

Near the proposed project, the majority of unincorporated San Joaquin County land is designated as agricultural. Along the eastern boundary of the City of Lodi, land uses include industrial, open space, and

parks/recreation. However, more-intensive residential and urban uses within unincorporated communities and nearby cities are sprinkled throughout the region.

Local Land Use Intersecting the Proposed Project

From the eastern extent of the proposed project near Clements Road, the new PG&E 230 kV DCTL would follow an approximate 4-mile westward path with an approximate 110-foot-wide ROW into the existing PG&E Lockeford Substation. PG&E Lockeford Substation would be expanded by about 2.4 acres on existing PG&E substation property to accommodate the new 230 kV line. The new 230 kV line would run north of PG&E's existing 230 kV double-circuit line (Rio Oso-Lockeford and Lockeford-Bellota), which is north of East Kettleman Lane. The new 230 kV line would continue westward in an approximate 115-foot ROW from PG&E Lockeford Substation for approximately 0.25 mile before turning southward for approximately 0.85 mile. The line would continue on a generally westward path for approximately 4.10 miles before turning northward for approximately 1.20 miles. Just south of East Sargent Road, the line would turn westward for approximately 0.50 mile, entering the City of Lodi and continuing to the new PG&E Thurman Switching Station. The new 230 kV source would be switched from PG&E to LEU with a span for each 230 kV circuit between PG&E's Thurman Switching Station and LEU's new Guild Substation. The fenced station areas for PG&E's Thurman Switching Station and LEU's new Guild Substation would be approximately 5.50 acres and approximately 3.25 acres, respectively. LEU will step down the power from 230 kV to 60 kV within Guild Substation and connect new 60 kV lines (two spans each) to the adjacent existing LEU 60 kV Industrial Substation.

Within unincorporated San Joaquin County, land uses along the new PG&E 230 kV lines are designated as general agricultural land and open space/resource conservation. The majority of the agricultural land is vineyard and associated support facilities. The open space/resource conservation designated areas intersecting with the PG&E project components are located along Bear Creek and east of PG&E Lockeford Substation (refer to Figure 5.11-1 and Figure 5.11-3).

Within the City of Lodi, land uses along the new PG&E 230 kV lines are designated as industrial and public/quasi-public. LEU Industrial Substation and the western portion of the proposed LEU Guild Substation are located in public/quasi-public designated land. LEU Industrial and Guild substations are bound by the CCT Company railroad using UPRR tracks to the north, the City's Water Treatment Plant to the south, and North American Specialty Products to the west. The remainder of the proposed project within the City of Lodi is located on industrial-designated land, including the undeveloped property to the east of LEU Industrial Substation, which would be developed as part of the proposed project as portions of the eastern half of the proposed LEU Guild Substation, the proposed PG&E Thurman Switching Station, the proposed PG&E distribution line to provide secondary switching station power, and the proposed PG&E 230 kV transmission line. The three PG&E 60 kV lines connecting LEU Industrial Substation including PG&E Lockeford-Industrial line (with existing LEU distribution underbuild and Comcast communication lines) are on both industrial-designated land and public/quasi-public land when within the City of Lodi city limits. PG&E Industrial Tap and PG&E Lockeford-Industrial are within general agricultural when with unincorporated San Joaquin County (refer to Figure 5.11-2 and Figure 5-11-4).

In accordance with CPUC filing requirements, a preliminary list of parcels within 300 feet of the project, including the Assessor's Parcel Number, mailing address, and the parcel's physical address, is provided in Appendix 1A.

Water Conveyance and Flood Control Facilities

A complex network of water conveyance and flood control facilities traverses the San Joaquin Valley. These water systems, or portions of them, are owned or managed or both by a network of agencies. The proposed project is located within the NSJWCD, although there are no NSJWCD canals located in the project vicinity. However, the NSJWCD, along with San Joaquin County, East Bay Municipal Utility District, and Eastern Water Alliance, developed a piping system that pipes water from the Mokelumne River's South Pump Station to agricultural operators for irrigation through the NSJWCD South Pipeline, which traverses agricultural areas east of the City of Lodi. These canals and pipes provide an important source of water for the surrounding agricultural lands. The South Pipeline traverses the project area near PG&E's proposed transmission line Structure W22, located approximately 0.5 mile east of North Alpine Road,

along an existing farm road and approximately 0.54 mile north of East Harney Lane. Structure W22 will be located at least 25 feet from the NSJWCD South Pipeline. Individual structure locations are shown on Figure 5.11-3.

Watercourses spanned by the proposed PG&E transmission line route are part of the San Joaquin River Hydrologic Region. The proposed transmission line spans Paddy Creek near proposed Structure E18, and it spans Bear Creek near proposed Structure W11 as detailed on Figure 5.11-3. Where the PG&E transmission line crosses these creeks, the watercourses are concrete lined with levees.

An East Bay Municipal Utility District aqueduct is near the eastern end of the project, and its ROW is part of PG&E's existing access to its Brighton-Bellota transmission line. Refer to Section 5.10, Hydrology, for detailed information on water systems in the project area.

No watercourse or waterways are within 0.5 mile of LEU's portion of the project.

Regional Transportation Systems

The proposed project spans several regional transportation systems. The proposed PG&E transmission line would span the CCT Company railroad (tracks owned by UPRR) at proposed structures W44 (double track) and W43 (single track) as shown on Figure 5.11-4. The CCT Company operates on two segments of track: (1) the Central Valley Branch between the City of Stockton and the City of Lodi, and (2) a 1-mile industrial lead into the City of Lodi (CCT Company 2021). PG&E's existing Lockeford-Industrial 60 kV circuit spans the CCT Company railroad's double track and single track where it enters the City of Lodi near the western end of East Sargent Road. The western end of PG&E Lockeford-Industrial, approximately 0.5 mile, will be removed as part of the project between the western end of East Sargent Road and LEU Industrial Substation. The existing LEU distribution underbuild on PG&E Lockeford-Industrial line, which will be relocated to an underground configuration immediately south of the new 230 kV line alignment, is parallel to the CCT spur line. No LEU portion of the project crosses railroad tracks. PG&E's secondary station service extension into PG&E's new Thurman Switching Station will cross under the CCT spur line where the tracks cross South Guild Avenue.

The proposed PG&E transmission line would span SR 88 at the proposed structure W12 as shown on Figure 5.11-3. The existing span PG&E Industrial Tap would be removed from its crossing of SR 12, and horizontal guy wires would be installed between PG&E Industrial Tap pole 22 and an existing PG&E 12 kV pole. SR 12 and SR 88 are highways managed by Caltrans.

The California High-Speed Rail Authority has preliminary plans to construct Phase 2 of its high-speed rail system on a north-south alignment near the eastern border of the City of Lodi. The Merced-to-Sacramento section of the high-speed rail system would have stops in Sacramento, Stockton, Modesto, and Merced. As of December 2022, the California High-Speed Rail Authority is in the corridor planning phase, and the precise location of the Merced-to-Sacramento section is unknown. However, preliminary plans demonstrate a crossing with the proposed PG&E transmission line potentially just east of the eastern extent of the City of Lodi (California High-Speed Rail Authority 2022). Refer to Section 5.17, Transportation, for detailed information on transportation systems in the project area.

Zoning and General Plan Land Use Designations

Figures 5.11-1 and 5.11-2 illustrate the unincorporated San Joaquin County and City of Lodi zoning designations traversed by the project. Figures 5.11-3 and 5.11-4 illustrate the unincorporated *San Joaquin County General Plan* and *Lodi General Plan* land use designations in the project area.

Public utility facilities regulated by the CPUC are not subject to local land use and zoning regulations. However, the *General Plan* land use and zoning designations for land on which the proposed project is located are described in Table 5.11-1.

Table 5.11-1. Land Use and Zoning Designations Intersected by the Proposed Project

Jurisdiction	General Plan Land Use Designation	Zoning Designation
San Joaquin County	General Agriculture (A/G)	General Agriculture (AG-40)

	Open Space/Resource Conservation (OS/RC)	General Agriculture (AG-40)
City of Lodi	Industrial (M)	Industrial (M)
	Public/Quasi-Public (PQP)	Public/Quasi-Public (PQP)

The *San Joaquin County General Plan* describes the General Agriculture land use designation as providing for large-scale agriculture production and associated processing, sales, and support uses. The General Agriculture designation generally applies to areas outside areas planned for urban development where soils are capable of producing a wide variety of crops or support grazing. Typical building types include low-intensity structures associated with farming and agricultural processing and sales (San Joaquin County 2016). According to Table 9-605.2 of the *San Joaquin County Municipal Code*, major utilities are permitted in the General Agriculture land use area subject to site approval (MuniCode 2021b).

The *San Joaquin County General Plan* describes the Open Space/Resource Conservation land use designation as any areas with significant natural resources that should remain as open space to be used for recreation, or as areas preserved and used for resource production (for example, mining). The Open Space/Resource Conservation designation may be applicable to any area of the County that is essentially unimproved and is planned to remain open in character, improved for recreational uses, managed in the production of resources, protected from development-related impacts, or restricted from access for the protection of the community (for example, floodplains) (San Joaquin County 2016).

The *City of Lodi General Plan* describes the Industrial land use as a mix of heavy manufacturing, warehousing, general service, storage, and distribution activities. Industrial sites are available within and adjacent to the existing cluster of industrial uses on the eastern side of the City (City of Lodi 2010). According to Section 17.24.030 of the *City of Lodi Municipal Code*, utility facilities are permitted with a use permit within the areas that have an Industrial designation (MuniCode 2021a).

The *Lodi General Plan* describes the Public/Quasi-Public land use as properties owned by government entities or quasi-public users. This designation includes government facilities, public and private schools, and libraries (City of Lodi 2010). According to Section 17.26.030 of the *City of Lodi Municipal Code*, utility facilities are permitted by right in the areas designated as Public/Quasi-Public (MuniCode 2021a).

Local Plans and Policies

As previously stated, the PG&E project components are not subject to local agency regulations. However, PG&E has considered the local plans and policies described in the following sections in its design of the proposed project. The City of Lodi is a local agency and must comply with its own local plans and policies. The project's consistency with particular policies within these documents is discussed in Section 5.11.4.

General Plans

The City of Lodi and San Joaquin County both have adopted plans as required by the state of California that provide a framework for future land use, growth, and other local decisions regarding circulation systems, open spaces, and facilities. The state of California requires cities and counties to adopt zoning ordinances to implement their general plans. The plans address the requirement for new infrastructure and utilities to accommodate new growth.

Airport Land Use Plan

The San Joaquin County *Airport Land Use Compatibility Plan* identifies three airports near the City of Lodi: (1) Lodi Airpark, which is located approximately 4.3 miles southwest of the proposed PG&E transmission line Structure W34; (2) Lodi Airport, which is located approximately 5.0 miles northwest of LEU Industrial Substation, and (3) Kingdon Airpark, which is located approximately 6.3 miles southwest of LEU Industrial Substation.

Lodi Airpark was constructed in 1945 as a public-use airport. Its primary function is as a base for a commercial aerial chemical application service for both agriculture and insect abatement. Lodi Airpark reported approximately 6,000 operations in 2008. According to an interview with the airpark operator, operations are anticipated to increase to 12,000 by 2028 (Coffman Associates, Inc. 2009).

Lodi Airport was constructed in 1929 as the second largest privately owned airport in the state of California. The primary activities at the airport include skydiving operations, emergency response helicopters, and training. The airport reported approximately 54,000 operations in 2008. According to an interview with the airpark operator, operations are anticipated to increase to 150,000 by 2028 (Coffman Associates, Inc. 2009).

Kingdon Airpark was constructed in the 1940s to support military training activity during World War II. Today, the primary activities include training and the aerial application of agricultural chemicals, and the site is home of the Delta Flying Club. Kingdon Airpark reported approximately 24,000 operations in 2008. However, the airpark's management anticipates an increase in operations to approximately 84,500 by 2028 (Coffman Associates, Inc. 2009).

Wallom Field is a private airport approximately 2.75 miles south of the proposed PG&E transmission line Structure W23. There are no land use plans associated with Wallom Field.

The proposed project would comply with Federal Aviation Regulation Part 77, Objects Affecting Navigable Airspace, for the construction and operation of the proposed project. Airport hazards are discussed further in Section 5.9, Hazards and Hazardous Materials.

5.11.1.4 Special Land Use

The proposed PG&E transmission line crosses land designated as Open Space/Resource Conservation by the *San Joaquin County General Plan*. This land use designation includes protection of Bear Creek, which meanders in a southwest-northeast orientation south of PG&E's Lockeford Substation. PG&E's transmission line work areas for structures W7, W8, and E18 and associated access roads are located within land designated as Open Space/Resource Conservation. PG&E transmission line structures W7 and W8 are approximately 0.50 mile and approximately 0.62 mile, respectively, southwest of PG&E Lockeford Substation and approximately 100 feet and approximately 250 feet, respectively, from the western levee toe of Bear Creek, as shown on Figure 5.11-3. PG&E new transmission line structure E18 is located approximately 0.60 mile east of PG&E Lockeford Substation and approximately 60 feet from the western Bear Creek levee access road.

LEU's portion of the project is not within special land use designations.

The proposed project does not impact any coastal zones, designated (or proposed candidate) National or State Wild and Scenic Rivers, or national landmarks.

5.11.1.5 Habitat Conservation Plan

The CDFW's *California Natural Community Conservation Plan* map shows no adopted HCPs or NCCPs in the project vicinity (CDFW 2019).

San Joaquin County has the SJMSCP, which compensates for converting open space for utility installations and maintenance activities. These activities will be undertaken by both public and private individuals and agencies throughout San Joaquin County. Refer to Section 5.4, Biological Resources, for additional information regarding the SJMSCP.

PG&E has an HCP for its O&M activities in the San Joaquin Valley—*PG&E San Joaquin Valley Operations & Maintenance Habitat Conservation Plan* (Jones and Stokes 2006). This HCP is applicable to O&M activities for PG&E's electric and gas transmission and distribution systems within nine counties of the San Joaquin Valley, including San Joaquin County. However, the HCP only pertains to the O&M components of the project and not the new construction. Refer to Section 5.4, Biological Resources, for additional information regarding the *PG&E San Joaquin Valley Operations & Maintenance Habitat Conservation Plan*.

5.11.2 Regulatory Setting

5.11.2.1 Federal

Habitat Conservation Plans

Section 10 of the federal ESA allows for the creation of HCPs to protect listed and candidate species in connection with the issuance of an Incidental Take Permit for federally listed species (refer to Section 5.4). *PG&E's San Joaquin Valley Operations & Maintenance Habitat Conservation Plan* provides coverage under the incidental take provisions of Section 10 of the federal ESA for PG&E O&M activities within the San Joaquin Valley. The project is included within the boundaries of this HCP area.

5.11.2.2 State

California Public Utilities Commission

The CPUC has exclusive jurisdiction over the design, siting, installation, operation, maintenance, and repair of electric transmission facilities, pursuant to Article XII, Section 8 of the California Constitution. The CPUC is the Lead Agency for CEQA review for this project and has authority over the discretionary project approval that PG&E seeks. The CPUC, however, does not have jurisdiction over municipal utilities such as LEU. Hence, LEU is not subject to the CPUC's jurisdiction.

5.11.2.3 Local

With respect to PG&E, because the CPUC has exclusive jurisdiction over project siting, design, and construction, PG&E's portion of the project is not subject to local (city and county) land use and zoning regulations or discretionary permits except for air districts and CUPAs with respect to air quality and hazardous waste regulations. However, local land use plans and policies are considered for informational purposes and to assist with the CEQA review process. Local regulation of land use and planning is codified in the *San Joaquin County General Plan* and the *Lodi General Plan*.

Although PG&E is not subject to local discretionary permitting, ministerial permits will be secured, as required. Table 3.10-1: Potential Permits and Approvals (in Chapter 3, Project Description) lists the authorizations that may be required for project construction.

The City of Lodi is a local agency and must comply with its own local plans and policies for LEU's portion of the project.

5.11.3 Impact Questions

The project's potential effects on land use and planning were evaluated using the significance criteria set forth in Appendix G of the CEQA Guidelines. The criteria and conclusions are summarized in Table 5.11-2 and discussed in more detail in Section 5.11.4.

Table 5.11-2. CEQA Checklist for Land Use and Planning

Would the project:	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a) Physically divide an established community?	☐	☐	☐	☒
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?	☐	☐	☐	☒

Would the project:	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☐	☐	☒

5.11.3.1 Additional CEQA Impact Questions

None.

5.11.4 Potential Impact Analysis

Project impacts related to land use were evaluated against the CEQA significance criteria and are discussed in the following subsections. The impact analysis evaluates potential project impacts during the construction phase and the operation and maintenance phase. An analysis of impacts to adjacent land uses during construction and operation of the project is included in other sections of the PEA, including Aesthetics, Air Quality, Hazards and Hazardous Materials, Noise, Recreation, and Transportation and Traffic. The impact discussion is organized to describe the effects of each participating utility's portion of the project on the environment.

5.11.4.1 Significance Criteria

According to Section 15002(g) of the CEQA Guidelines, "a significant effect on the environment is defined as a substantial adverse change in the physical conditions which exist in the area affected by the proposed project." As stated in Section 15064(b) of the CEQA Guidelines, the significance of an activity may vary with the setting. In accordance with Appendix G of the CEQA Guidelines, the potential significance of project impacts on land use and planning were evaluated for each of the criteria listed in Table 5.11-1, as discussed in Section 5.11.4.3.

5.11.4.2 Applicant-Proposed Measures and Best Management Practices

The project will have no impact on land use and planning; however, to further reduce short-term disturbance to the surrounding land uses during construction, they will implement the following APMs and BMPs:

APM LAN-1: Provide Construction Notification and Minimize Construction Disturbance. A PG&E public liaison representative will provide the public with advance notification of PG&E construction activities, between approximately two and four weeks prior to construction. The announcement will state specifically where and when construction will occur in the area. Notices will provide tips on reducing noise intrusion (for example, closing windows facing the planned construction).

BMP LAN-1: Provide Construction Notification and Minimize Construction Disturbance. A LEU public liaison representative will provide the public with advance notification of LEU construction activities, between approximately two and four weeks prior to construction. The announcement will state specifically where and when construction will occur in the area. Notices will provide tips on reducing noise intrusion (for example, closing windows facing the planned construction).

APM LAN-2: Provide Public Liaison Person and Toll-Free Information Hotline. PG&E will identify and provide a public liaison person before and during construction to respond to concerns of neighboring residents about noise, dust, and other construction disturbance. Procedures for reaching the public liaison officer via telephone, email, or in person will be included in notices distributed to the public as described previously. PG&E will also establish a toll-free telephone number for receiving questions or complaints during construction.

BMP LAN-2: Provide Public Liaison Person and Toll-Free Information Hotline. LEU will identify and provide a public liaison person before and during construction to respond to concerns of neighboring residents about noise, dust, and other construction disturbance. Procedures for reaching the public liaison officer via telephone, email, or in person will be included in notices distributed to the public as described previously. LEU will also establish a toll-free telephone number for receiving questions or complaints during construction.

5.11.4.3 Potential Impacts

As described in Chapter 3, Project Description, the project will provide a new 230 kV transmission source in northern San Joaquin County, in central California. The project includes extending an existing PG&E 230 kV transmission line through PG&E Lockeford Substation to a new PG&E Thurman Switching Station in Lodi, California, by installing new tubular steel poles and conductors for approximately 11 miles. PG&E Lockeford Substation will be expanded on existing substation property to accommodate the new 230 kV facility. PG&E Thurman Switching Station will transfer the new 230 kV source to the new adjacent LEU 230/60 kV Guild Substation. LEU Guild Substation will transfer the 60 kV power to the existing adjacent LEU 60 kV Industrial Substation, which will be modified to receive the new LEU 60 kV lines (via the new 230 kV source) and to disconnect the existing PG&E 60 kV sources. When disconnected, the three existing PG&E 60 kV lines will be partially removed and reconfigured mainly within their existing alignments to continue operation between PG&E Lockeford and Lodi substations. LEU distribution and the third-party telecommunication underbuild on PG&E 60 kV line portions being removed will be relocated by the respective utility owner to within or adjacent to other existing alignments. An existing PG&E distribution line will be extended underground approximately 500 feet in franchise to provide a permanent secondary service line to PG&E Thurman Switching Station. PG&E project-related work to update communication between facilities and the protection scheme system also will occur within the existing fence lines of remote-end substations Brighton, Bellota, Lodi, and Rio Oso, and a communication facility, Clayton Hill Repeater Station.

a) Would the project physically divide an established community? *No Impact.*

PG&E Potential Impact Discussion

The proposed project would provide a safe and reliable electrical utility for the region. No PG&E project features or other built components would be implemented that would otherwise introduce a new barrier that physically divides an established community. Implementation of this project, including construction and operation, would not physically divide an established community, and no impact would occur.

LEU Potential Impact Discussion

The proposed project would provide a safe and reliable electrical utility for the region. No LEU project features or other built components would be implemented that would otherwise introduce a new barrier that physically divides an established community. Implementation of this project, including construction and operation, would not physically divide an established community, and no impact would occur.

b) Would the project conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to, the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect? *No Impact.*

PG&E Potential Impact Discussion

As stated previously, the PG&E project components would not be subject to local discretionary land use or planning regulations. However, according to the documentation review and analysis conducted, the proposed PG&E project components would not introduce conflicts with the existing *San Joaquin County General Plan* or *Lodi General Plan*. The adoption of these referenced plans and the corresponding purposes, as applicable, to avoid or mitigate environmental effects would not be impeded by the proposed PG&E project activities.

Within the proposed PG&E transmission line ROW, specifically within unincorporated San Joaquin County, lands are currently zoned for General Agriculture use as are the locations of the existing PG&E 60 kV ROWs and PG&E Lockeford Substation. According to Table 9-605.2 of the *San Joaquin County Municipal Code*, major utilities are permitted in the General Agriculture zone district subject to site approval (MuniCode 2021b). Furthermore, California GC Section 51238 states that "… the erection, construction, alteration, or maintenance of gas, electric, water, communication, or agricultural laborer housing facilities are hereby determined to be compatible uses within any agricultural preserve." Because of the compatible uses of electric lines and substations, no conflict with existing zoning for agricultural use would occur.

Within the City of Lodi, the proposed PG&E transmission line, switching station, and service line extension, and the existing PG&E 60 kV lines are located on land that is currently zoned for Industrial and Public/Quasi-Public. According to Section 17.24.030 of the *City of Lodi Municipal Code*, utility facilities are permitted within the industrial land use area with a use permit. According to Section 17.26.060 of the *City of Lodi Municipal Code*, utility facilities are permitted by right in the Public/Quasi-Public district (MuniCode 2021a).

The project is not located within 2 miles of private airports or airstrips.

PG&E transmission line components span Paddy Creek and Bear Creek, which are under the jurisdiction of the CVFPB regulated streams and federal levees. The PG&E transmission line also would span the South Pipeline, which is under jurisdiction of the NSJWCD. The NSJWCD and CVFPB have specific requirements for utility crossings of their facilities. As part of the permitting process, PG&E will consult with CVFPB and NSJWCD to obtain any required encroachment permits, licenses, or leases and will comply with all design guidelines and permit/license/lease requirements, including any required setbacks. In accordance with PG&E setback requirements, the transmission structure will be at least 25 feet from the pipeline. No impact will occur.

The proposed PG&E transmission line spans SR 88 and potentially the California high-speed rail alignment. An existing 60 kV span of PG&E Industrial Tap will be removed from above SR 12 and a new horizontal guy wire from an existing PG&E Lockeford-Lodi No. 2 pole will span SR 12 where the 60 kV span is removed. The PG&E transmission line, PG&E service line extension, and a new PG&E 60 kV span will span the CCT Company railroad tracks (owned by UPRR). As part of the permitting process, PG&E will consult with Caltrans, UPRR, and potentially California High-Speed Rail Authority to obtain required land rights. PG&E will comply with all design guidelines and land rights, including those related to rail and highway crossings. No impact will occur. O&M personnel will visit the project periodically for routine inspection and maintenance procedures. This infrequent activity will have no impact on land use.

Because local agencies do not have jurisdiction over PG&E's project components, and no state or federal land use plans, policies, or regulations are applicable, the PG&E project components would not conflict with any applicable land use policy, plan, or regulation. Nonetheless, an evaluation was performed, and the impact analysis demonstrates that the PG&E portion of the project is compatible with the general plans adopted by the City of Lodi and San Joaquin County and will not have an impact on plans or policies. No changes in land use or zoning will be required as part of the project. No impact will occur.

LEU Potential Impact Discussion

With respect to LEU's project components located in the City of Lodi, the proposed LEU Industrial Substation, new Guild Substation, and existing electrical customer service line relocated to an underground configuration are located on land that is currently zoned for Industrial and Public/Quasi-Public use. According to Section 17.24.030 of the *City of Lodi Municipal Code*, utility facilities are permitted within the industrial land use area with a use permit. According to Section 17.26.060 of the *City of Lodi Municipal Code*, utility facilities are permitted by right in the Public/Quasi-Public district (MuniCode 2021a). The proposed LEU project components are compatible with the land use designated in the *City of Lodi Municipal Code*. Therefore, no impact will occur.

c) Would the project conflict with any applicable habitat conservation plan or natural community conservation plan? *No Impact.*

PG&E Potential Impact Discussion

San Joaquin County has the SJMSCP, which identifies utility installation and maintenance activities as a permitted activity and compensates for conversions of open space for utility installations and maintenance activities (SJCOG 2000).

PG&E has an HCP for its O&M activities in the San Joaquin Valley (Jones and Stokes 2006). However, the HCP only pertains to the O&M activities for the electrical system, including Inspections and Electrical System Tower Replacement or Repair (E2 and E6), which would be covered activities. Additionally, as described in Section 5.4, Biological Resources, PG&E construction practices and PG&E APMs are designed to be compatible with the SJVHCP avoidance and minimization measures, which have been reviewed and approved previously by USFWS and CDFW.

PG&E's construction activities will not conflict with any applicable HCP or NCCP. Project O&M activities will comply with the PG&E SJVHCP. No impact will occur.

No NCCPs are within the project vicinity; no impact will occur.

LEU Potential Impact Discussion

LEU's project components are not located within the San Joaquin County's SJMSCP, and there are no NCCPs within the project vicinity; no impact will occur.

5.12 Mineral Resources

This section describes existing conditions and potential impacts on mineral resources as a result of construction, operation, and maintenance of the project. The analysis concludes that the proposed project would have no impact on mineral resources. The project's potential effects on mineral resources were evaluated using the significance criteria set forth in Appendix G of the CEQA Guidelines. Project description information and potential impacts are organized and discussed by each participating utility's portion of the project. The conclusions are summarized in Table 5.12-1 (located in Section 5.12.3) and discussed in more detail in Section 5.12.4.

5.12.1 Methodology and Environmental Setting

Information on mineral resources was compiled from local plans, published literature, and maps. Mineral resource classifications and locations were obtained by reviewing the CGS's and Division of Mine Reclamation's (DMR's) maps and special reports. Online maps from sources, including the Mineral Land Classification Studies Index (CGS 2021), the MOLMines MapServer web portal (DMR 2022a), and Mines Online (DMR 2022b), were reviewed to check for the presence of active mining claims, active mines, resource recovery sites, and mineral resources within 0.5 mile of the project footprint. General Plans for both San Joaquin County and City of Lodi were reviewed for information on locally important mineral resources (San Joaquin County 2016; City of Lodi 2010).

No active mining claims, active mines, or resources recovery sites are known within 0.5 mile of the project. According to the CGS publication Special Report 199 (Smith and Clinkenbeard 2012), the project is partially located within one mineral resource zone (MRZ), MRZ-1—specifically, the portion of the project located within the City of Lodi and extending approximately 200 feet east of the city limits. PG&E project components within MRZ-1 include the portions of the three existing PG&E 60 kV lines currently terminating at Industrial Substation that will be reconfigured after the 230 kV source is in service; the new Thurman Switching Station; an extended electrical service line for secondary station power; and approximately 1,550 feet of the western extent of the new PG&E 230 kV DCTL, Lockeford-Thurman. LEU project components within the MRZ-1 area include the existing LEU Industrial Substation, new Guild Substation, and an existing electrical customer service line relocated to an underground configuration. The LEU project components are within 0.5 mile of the city limits.

According to the *San Joaquin County General Plan* (San Joaquin County 2016), the mineral resources of San Joaquin County primarily include sand and gravel aggregate, with limited mining of peat, gold, and silver. Active mining operations existing within the County are related to sand and gravel aggregate operations. The closest extraction sites are more than 0.5 mile to the northeast of the project along the Mokelumne River. No specific mineral resource area or known active sand and gravel aggregate mining operations are within 0.5 mile of the project. According to the *Lodi General Plan* (City of Lodi 2010), the City of Lodi's planning area is designated as MRZ-1, as identified by CGS, and it does not contain significant mineral resources.

5.12.2 Regulatory Setting

5.12.2.1 Federal

No federal regulations related to mineral resources are applicable to the project.

5.12.2.2 State

The California Surface Mining and Reclamation Act of 1975 requires that the State Geologist classify land into MRZs according to the known or inferred mineral potential of the land (PRC Sections 2710–2796). The current mineral land classification report for the area, Special Report 199 (Smith and Clinkenbeard 2012), which is an update of predecessor Special Report 160 (Jensen and Silva 1989), confirms that the mineral land classification categories that were current when Special Report 160 was developed were still

valid for the updated report. As such, the MRZ categories applicable to this project are described as follows:

- **MRZ-1:** Areas where available geologic information indicates that little likelihood exists for the presence of significant mineral resources.
- **MRZ-2:** Areas where adequate information indicates that significant mineral deposits are present, or where it is judged that a high likelihood for their presence exists. This zone shall be applied to known mineral deposits or where well-developed lines of reasoning, based upon economic-geologic principles and adequate data, demonstrate that the likelihood for occurrence of significant mineral deposits is high.
- **MRZ-3:** Areas containing known or inferred mineral occurrences of undetermined mineral resource significance.
- **MRZ-4:** Areas where available information is inadequate to assign any other classification.

5.12.2.3 Local

Because the CPUC has exclusive jurisdiction over project siting, design, and construction, PG&E's portion of the project is not subject to local (city and county) discretionary regulations except for air districts and CUPAs with respect to air quality and hazardous waste regulations. However, local plans and policies are considered for informational purposes and to assist with the CEQA review process.

The City of Lodi is a local agency and must comply with its own local plans and policies.

The *San Joaquin County General Plan* and the *Lodi General Plan* do not designate any locally important mineral resources within 0.5 mile of the project.

5.12.3 Impact Questions

The project's potential effects on mineral resources were evaluated using the significance criteria set forth in Appendix G of the CEQA Guidelines. The conclusions are summarized in Table 5.12-1 and discussed in more detail in Section 5.12.4.

Table 5.12-1. CEQA Checklist for Mineral Resources

Would the project:	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
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?	☐	☐	☐	☒
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?	☐	☐	☐	☒

5.12.3.1 Additional CEQA Impact Questions

None.

5.12.4 Potential Impact Analysis

Project impacts related to mineral resources were evaluated against the CEQA significance criteria and are discussed in the following subsections. The impact analysis evaluates potential project impacts during the

construction phase and the operation and maintenance phase. The impact discussion is organized to describe the effects that each participating utility's portion of the project has on the environment.

5.12.4.1 Significance Criteria

According to Section 15002(g) of the CEQA Guidelines, "a significant effect on the environment is defined as a substantial adverse change in the physical conditions which exist in the area affected by the proposed project." As stated in Section 15064(b), the significance of an activity may vary with the setting. Per Appendix G of the CEQA Guidelines, the potential significance of project impacts on mineral resources were evaluated for each of the criteria listed in Table 5.12-1, as discussed in Section 5.12.4.

5.12.4.2 Applicant-Proposed Measures and Best Management Practices

The project will have no impact on mineral resources, so no APMs or BMPs are proposed.

5.12.4.3 Potential Impacts

As described in Chapter 3, Project Description, the project will provide a new 230 kV transmission source in northern San Joaquin County, in central California. The project includes extending an existing PG&E 230 kV transmission line through PG&E Lockeford Substation to a new PG&E Thurman Switching Station in Lodi, California, by installing new tubular steel poles and conductors for approximately 11 miles. PG&E Lockeford Substation will be expanded on existing substation property to accommodate the new 230 kV facility. PG&E Thurman Switching Station will transfer the new 230 kV source to the new adjacent LEU 230/60 kV Guild Substation. LEU Guild Substation will transfer the 60 kV power to the existing adjacent LEU 60 kV Industrial Substation, which will be modified to receive the new LEU 60 kV lines (via the new 230 kV source) and to disconnect the existing PG&E 60 kV sources. When disconnected, the three existing PG&E 60 kV lines will be partially removed and reconfigured mainly within their existing alignments to continue operation between PG&E Lockeford and Lodi substations. LEU distribution and the third-party telecommunication underbuild on PG&E 60 kV line portions being removed will be relocated by the respective utility owner to within or adjacent to other existing alignments. An existing PG&E distribution line will be extended underground approximately 500 feet in franchise to provide a permanent secondary service line to PG&E Thurman Switching Station. PG&E project-related work to update communication between facilities and the protection scheme system also will occur within the existing fence lines of remote-end substations Brighton, Bellota, Lodi, and Rio Oso, and a communication facility, Clayton Hill Repeater Station.

a) Would the project result in the loss of availability of a known mineral resource that would be of value to the region and residents of the state? *No Impact.*

PG&E Potential Impact Discussion

While the westernmost portion of the project is in an area identified as MRZ-1, there are no known mineral resources, active mining claims, or active mining operations within 0.5 mile of the project, either within the City of Lodi or within San Joaquin County. Therefore, loss of availability of a known mineral resource of value to the region and residents of the state will not occur; no construction or operation and maintenance impacts will occur.

LEU Potential Impact Discussion

While the LEU portion of the project is in an area identified as MRZ-1, there are no known mineral resources, active mining claims, or active mining operations within 0.5 mile of the project, either within the City of Lodi or within San Joaquin County. Therefore, loss of availability of a known mineral resource of value to the region and residents of the state will not occur; no construction or operation and maintenance impacts will occur.

b) Would the project 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? *No Impact.*

PG&E Potential Impact Discussion

The *San Joaquin County General Plan* and the *Lodi General Plan* do not designate any locally important mineral resources within 0.5 mile of PG&E's portion of the project. The project will not result in the loss of availability of a locally important mineral resource recovery site; therefore, no construction or operation and maintenance impact will occur.

LEU Potential Impact Discussion

The *San Joaquin County General Plan* and the *Lodi General Plan* do not designate any locally important mineral resources within 0.5 mile of LEU's portion of the project. The project will not result in the loss of availability of a locally important mineral resource recovery site; therefore, no construction or operation and maintenance impact will occur.

5.13 Noise

This section describes existing conditions and potential noise impacts associated with construction, operation, and maintenance of the project. Project description information and potential impacts are organized and discussed by each participating utility's portion of the project. The analysis concludes that impacts will be less than significant. The APMs and BMPs described in Section 5.13.4.2 will further reduce potential less-than-significant impacts. The project's potential noise-related effects were evaluated using the significance criteria set forth in Appendix G of the CEQA Guidelines. The conclusions are summarized in Table 5.13-14 and discussed in more detail in Section 5.13.4.

5.13.1 Methodology and Environmental Setting

Methodology includes a discussion of the fundamentals of noise, corona noise, and vibration. The environmental setting includes a discussion of sensitive receptors in the project area and noise in this setting.

5.13.1.1 Methodology

Evaluation of potential noise impacts from the project included reviewing County and City noise standards that would assist with the environmental review, characterizing the existing noise environment, and predicting noise levels and related impacts during both construction and operation of the project.

Typical noise levels generated by the construction equipment listed in the project description have been calculated previously and published in various reference documents. The expected equipment noise levels listed in the FHWA *Roadway Construction Noise Model User's Guide* (User's Guide) (FHWA 2006) were used for this evaluation. The User's Guide provides the most recent comprehensive assessment of noise levels from construction equipment. Table 5.13-1 provides typical noise levels and usage factors for general construction equipment and activities consistent with the FHWA Roadway Construction Noise Model. The acoustical usage factor does not equate to the percentage of time the equipment is in use, but rather the percentage of time that it is operated at its maximum sound emission level.

Table 5.13-1. Typical Construction Equipment Noise Levels

Equipment Description	Acoustical Usage Factor (%)	Specified L_{max} at 50 feet (dBA)	Calculated L_{eq} at 100 feet (dBA)	Calculated L_{eq} at 1,000 feet (dBA)	Calculated L_{eq} at 2,000 feet (dBA)	Calculated L_{eq} at 4,000 feet (dBA)
Auger Drill Rig	20	85	72	52	46	40
Backhoe	40	80	70	50	44	38
Bar Bender	20	80	67	47	41	35
Boring Jack Power Unit	50	80	71	51	45	39
Chain Saw	20	85	72	52	46	40
Clam Shovel (dropping)	20	93	80	60	54	48
Compactor (ground)	20	80	67	47	41	35
Compressor (air)	40	80	70	50	44	38
Concrete Batch Plant	15	83	69	49	43	37
Concrete Mixer Truck	40	85	75	55	49	43
Concrete Pump Truck	20	82	69	49	43	37
Concrete Saw	20	90	77	57	51	45
Crane	16	85	71	51	45	39
Dozer	40	85	75	55	49	43
Drill Rig Truck	20	84	71	51	45	39

Equipment Description	Acoustical Usage Factor (%)	Specified L_{max} at 50 feet (dBA)	Calculated L_{eq} at 100 feet (dBA)	Calculated L_{eq} at 1,000 feet (dBA)	Calculated L_{eq} at 2,000 feet (dBA)	Calculated L_{eq} at 4,000 feet (dBA)
Drum Mixer	50	80	71	51	45	39
Dump Truck	40	84	74	54	48	42
Excavator	40	85	75	55	49	43
Flat Bed Truck	40	84	74	54	48	42
Front End Loader	40	80	70	50	44	38
Generator	50	82	73	53	47	41
Generator (less than 25 kVA)	50	70	61	41	35	29
Gradall	40	85	75	55	49	43
Grader	40	85	75	55	49	43
Grapple (on backhoe)	40	85	75	55	49	43
Horizontal Boring Hydraulic Jack	25	80	68	48	42	36
Hydra Break Ram	10	90	74	54	48	42
Impact Pile Driver	20	95	82	62	56	50
Jackhammer	20	85	72	52	46	40
Man Lift	20	85	72	52	46	40
Mounted Impact Hammer (hoe ram)	20	90	77	57	51	45
Pavement Scarifier	20	85	72	52	46	40
Paver	50	85	76	56	50	44
Pickup Truck	40	55	45	25	19	13
Pneumatic Tools	50	85	76	56	50	44
Pumps	50	77	68	48	42	36
Refrigerator Unit	100	82	76	56	50	44
Rivet Buster/ Chipping Gun	20	85	72	52	46	40
Rock Drill	20	85	72	52	46	40
Roller	20	85	72	52	46	40
Sand Blasting (single nozzle)	20	85	72	52	46	40
Scraper	40	85	75	55	49	43
Shears (on backhoe)	40	85	75	55	49	43
Slurry Plant	100	78	72	52	46	40
Slurry Trenching Machine	50	82	73	53	47	41
Soil Mix Drill Rig	50	80	71	51	45	39
Tractor	40	84	74	54	48	42
Vacuum Excavator (vac-truck)	40	85	75	55	49	43
Vacuum Street Sweeper	10	80	64	44	38	32
Ventilation Fan	100	85	79	59	53	47
Vibrating Hopper	50	85	76	56	50	44

Equipment Description	Acoustical Usage Factor (%)	Specified L_{max} at 50 feet (dBA)	Calculated L_{eq} at 100 feet (dBA)	Calculated L_{eq} at 1,000 feet (dBA)	Calculated L_{eq} at 2,000 feet (dBA)	Calculated L_{eq} at 4,000 feet (dBA)
Vibratory Concrete Mixer	20	80	67	47	41	35
Vibratory Pile Driver	20	95	82	62	56	50
Warning Horn	5	85	66	46	40	34
Welder/Torch	40	73	63	43	37	31
All Other Equipment Greater than 5 Horsepower	50	85	76	56	50	44

Notes:

dBA = A-weighted decibel

L_{eq} = time-averaged sound level

L_{max} = highest sound level measured during a single noise event

As shown in Table 5.13-1, the loudest typical construction equipment generally emits noise in the range of 80 to 90 A-weighted decibels (dBA) at 50 feet, with usage factors of 40% to 50%. Noise at any specific receptor is dominated by the closest and loudest equipment. The types and numbers of construction equipment near any specific receptor location will vary over time. As described by the Federal Transit Administration (FTA) (2018), the average noise level from each piece of equipment is determined by the following formula for geometric spreading:

Typical Noise Level at 50 feet + 10 * log (Adj_{usage}) – 20 * log (distance to receptor/50) – 10 * G * log (distance to receptor/50)

Where:

Usage factor (Adj_{usage}) = 1 (equipment is operating continuously)

Ground effect factor (G) = 0, representing hard ground (such as a ground condition that does not result in additional attenuation)

The following conservative assumptions were used for modeling construction noise:

- One piece of equipment generating a reference noise level of 85 dBA (at 50 feet distance with a 40% usage factor) located on the transmission line route
- Two pieces of equipment generating reference noise levels of 85 dBA located 50 feet farther away on the transmission line route (100 feet distance with a 40% usage factor)
- Two additional pieces of equipment generating reference noise levels of 85 dBA located 100 feet farther away on the transmission line route (200 feet distance with a 40% usage factor)

Table 5.13-2 presents construction equipment noise levels at various distances based on these assumptions.

Table 5.13-2. Construction Equipment Noise Levels Versus Distance

Distance from Construction Activity (feet)	L_{eq} Noise Level (dBA)
50	83
100	79
200	74
400	69
800	63
1,600	58

3,200	52
6,400	46

Note: Refer to text narrative preceding this table for the assumptions of this noise modeling scenario.

Helicopter use is proposed primarily for the conductor stringing operation; use of helicopters to lift and transport structure components and poles is not anticipated. PG&E estimates that a helicopter will be used on the project for approximately 50 days (for an average of 5 hours per day) during construction, primarily supporting the activities described previously. Helicopters generally will be staged and fueled at Lodi Airpark, Lodi Airport, or Kingdon Airpark. Temporary landing zones will be established at intervals of approximately 6 miles along the transmission line route; these landing zones will be collocated with pull and tension sites, staging areas, or structure work areas. In each temporary landing zone or staging area, there will be a designated area for helicopter takeoff and landing.

The helicopter type will depend on availability at the time of construction; however, it is likely to be a light-duty helicopter (Hughes MD500 or equivalent) with a load capacity of approximately 1,200 pounds. Near residences, helicopter operations will be limited to daylight hours. The helicopter flight path generally will follow the proposed alignment and will avoid flying over residences. To assist with conductor stringing, a helicopter will fly a lightweight sock line and thread through traveler pulleys affixed to structure arms. This typically requires approximately 10 to 15 minutes of hover time at each structure; the remaining daily flight time will be between the structure sites and pulling and tensioning areas.

Light-duty helicopters typically result in noise of 71 to 81 dBA at 250 feet from the helicopter, which drops to 65 to 75 dBA at 500 feet (Helicopter Association 2016). Most helicopter activity is expected to occur at landing zones. Helicopter landing zones are expected to be collocated with three staging areas, as shown on Figure 3.5-1, or helicopters will use existing nearby airstrips and commercial airports.

Because helicopters are not proposed for lifting structure components, it is not anticipated that residents would temporarily be required to vacate their residences. However, in the unlikely event that final construction plans require otherwise, all FAA requirements would be met and PG&E would coordinate with potentially affected residents (providing a minimum of 30 days of advance notice).

Multiple factors make it impractical to numerically predict which residences within the study area might experience annoyance caused by the proposed helicopter construction activity, including:

- Variability in how individuals react to the noise
- Variation in the noise levels that individuals might experience given changes in distance from various helicopter activities and orientation of the receptor relative to the helicopter (left side versus right side)
- The presence of “blade slap” (FAA 2004) that can occur when a helicopter operates under high load or ascends or descends at a steep angle
- Varying levels of public outreach and notification on when and why helicopter noise will occur in a neighborhood (FAA 2004)

Regardless of the complexity of these factors, this assessment concludes that a limited number of residences could experience temporary, but potentially substantial, annoyance caused by intermittent helicopter activity. To minimize the potential concerns from noise emitted by helicopter construction activity, APM NOI-6 establishes that helicopter landing zones be located at least 500 feet from occupied residences where feasible.

Blasting is not anticipated, but implosive sleeves (which use explosives) may be used to splice or fuse conductors together. To minimize the potential concerns from the sudden noise emitted by implosive splicing, APM NOI-7 establishes a notification requirement to the community and emergency providers.

Fundamentals of Noise

Noise generally is defined as loud, unpleasant, unexpected, or undesired sound that typically is associated with human activity and that interferes with or disrupts normal activities. Although prolonged exposure to

high noise levels has been demonstrated to cause hearing loss, the principal human response to environmental noise is annoyance. The response of individuals to similar noise events is diverse and influenced by the type of noise, the perceived importance of the noise and its appropriateness in the setting, the time of day and the type of activity during which the noise occurs, and the sensitivity of the individual. Airborne sound is the fluctuation of air pressure above and below atmospheric pressure. Several ways exist to measure sound, depending on the source, receiver, and reason for the measurement.

Community sound levels generally are presented in terms of A-weighted decibels. The A-weighting network measures sound in a similar fashion to how a person perceives or hears sound, thus achieving a strong correlation with how people perceive acceptable and unacceptable sound levels.

A-weighted sound levels typically are measured or presented as the equivalent sound pressure level (L_{eq}), which is defined as the average noise level on an equal-energy basis for a stated period of time and commonly is used to measure steady-state sound that is usually dominant. Statistical methods are used to capture the dynamics of a changing acoustical environment. Statistical measurements typically are denoted by L_n, where "n" represents the percentile of time that the sound level is exceeded. Therefore, L_{90} represents the noise level that is exceeded during 90% of the measurement period, which typically represents a continuous noise source. Similarly, L_{10} represents the noise level exceeded for 10% of the measurement period.

Table 5.13-3 presents A-weighted sound levels and the general subjective responses associated with common sources of noise in the physical environment.

Table 5.13-3. Typical Sound Levels Measured in the Environment

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
	— 110 —	Rock band
Jet flyover at 1,000 feet		
	— 100 —	
Gas lawn mower at 3 feet		
	— 90 —	
Diesel truck at 50 feet at 50 mph		Food blender at 3 feet
	— 80 —	Garbage disposal at 3 feet
Noisy urban area, daytime		
Gas lawn mower, 100 feet	— 70 —	Vacuum cleaner at 10 feet
Commercial area		Normal speech at 3 feet
Heavy traffic at 300 feet	— 60 —	
		Large business office
Quiet urban daytime	— 50 —	Dishwasher in the next room
Quiet urban nighttime	— 40 —	Theater, large conference room (background)
Quiet suburban nighttime		
	— 30 —	Library
Quiet rural nighttime		Bedroom at night, concert hall (background)
	— 20 —	
		Broadcast/recording studio
	— 10 —	
Lowest threshold of human hearing	— 0 —	Lowest threshold of human hearing

Source: Caltrans 2013.

Another metric used in determining the impact of environmental noise is the differences in response that people have to daytime and nighttime noise levels. During the evening and at night, exterior background noises generally are lower than daytime levels. However, most household noise also decreases at night, and exterior noise becomes more noticeable. Furthermore, most people sleep at night and are sensitive to intrusive noises. To account for human sensitivity to evening and nighttime noise levels, the day-night sound level (L_{dn}) (also referred to as DNL) and the community noise equivalent level (CNEL) were developed. The L_{dn} is a noise metric that accounts for the greater annoyance of noise during the nighttime hours (10:00 p.m. to 7:00 a.m.). The CNEL is a noise index that accounts for the greater annoyance of noise during both the evening hours (7:00 p.m. to 10:00 p.m.) and nighttime hours.

L_{dn} values are calculated by averaging hourly L_{eq} sound levels for a continuous 24-hour period on an energy basis, applying a weighting factor of 10 decibels (dB) to the nighttime values. CNEL values are calculated similarly, except that a 5-dB weighting factor also is added to evening L_{eq} values. The applicable adjustments, which reflect the increased sensitivity to noise during evening and nighttime hours, are applied to each hourly L_{eq} sound level for the calculation of L_{dn} and CNEL. For the purposes of assessing noise, the 24-hour day is divided into three time periods, with the following adjustments:

- Daytime hours: 7:00 a.m. to 7:00 p.m. (12 hours)—adjustment of 0 dBA
- Evening hours (for CNEL only): 7:00 p.m. to 10:00 p.m. (3 hours)—adjustment of +5 dBA
- Nighttime hours (for both CNEL and L_{dn}): 10:00 p.m. to 7:00 a.m. (9 hours)—adjustment of +10 dBA

The hourly adjusted time-period noise levels then are averaged (on an energy basis) to compute the overall L_{dn} or CNEL value. For a continuous noise source, such as a transformer, the L_{dn} value can be computed by adding 6.4 dBA to the overall 24-hour noise level (L_{eq}). For example, if the expected continuous noise level from a noise source is 60.0 dBA, the resulting L_{dn} from the source will be 66.4 dBA. Similarly, the CNEL for a continuous noise source is computed by adding 6.7 dBA to the overall 24-hour L_{eq}.

The general human response to changes in noise levels that are similar in frequency content (such as comparing increases in continuous [L_{eq}] traffic noise levels) are summarized as follows:

- A 3-dB change in sound level is considered to be a barely noticeable difference.
- A 5-dB change in sound level typically is noticeable.
- A 10-dB increase is considered to be a doubling in loudness.

Sound attenuates with distance. The farther one is from the source, the lower the sound level will be. For sources of noise that may be represented by a point source, such as a piece of construction equipment, the sound generally will decrease at a rate of 6 decibels per doubling of distance. For line sources (such as continuous traffic on a roadway), the sound level generally will decrease at a rate of 3 decibels per doubling of distance. At larger distances, atmospheric absorption and other factors may provide additional reductions beyond those provided by distance alone.

Corona Noise

Under certain conditions, the localized electric field near an energized conductor can be sufficiently concentrated to produce a tiny electric discharge that can ionize air close to the conductors. This partial discharge of electrical energy is called corona discharge, or corona. Several factors, including conductor voltage, shape and diameter, and surface irregularities such as scratches, nicks, dust, or water drops, can affect a conductor's electrical surface gradient and its corona performance. Corona is the physical manifestation of energy loss and can transform discharge energy into small amounts of sound, radio noise, heat, and chemical reactions of the air components.

During foul or wet weather conditions (such as rain or fog), water drops collect on the conductor and increase corona activity so that a crackling or humming sound may be heard near the line. This noise is caused by small electrical discharges from the water drops. However, during heavy rain, the ambient noise generated by the falling raindrops typically will be greater than the noise generated by corona. Corona

noise generally is more noticeable on high-voltage lines and usually is not a design issue for power lines rated at 345 kV and lower (CPUC 2009).

Vibration

Generally speaking, vibration is energy transmitted in waves through the ground. Because energy is lost during the transfer of energy from one particle to another, vibratory energy is reduced with increasing distance from the source. Human perception of vibration varies with the individual and is a function of physical setting and the type of vibration. Those exposed to elevated ambient vibration levels, such as people in an urban environment, may tolerate a higher vibration level.

Caltrans has developed guidance on addressing vibration issues associated with construction, operation, and maintenance of transportation projects (Caltrans 2020). Table 5.13-4 outlines typical human response to vibration.

Table 5.13-4. Human Response to Transient Vibration

Human Response	PPV (inches/second)
Severe	2.0
Strongly Perceptible	0.9
Distinctly Perceptible	0.24
Barely Perceptible	0.035

Source: Caltrans 2020

PPV = peak particle velocity

Caltrans Construction Vibration Guidance Manual (2020) notes, "There are no Caltrans or Federal Highway Administration standards for vibration and it is not the purpose of this manual to set standards." Rather, agencies such as Caltrans provide "… a synthesis of these criteria that can be used to evaluate the potential for damage and annoyance from vibration-generating activities." In addition, Caltrans (2020) also notes that, "in most cases, vibration induced by typical construction equipment does not result in adverse effects on people or structures. Noise from the equipment typically overshadows any meaningful ground vibration effects on people."

For most projects, the highest levels of vibration occur during construction and assessment is conducted to evaluate the potential damage to nearby buildings. The FTA manual establishes construction damage criteria in terms of peak particle velocity (PPV). These criteria are presented in Table 5.13-5 and range from a threshold of 0.12 inch per second for "buildings extremely susceptible to vibration damage" to 0.5 inch per second for "reinforced concrete, steel, or timber (no plaster)." (FTA 2018).

Although the guidance is not enforceable, it provides a basis for evaluating potential vibration from the proposed project as the construction equipment and activities associated with transportation projects are similar to those used to construct electrical transmission projects.

Table 5.13-5. Construction Vibration Damage Criteria

Building Category	PPV (in/sec)	Single Event PPV (in/sec)
1. Reinforced concrete, steel, or timber (no plaster) (buildings in steel or reinforced concrete, such as factories, retaining walls, bridges, steel towers, open channels, underground chambers, and tunnels with and without concrete alignment)	0.5	1.2
2. Engineered concrete and masonry (no plaster) (buildings with foundation walls and floors in concrete, walls in concrete or masonry, stone masonry retaining walls, underground chambers and tunnels with masonry alignments, and conduits in loose material)	0.3	0.7

Building Category	PPV (in/sec)	Single Event PPV (in/sec)
3. Nonengineered timber and masonry buildings (buildings as mentioned previously but with wooden ceilings and walls in masonry)	0.2	0.5
4. Buildings extremely susceptible to vibration damage (construction very sensitive to vibration; objects of historic interest)	0.12	0.3

Sources: Table 7-5, FTA 2018; Table 10, Caltrans 2020
Notes:

These limits and building categories align with the Caltrans (2020) summary of the Swiss Association of Standardization Vibration Damage Criteria for continuous sources. The Swiss criteria provide additional details regarding the building category and provide a single event limit.

in/sec = inch(es) per second

5.13.1.2 Environmental Setting

The project site is in rural northern San Joaquin County and in the eastern portion of the City of Lodi. The project is located in an agricultural setting intermixed with residences, commercial, industrial, and open space areas. Land uses surrounding the project are described in Section 5.11 (Local Land Use Setting [Existing Land Use]) and are summarized in the following subsections to include the presence of noise sensitive receptors within 0.50 mile of the project. Northeastern San Joaquin County is predominantly agricultural with retail, wineries, and rural and semirural residential development outside of the City of Lodi, and small concentrated areas of industrial and commercial business along transportation corridors.

Major land uses in the City of Lodi (excluding White Slough, streets, and other rights-of-way) are residential (50%); public/quasi-public, including schools (13%); industrial (12%); commercial, including retail and office (9%); vacant land (7%); miscellaneous land, including county, state, and parking areas (6%); agriculture and wineries (1%); utilities (<1%); and mixed uses (<1%) (City of Lodi 2010). Within the City of Lodi, the land uses near the proposed project area include industrial, open space, and public/quasi-public.

Near the proposed project, the majority of unincorporated San Joaquin County land is designated as agricultural. Along the eastern boundary of the project in the City of Lodi, land uses include industrial and open space. However, more-intensive residential and urban uses within unincorporated communities and nearby cities are sprinkled throughout the region.

Within unincorporated San Joaquin County, land uses along the PG&E 230 kV transmission line corridor are designated as general agricultural land and open space/resource conservation. The majority of the agricultural land is vineyard and associated support facilities. The open space/resource conservation designated areas intersecting with the proposed PG&E 230 kV transmission line are located along Bear Creek and east of PG&E Lockeford Substation.

Within the City of Lodi, land uses along the corridor are designated as industrial and public/quasi-public. LEU Industrial Substation and the western portion of the proposed LEU Guild Substation are located in public/quasi-public designated land. LEU Industrial and LEU Guild substations are bound to the north by the CCT Company railroad using UPRR tracks, by the City's Water Treatment Plant on the southern portion of the same city utility parcel, and by North American Specialty Products to the west. The remainder of the proposed project within the City of Lodi is located on industrial designated land, including the undeveloped property to the east of LEU Industrial Substation, which would be developed as part of the proposed project as portions of the eastern half of the proposed LEU Guild Substation, the proposed PG&E Thurman Switching Station, and the proposed PG&E 230 kV transmission line. The three PG&E 60 kV lines connecting LEU Industrial Substation and the existing LEU distribution underbuild on PG&E Lockeford-Industrial Line are on industrial-designated land and public/quasi-public land at LEU Industrial Substation and proposed LEU Guild Substation within the City of Lodi limits.

Sensitive Receptors

Noise sensitive receptors generally are defined as locations where people reside or where the presence of unwanted sound may adversely affect the existing land use. Typically, noise sensitive land uses include residences, hospitals, places of worship, libraries, performance spaces, offices, and schools, as well as nature and wildlife preserves, recreational areas, and parks. Sensitive receptors within 1,000 feet of the project were analyzed for potential impacts because of project construction and operation. Noise sensitive land uses located within 1,000 feet of the project are shown on Figure 5.3-1 and Figure 5.13-1. Work at PG&E's remote-end substations and repeater station will occur within the existing facility fence lines and is expected to occur at noise levels consistent with other regular station operation and maintenance activities.

PG&E Lockeford Substation

There are approximately 6 residences located within 1,000 feet of PG&E Lockeford Substation. Residence 31 is located approximately 235 feet from the existing fence line of the existing substation and approximately 165 feet from a potential staging area on substation property. Residence 30 is located within approximately 115 feet of the same potential substation property staging area and within approximately 80 feet of the existing access road along the eastern substation property boundary (refer to Figure 5.3-1). Residence 30 is approximately 650 feet from existing noise-generating equipment at the substation and will be approximately 730 feet from new noise-generating equipment to be built at the substation.

PG&E 230 kV Transmission Line

There are approximately 95 residences located within 1,000 feet of the new PG&E 230 kV transmission line. The residence located the closest to any proposed activity along the PG&E transmission line is approximately 80 feet from the transmission line center where proposed work is anticipated. Residence 30 is approximately 80 feet from an access road and approximately 115 feet from a construction staging area. Similarly, residence 95 is approximately 85 feet from an identified work area to replace or modify a 60 kV structure on an existing distribution line (refer to Figure 5.3-1). The closest residence to the transmission line itself is residence 37, located approximately 80 feet from the line (refer to Figure 5.3-1). This residence is also within approximately 580 feet of SR 88, which would influence the existing sound level in the vicinity. The next closest residences to the new transmission line are residences 17 and 20, located approximately 134 feet and approximately 144 feet from the line, respectively (refer to Figure 5.3-1). Both of these residences are approximately 300 feet from the existing PG&E double-circuit 115 kV and 230 kV line corridor north of East Kettleman Lane. The Lodi Memorial Park and Cemetery is located approximately 125 feet northeast of the proposed PG&E 230 kV transmission line when the line is within the City of Lodi (refer to Figure 5.3-1 and Figure 5.13-1).

PG&E Thurman Switching Station, PG&E 12 kV Extension, LEU Guild Substation, and LEU 12 kV Relocation

There are no residences located within 1,000 feet of the new PG&E Thurman Switching Station, the PG&E 12 kV service line extension, the existing PG&E Lodi-Industrial and PG&E Industrial Tap reconfiguration at LEU Industrial Substation, the existing LEU Industrial Substation, and the new LEU Guild Substation (refer to Figure 5.13-1). The PG&E 12 kV service line underground extension begins at an existing wood pole immediately adjacent to the Lodi Memorial Park and Cemetery. LEU Guild Substation is approximately 800 feet from the Lodi Memorial Park and Cemetery. Residence 92 is located approximately 750 feet from the eastern end of the LEU 12 kV feeder line that will be relocated underground using HDD. Residence 92 is within approximately 95 feet of the new span between PG&E Industrial Tap and PG&E Lockeford-Industrial lines near the western end of East Sargent Road. Where PG&E Industrial Tap will be topped to remove the 60 kV portion, residence 95 is within approximately 84 feet of the existing wood pole along East Pine Street.

Airports

The project is located more than 2 miles away from the nearest public or private airport. Therefore, the project would have no impact associated with airports or airstrips.

Noise Setting

Existing ambient sound levels may vary both temporally and spatially for a number of reasons. That is, there is no single answer for what the existing sound level is—ambient sound levels vary. For example, wind may result in rustling vegetation noise on one day, whereas calm conditions on another day would result in different sound levels, even at the same location. Changes in traffic patterns or seasonal agricultural activities also can result in different levels of sound. ANSI Standard 12.9-2013/Part 3 provides a table of approximate background sound levels based on land use and population density. The ANSI standard estimation divides land uses into six distinct categories.

Descriptions of these land use categories, along with the typical day and nighttime levels, are provided in Table 5.13-6. Of the six categories, the residences in the vicinity of the project area predominantly comprise Categories 4 and 6, where sound levels are expected to range between 34 dBA at night to 50 dBA during the day. At times, one could reasonably expect both periods to be louder or quieter than the levels stated and ANSI notes the "95% prediction interval [confidence interval] is on the order of +/- 10 dB."

Table 5.13-6. A-weighted Sound Levels Corresponding to Land Use and Population Density

Category	Land Use	Description	People per square mile	Day (dBA)	Night (dBA)
1	Noisy Commercial and Industrial Areas and Very Noisy Residential Areas	Very heavy traffic conditions, such as in busy "downtown" commercial areas; at intersections for mass transportation or for other vehicles, including elevated trains, heavy motor trucks, and other heavy traffic; and at street corners where many motor buses and heavy trucks accelerate.	63,840	66	58
2	Moderate Commercial and Industrial Areas and Noisy Residential Areas	Heavy traffic areas with conditions similar to Category 1 but with somewhat less traffic; routes of relatively heavy or fast automobile traffic, but where heavy truck traffic is not extremely dense.	20,000	61	54
3	Quiet Commercial, Industrial Areas, and Normal Urban and Noisy Suburban Residential Areas	Light traffic conditions where no mass transportation vehicles and relatively few automobiles and trucks pass, and where these vehicles generally travel at moderate speeds. Residential areas and commercial streets and intersections with little traffic comprise this category.	6,384	55	49
4	Quiet Urban and Normal Suburban Residential Areas	These areas are similar to Category 3, but for this group the background is either distant traffic or is unidentifiable. Typically the population density is one-third the density of Category 3.	2,000	50	44
5	Quiet Residential Areas	These areas are isolated, far from significant sources of sound, and may be situated in shielded areas such as a small, wooded valley.	638	45	39
6	Very Quiet, Sparse Suburban, or Rural Residential Areas	These areas are similar to Category 4, but are usually in sparse suburban or rural areas, and for this group there are few if any near sources of sound.	200	40	34

Source: ANSI S12.9-2013/Part 3.

An ambient sound level survey was conducted from October 15 to 16, 2019 at four measurement locations to quantify the existing sound environment surrounding the existing LEU Industrial Substation area. Prior to onsite measurements, potential noise-sensitive areas within a 0.5-mile radius of the existing substation were identified through a desktop review of aerial imagery.

Measurements were taken using an American National Standards Institute (ANSI) S1.4 type 1 sound level meter (Larson Davis Model 831). The sound level meter was calibrated at the beginning and end of each set of measurements. The microphone was located approximately 5 feet above ground level with the microphone directed towards LEU Industrial Substation, angled per the manufacturer's recommendation, at each measurement location. All measurements were taken when meteorological conditions were favorable for conducting sound level measurements per ANSI standards.

The sound survey consisted of far-field measurements at offsite measurement locations. Far-field sound measurements were taken during three time periods over a 24-hour span. The four sound measurement locations were selected because they were accessible and representative of existing ambient sound levels in the direction of the identified noise-sensitive areas. Sound measurements were collected at four locations, MP01 through MP04 (refer to Figure 5.13-2), which were selected to be representative of nearby residences. Far-field measurements were 10 minutes in duration, and measured values were logged by the sound level meter at each measurement point. Significant sound sources in the existing ambient environment included passing heavy traffic, constant industrial building and equipment noise, traffic on SR 99, birds, and insects. The existing LEU Industrial Substation was not clearly audible at any of the measurement locations at any measured time period. The results of these measurements are summarized in Table 5.13-7.

Table 5.13-7. Far-Field Ambient Measurement Data

Measurement Point	Sound Pressure Level L_{eq} (dBA)			Overall CNEL (dBA)
	Day (1:30 pm to 3:00 pm)	Evening (6:30 pm to 8:00 pm)	Night (12:00 am to 1:30 am)	
MP01	66	60	54	65
MP02	48	45	42	50
MP03	64	57	56	65
MP04	74	71	67	76

5.13.2 Regulatory Setting

5.13.2.1 Federal

U.S. Environmental Protection Agency

EPA guidelines (1974) assist state and local governments in developing state and local laws, ordinances, regulations, and standards for noise. Because local regulations apply to the project, the EPA guidelines are not applicable.

Occupational Safety and Health Administration

Onsite and occupational noise levels are regulated through OSHA. The noise exposure level of workers is regulated at 90 dBA over an 8-hour work shift to protect hearing (29 CFR 1910.95). Areas where noise levels exceed 85 dBA will be posted as high-noise level areas, and hearing protection will be required when entering or working in those areas. The project will implement a hearing conservation program for applicable employees and maintain exposure levels below applicable requirements.

Federal Transit Administration

The FTA issued the Transit Noise and Vibration Assessment Manual (FTA Manual), updated in 2018, to guide the assessment of noise and vibration impacts for federally funded transportation projects

consistent with the requirements of NEPA (FTA 2018). This project does not meet the criteria for a transit project defined by the FTA; however, the construction activities and equipment associated with this project are similar to those addressed in the FTA Manual, which establishes useful and reasonable guidelines for assessing construction noise, particularly when local criteria are not well defined.

The FTA Manual establishes absolute noise levels (thresholds) and considers the duration of construction to determine noise impacts on adjacent land uses (Tables 5.13-8 and 5.13-9).

Table 5.13-8. General Construction Noise Impact Evaluated Compared to Land Use

Land Use	$L_{eq.equip(1\ hr)}$ (dBA)	
	Day	Night
Residential	90	80
Commercial	100	100
Industrial	100	100

Source: FTA 2018

hr = hour

Table 5.13-9. Detailed Construction Noise Impact Evaluated Compared to Land Use

Land Use	$L_{eq.equip(8\ hr)}$ (dBA)		$L_{dn,equip(30\ day)}$ (dBA)
	Day	Night	30-day Average
Residential	80	70	75
Commercial	85	85	80*
Industrial	90	90	85*

Source: FTA 2018

$L_{dn.equip}$ or $L_{eq.equip}$= cumulative sound exposure for a receiver from equipment over a specified time period

*Use a 24-hour Leq instead of $L_{dn,equip(30\ day)}$

For most projects, the highest levels of vibration occur during construction and the assessment, therefore, focuses on evaluating the potential for damage to nearby buildings. The FTA Manual establishes construction damage criteria in terms of PPV. These criteria are presented in Table 5.13-5 and range from a threshold of 0.12 inch per second for "buildings extremely susceptible to vibration damage" to 0.5 inch per second for "reinforced concrete, steel, or timber (no plaster)." (FTA 2018).

5.13.2.2 State

State of California General Plan Guidelines

The state of California requires each county and city to develop a general plan for physical development within the county or city. Noise is one of the seven required elements to be included in the plan. The noise element of the general plan is to provide a basis for comprehensive local programs, to control and abate environmental noise, and to protect residents from excessive exposure to noise (Governor's Office of Planning and Research 2017). The content for local general plans is provided by GC Section 65040.2.

California Department of Industrial Relations, Division of Occupational Safety and Health

The California Department of Industrial Relations, Division of Occupational Safety and Health (also known as Cal/OSHA) enforces state noise regulations that are the same as the federal OSHA regulations described previously. Agency regulations are contained in the CCR, Title 8, General Industrial Safety Orders, Article 105, Control of Noise Exposure, Sections 5095 et seq.

California Department of Transportation

While not strictly applicable to this project, it is noted that the Caltrans Standard Specification Section 14-8.02, Noise Control, states the following: "Do not exceed 86 dBA L_{max} at 50 feet from the job site

activities from 9 p.m. to 6 a.m. Equip an internal combustion engine with the manufacturer recommended muffler. Do not operate an internal combustion engine on the job site without the appropriate muffler." In addition, it is generally noted that "No adverse noise impacts from construction are anticipated because construction would be conducted in accordance with Caltrans Standard Specifications Section 14.8-02. Construction noise would be short-term, intermittent, and overshadowed by local traffic noise."

With respect to vibration, *Caltrans Construction Vibration Guidance Manual* (2020) notes, "There are no Caltrans or Federal Highways Administration standards for vibration and it is not the purpose of this manual to set standards." Rather, agencies such as Caltrans provide "… a synthesis of these criteria that can be used to evaluate the potential for damage and annoyance from vibration-generating activities." Table 5.13-5 includes criteria summarized in Caltrans synthesis of criteria. In addition, Caltrans (2020) also notes that, "in most cases, vibration induced by typical construction equipment does not result in adverse effects on people or structures. Noise from the equipment typically overshadows any meaningful ground vibration effects on people."

California Vehicle Code

Noise limits for highway vehicles are regulated under the California Vehicle Code, Sections 23130 and 23130.5. The limits are enforceable on the highways by the CHP and county sheriff offices.

5.13.2.3 Local

Because the CPUC has exclusive jurisdiction over the siting, design, and construction of the project, PG&E's portion of the project is not subject to local (city and county) discretionary regulations except for air districts and CUPAs with respect to air quality and hazardous waste regulations. However, local plans and policies are considered for informational purposes and to assist with the CEQA review process. Airport land use compatibility plans are discussed in Section 5.11, Land Use and Planning, and safety concerns around airports are discussed in Section 5.9, Hazards and Hazardous Materials.

The City of Lodi is a local agency and must comply with its own local plans and policies. The project is located in unincorporated areas of San Joaquin County and also passes through a portion of the City of Lodi. This section considers policies and regulations of these jurisdictions as they relate to noise in the project area.

The adopted noise ordinances for San Joaquin County and the City of Lodi are summarized in the following subsections.

San Joaquin County

The Public Health and Safety Element of the *San Joaquin County 2035 General Plan* provides goals, policies, and implementation programs to minimize exposure to excessive noise sources that may cause undue stress or annoyance. The Public Health and Safety Element includes an analysis of major noise sources in the County and noise contours along major traffic corridors (San Joaquin County 2016). The Public Health and Safety Element also sets noise standards to prevent new noise conflicts by addressing the needs of noise-sensitive land uses, establishing noise -reducing project design features, and establishing appropriate noise emission standards.

Table 5.13-10 shows the noise level standards for noise sensitive uses at outdoor activity areas affected by non-transportation noise sources in the County (San Joaquin County 2016). Table 5.13-11 provides the maximum allowable noise from transportation noise sources to noise sensitive land use types (San Joaquin County 2016). These standards inform the County's noise ordinance.

Table 5.13-10. Non-Transportation Noise Level Performance Standards for Noise-Sensitive Uses at Outdoor Activity Areas

Noise Level Descriptor[a]	Daytime[b] (7:00 a.m. to 10:00 p.m.)	Nighttime[b] (10:00 p.m. to 7:00 a.m.)
Hourly Leq dB	50	45

Maximum Level, dB	70	65

Notes:

[a] Where the location of outdoor activity areas is unknown or is not applicable, the noise standard will be applied at the property line of the receiving land use. When determining the effectiveness of noise mitigation measures, the standards will be applied on the receiving side of noise barriers or other property line noise mitigation measures.
[b] Each of the noise level standards specified will be reduced by 5 dB for impulsive noise, single-tone noise, or noise consisting primarily of speech or music.

Source: *San Joaquin County General Plan*, December 2016, Table PHS-1, Section 3.3, page 3.3-18.

Table 5.13-11. Maximum Allowable Noise Exposure at Noise Sensitive Receptors from Transportation Noise Sources

Noise Level Descriptor[a]	Outdoor Activity Area[b]	Indoor Spaces[b]
Maximum Level, dB	65	45

Source: *San Joaquin County General Plan*, December 2016, Table PHS-2, Section 3.3, page 3.3-19.

Notes:

[a] These standards apply to new or existing residential areas affected by new or existing non-transportation sources.
[b] Where the location of outdoor activity areas is unknown or is not applicable, the noise standard shall be applied at the property line of the receiving land use. When determining the effectiveness of noise mitigation measures, the standards shall be applied on the receiving side of noise barriers or other property line noise mitigation measures.

San Joaquin County Public Health and Safety Element noise-related goals and policies include the following:

- Goal PHS-9
    - To protect County residents from the harmful and nuisance effects of exposure to excessive noise.
- Policies
    - PHS-9.1 Noise Standards for New Land Uses. The County shall require new development to comply with the noise standards (refer to PEA Tables 5.13-10 and 5.13-11) through proper site and building design, such as building orientation, setbacks, barriers, and building construction practices.
    - PHS-9.4 Acceptable Vibration Levels. The County shall require construction projects anticipated to generate a significant amount of vibration to ensure acceptable interior vibration levels at nearby vibration-sensitive uses based on FTA criteria.
    - PHS-9.6 Enforcement of State and Federal Noise Regulations. The County shall continue to enforce State and Federal noise laws regarding vehicle operation, equipment, and building insulation.
    - PHS-9.7 Require Acoustical Study. The County shall require a project applicant to prepare an acoustical study for any proposed new residential or other noise-sensitive development when the County determines the proposed development may expose people to noise levels exceeding acceptable General Plan noise levels.
    - PHS-9.9 Noise Exemptions. The County shall support the exemption of the following noise sources from the standards in this section:
        - Emergency warning devices and equipment operated in conjunction with emergency situations, such as sirens and generators which are activated during power outages. The routine testing of such warning devices and equipment shall also be exempt provided such testing occurs during the hours of 7:00 a.m. to 10:00 p.m.
        - Activities at schools, parks, or playgrounds, provided such activities occur during daytime hours.
        - Activities associated with County-permitted temporary events and festivals.

The noise ordinance for San Joaquin County is established by the County Municipal Code (San Joaquin County 2022). Section 9-1025.9 establishes noise limits for transportation and stationary noise sources

aligning with those included in the General Plan (refer to PEA Tables 5.13-10 and 5.13-11). Operational noise is subject to Section 9-1025.9(a)2:

- Stationary Noise Sources – Proposed projects that will create new stationary noise sources or expand existing stationary noise sources shall be required to mitigate the noise levels from these stationary noise sources so as not to exceed the noise level standards specified in Table 9-1025.9, Part II.

Construction noise is exempted from the noise standards in Section 9-1025.9(c):

- Noise sources associated with construction, provided such activities do not take place before 6:00 a.m. or after 9:00 p.m. on any day
- Noise sources associated with work performed by private or public utilities in the maintenance or modification of its facilities

Prohibited activities captured in Section 9-1025.9(f) are applicable to both operation and construction noise: "The outdoor operation of any industrial, commercial, or residential property maintenance tool or equipment powered by an internal combustion engine or electric motor including, but not limited to, leaf blower, chainsaw, lawn mower, hedger, and vacuum cleaner is prohibited within 500 feet of a residence located in a residential zone between the hours of 9:00 p.m. and 8:00 a.m."

If a project may expose existing or proposed noise sensitive land uses to noise levels exceeding noise standards specified in Tables 5.13-10 and 5.13-11, the Review Authority will require the preparation of an acoustical study. The study is to be based on the existing or future 65 dB L_{dn} noise contour in the General Plan, the proximity of new noise sensitive land uses to known noise sources, or the knowledge that a potential for adverse noise impacts exists.

Section 9-1025.5 of the San Joaquin County Municipal Code (2022) addresses vibration. Use resulting in perceptible displacement at any lot line abutting any zone except the General Industrial Zone is prohibited. In the General Industrial Zone, vibration displacement along lot lines will not exceed the levels set forth in Table 5.13-12.

Table 5.13-12. Maximum Displacement Levels at Any Lot Line

Frequency (cycles per second)	Steady State (inches)	Impact (inches)
10 and below	0.0010	0.0020
10-20	0.0008	0.0016
20-30	0.0007	0.0014
30-40	0.0003	0.0006
40-50	0.0002	0.0004
50-60	0.0001	0.0002
60 and over	0.0001	0.0002

Source: San Joaquin County Municipal Code 2022 (Ord. 3813 (part), 1994)

City of Lodi

The *City of Lodi General Plan* governs the city actions relating to the long-term physical and economic development of the city and provide strategies and actions to meet the envisioned development (City of Lodi 2010). The noise element in the general plan identifies the noise sources that exist within the city, describes noise impacts that may result from the General Plan, and establishes policies to mitigate potential impacts through both preventative and responsive actions (City of Lodi 2010). Table 5.13-13 indicates the acceptable limits of noise for various land uses for both exterior and interior environments. These limits are based on guidelines provided by the Governor's Office of Planning and Research (City of Lodi 2010).

Table 5.13-13. Allowable Noise Exposure, Outdoor and Interior

Land Use	Outdoor Activity Areas[a] (CNEL)	Interior Areas (CNEL)
Residential	60	45
Motels/Hotels	60	45
Public/Semi-Public	65	45
Recreational	65	50
Commercial	65	50
Industrial	70	65

Note: [a] For non-residential uses, where an outdoor activity area is not proposed, the standard does not apply.

Source: *City of Lodi General Plan*, 2010, Table 9-3, Page 9, Chapter 9: Noise.

The *City of Lodi General Plan* Noise Element describes guiding policies and implementing policies to meet the state and local noise exposure standards. The policies relevant to this project include the following:

- Policies
  - N-G1 Protect humans, the natural environment, and property from manmade hazards due to excessive noise exposure.
  - N-G2 Protect sensitive uses, including schools, hospitals, and senior care facilities, from excessive noise.
- Implementing Policies
  - N-P1 Control and mitigate noise at the source where feasible, as opposed to at the receptor end.
  - N-P2 Encourage the control of noise through site design, building design, landscaping, hours of operation, and other techniques for new development deemed to be noise generators.
  - N-P5 Noise sensitive uses, such as residences, hospitals, schools, libraries, and rest homes, proposed in areas that have noise exposure levels of "conditionally acceptable" and higher must complete an acoustical study, prepared by a professional acoustic engineer. This study should specify the appropriate noise mitigation features to be included in the design and construction of these uses, to achieve interior noise levels consistent with noise exposure standards (refer to PEA Table 5.13-13).
  - N-P8 Update Noise Ordinance regulations to address allowed days and hours of construction, types of work, construction equipment (including noise and distance thresholds), notification of neighbors, and sound attenuation devices.
  - N-P14 Reduce vibration impacts on noise-sensitive land uses (such as residences, hospitals, schools, libraries, and rest homes) adjacent to the railroad, SR 99, expressways, and near noise-generating industrial uses. This may be achieved through site planning, setbacks, and vibration-reduction construction methods such as insulation, soundproofing, staggered studs, double drywall layers, and double walls.

The noise ordinance for the City of Lodi is established by the City of Lodi Code of Ordinances (2021) in Section 17.14 and Section 9.24. Section 17.14 is applicable to operational noise and sets the maximum allowable noise standards at those found in the General Plan:

17.14.040 – General Performance Standards. All land uses activities, and processes shall be operated and maintained so as to not be injurious to public health, safety or welfare, and to comply with the following standards: …

F. Noise. No use, activity, or process shall exceed the maximum allowable noise standards identified by the general plan.

Operational noise and construction noise are subject to noise regulations established in Section 9.24. Construction noise is included in the definition of *commercial noise*: "noise or sound generated or created by the use, operation, or maintenance of any commercial activity, including but not limited to the operation of machinery, construction equipment, manufacturing equipment, motor vehicles operated in conjunction with such use, and shall include but not limited to compressors, fans, air conditioning units, and sound amplification systems utilized in conjunction with such functions." Section 9.24 establishes restrictions on public nuisance noise and excessive offensive or disturbing noises, as well as exemptions to these restrictions. Section 9.24 does not define numeric maximum sound levels, instead establishing a set of standards to determine violations of the regulations:

- The volume of the noise
- The intensity of the noise
- Whether the nature of the noise is usual or unusual for the area and hour
- Whether the origin of the noise is natural or unnatural
- The volume and intensity of the background noise, if any
- The proximity of the noise to residential sleeping facilities
- The nature and the zoning of the area within which the noise emanates
- The density of the inhabitation of the area within which the noise emanates
- The time of day or night the noise occurs
- The duration of the noise
- Whether the noise is produced by a commercial or noncommercial activity

Section 9.24.030(c) presents time limits establishing noise as excessive, offensive, or disturbing:

It is unlawful for any person, firm or corporation to cause, permit, or generate any noise or sound as described herein between the hours of ten p.m. and seven a.m. which exceeds the ambient noise level at the property line of any residential property (or, if a condominium or apartment house within any adjoining apartment) as determined at the time of such reading by more than five decibels. This section shall be applicable whether such noise or sound is of a commercial or noncommercial nature.

Section 9.24.050(e) exempts sound-causing equipment operating under a city license or permit.

5.13.3 Impact Questions

The project's potential noise-related effects were evaluated using the significance criteria set forth in Appendix G of the CEQA Guidelines. The conclusions are summarized in Table 5.13-14 and discussed in more detail in Section 5.13.4.

Table 5.13-14. CEQA Checklist for Noise

Would the project:	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a) Generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☒	☐
b) Generate excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐

Would the project:	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

5.13.3.1 Additional CEQA Impact Questions

None.

5.13.4 Potential Impacts Analysis

The following sections describe significance criteria for noise-related impacts derived from Appendix G of the CEQA Guidelines, provide APMs and BMPs, and assess potential project-related construction and operational noise impacts. The impact discussion is organized to describe the effects that each participating utility's portion of the project has on the environment.

5.13.4.1 Significance Criteria

According to Section 15002(g) of the CEQA Guidelines, "a significant effect on the environment is defined as a substantial adverse change in the physical conditions which exist in the area affected by the proposed project." As stated in Section 15064(b) of the CEQA Guidelines, the significance of an activity may vary with the setting. Per Appendix G of the CEQA Guidelines, the potential significance of project impacts related to noise were evaluated for each of the criteria listed in Table 5.13-14, as discussed in Section 5.13.4.3.

5.13.4.2 Applicant-Proposed Measures and Best Management Practices

The project will implement the following APMs and BMPs:

APM NOI-1: PG&E General Construction Noise Management

PG&E will employ standard noise-reducing construction practices such as the following:

- Comply with manufacturer's muffler requirements on all construction equipment engines and ensure exhaust mufflers are in good condition.
- Turn off construction equipment when not in use, where applicable.
- Locate stationary equipment, construction staging areas, helicopter landing zones, and construction material areas as far as practical from sensitive receptors.
- Include noise control requirements for construction equipment and tools in specifications provided to construction contractors to the maximum extent practicable, including performing all work in a manner that minimizes noise.
- PG&E will provide written notice at least 1 week prior to planned construction activities to all sensitive receptors and residences within approximately 500 feet of construction sites, staging yards, and access roads, and within approximately 1,000 feet of helicopter landing zones. PG&E also will post notices in public areas, including recreational use areas, within approximately 500 feet of the project alignment and construction work areas. The announcement will state

approximately where and when construction will occur in the area, including areas of helicopter construction. Notices will provide tips on reducing noise intrusion – for example, by closing windows facing the planned construction. PG&E will identify a public liaison to respond to concerns of neighboring receptors during construction, including residents, about construction noise disturbance. PG&E also will establish a toll-free telephone number for receiving questions or concerns during construction and develop procedures for responding to callers. Contact information for reaching the PG&E public liaison officer by telephone or in person will be included in the notices and also posted conspicuously at the construction sites. PG&E will respond to questions or concerns received.

BMP NOI-1: LEU General Construction Noise Management

LEU will employ standard noise-reducing construction practices such as the following:

- Comply with manufacturer's muffler requirements on all construction equipment engines and ensure exhaust mufflers are in good condition.
- Turn off construction equipment when not in use, where applicable.
- Locate stationary equipment, construction staging areas, and construction material areas as far as practical from sensitive receptors.
- Include noise control requirements for construction equipment and tools in specifications provided to construction contractors to the maximum extent practicable, including performing all work in a manner that minimizes noise.
- LEU will provide written notice at least 1 week prior to planned construction activities to all sensitive receptors and residences within approximately 500 feet of construction sites, staging yards, and access roads. LEU will post notices in public areas, including recreational use areas, within approximately 500 feet of the construction work areas. The announcement will state approximately where and when construction will occur in the area. Notices will provide tips on reducing noise intrusion – for example, by closing windows facing the planned construction. LEU will identify a public liaison to respond to concerns of neighboring receptors during construction, including residents, about construction noise disturbance. LEU also will establish a toll-free telephone number for receiving questions or concerns during construction and develop procedures for responding to callers. Contact information for reaching the LEU public liaison officer by telephone or in person will be included in the notices and also posted conspicuously at the construction sites. LEU will respond to questions or concerned received.

APM NOI-2: PG&E Noise Minimization with Portable Barriers

Compressors and other small stationary equipment used during construction of PG&E project components will be shielded with portable barriers if appropriate and if located within approximately 200 feet of a residence.

BMP NOI-2: LEU Noise Minimization with Portable Barriers

Compressors and other small stationary equipment used during construction of LEU project components will be shielded with portable barriers if appropriate and if located within approximately 200 feet of a residence.

APM NOI-3: PG&E Noise Minimization with Quiet Equipment

Quiet equipment will be used during construction of PG&E project components whenever possible (for example, equipment that incorporates noise-control elements into the design, such as quiet model compressors or generators, can be specified).

BMP NOI-3: LEU Noise Minimization with Quiet Equipment

Quiet equipment will be used during construction of LEU project components whenever possible (for example, equipment that incorporates noise-control elements into the design, such as quiet model compressors or generators, can be specified).

APM NOI-4: PG&E Noise Minimization through Direction of Exhaust

When in proximity to noise-sensitive uses, PG&E equipment exhaust stacks and vents will be directed away from those noise-sensitive uses where feasible.

BMPNOI-4: LEU Noise Minimization through Direction of Exhaust

When in proximity to noise-sensitive uses, LEU equipment exhaust stacks and vents will be directed away from those noise-sensitive uses where feasible.

APM NOI-5: PG&E Noise Disruption Minimization through Residential Notification

In the event that nighttime construction is necessary for PG&E project components– for instance, if certain activities such as line splicing or HDD in certain soil conditions need to continue to completion – affected residents will be notified in advance by mail, personal visit, or door-hanger, and will be informed of the expected work schedule.

BMP NOI-5: LEU Noise Disruption Minimization through Residential Notification

In the event that nighttime construction is necessary for LEU project components – for instance, if certain activities such as HDD in certain soil conditions need to continue to completion – affected residents will be notified in advance by mail, personal visit, or door-hanger, and will be informed of the expected work schedule.

APM NOI-6: PG&E Horizontal Directional Drilling Noise Minimization Measures

Temporary barriers utilizing materials such as intermodal containers or frac tanks, plywood walls, mass-loaded vinyl (vinyl impregnated with metal), sound-absorbing blankets, hay bales, or similar materials will be used to reduce noise generated by the auger bore operations. HDD activities will be limited to daylight hours unless a situation arises where ceasing the activity would compromise safety (both human health and environmental) and the integrity of the project. If nighttime HDD activities are required, the project will monitor actual noise levels from the HDD activities between 10:00 p.m. and 7:00 a.m. If the nighttime noise levels created by the HDD operation result in outreach to PG&E public liaison officer and are in excess of the ambient noise level by approximately 5 dBA at the nearest residential property plane, PG&E will, within 24 hours of the excess measurement, employ additional minimization measures to the greatest extent practicable. Such measures may include ensuring that semipermanent stationary equipment (for example, generators) is stationed as far from sensitive areas as practicable, using sound-attenuated "quiet" or "Hollywood/Movie Studio" silencing packages, or modifying barriers to further reduce noise levels.

BMP NOI-6: LEU Horizontal Directional Drilling Noise Minimization Measures

Temporary barriers utilizing materials such as intermodal containers or frac tanks, plywood walls, mass-loaded vinyl (vinyl impregnated with metal), sound-absorbing blankets, hay bales, or similar materials will be used to reduce noise generated by the auger bore operations. HDD activities will be limited to daylight hours unless a situation arises where ceasing the activity would compromise safety (both human health and environmental) and the integrity of the project. If nighttime HDD activities are required, the project will monitor actual noise levels from HDD activities between 10:00 p.m. and 7:00 a.m. If the nighttime noise levels created by HDD operation result in outreach to LEU public liaison officer and are in excess of the ambient noise level by approximately 5 dBA at the nearest residential property plane, LEU will, within 24 hours of the excess measurement, employ additional minimization measures to the extent practicable. Such measures may include ensuring that semi-permanent stationary equipment (for

example, generators) is stationed as far from sensitive areas as practicable, using sound-attenuated "quiet" or "Hollywood/Movie Studio" silencing packages, or modifying barriers to further reduce noise levels.

APM NOI-7: PG&E Noise Minimization Equipment Specification

PG&E will specify general construction noise reduction measures that require the contractor to ensure that all equipment is in good working order, adequately muffled, and maintained in accordance with the manufacturers' recommendations.

BMP NOI-7: LEU Noise Minimization Equipment Specification

LEU will specify general construction noise reduction measures that require the contractor to ensure that all equipment is in good working order, adequately muffled, and maintained in accordance with the manufacturers' recommendations.

5.13.4.3 Potential Impacts

Project impacts related to noise were evaluated against the CEQA significance criteria and are discussed in the following section. This section evaluates potential project impacts during the construction phase and the operation and maintenance phase. The impact discussion is organized to describe the effects of each participating utility's portion of the project on the environment.

As described in Chapter 3, Project Description, the project will provide a new 230 kV transmission source in northern San Joaquin County, in central California. The project includes extending an existing PG&E 230 kV transmission line through PG&E Lockeford Substation to a new PG&E Thurman Switching Station in Lodi, California, by installing new tubular steel poles and conductors for approximately 11 miles. PG&E Lockeford Substation will be expanded on existing substation property to accommodate the new 230 kV facility. PG&E Thurman Switching Station will transfer the new 230 kV source to the new adjacent LEU 230/60 kV Guild Substation. LEU Guild Substation will transfer the 60 kV power to the existing adjacent LEU 60 kV Industrial Substation, which will be modified to receive the new LEU 60 kV lines (via the new 230 kV source) and to disconnect the existing PG&E 60 kV sources. When disconnected, the three existing PG&E 60 kV lines will be partially removed and reconfigured mainly within their existing alignments to continue operation between PG&E Lockeford and Lodi substations. LEU distribution and the third-party telecommunication underbuild on PG&E 60 kV line portions being removed will be relocated by the respective utility owner to within or adjacent to other existing alignments. An existing PG&E distribution line will be extended underground approximately 500 feet in franchise to provide a permanent secondary service line to PG&E Thurman Switching Station. PG&E project-related work to update communication between facilities and the protection scheme system also will occur within the existing fence lines of remote-end substations Brighton, Bellota, Lodi, and Rio Oso, and a communication facility, Clayton Hill Repeater Station.

a) Would the project result in exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies? *Less-than-Significant Impact.*

PG&E Potential Impact Discussion

Construction

Although the project is exempt from local land use and zoning regulations, the project will nevertheless be consistent with the local noise ordinance. San Joaquin County exempts noise from construction activities that take place between 6:00 a.m. and 9:00 p.m. At each structure location, construction activities will be short term (typically several days) and temporary, and are planned to take place between 7:00 a.m. and 7:00 p.m. The City of Lodi limits the increase in sound levels to 5 dBA between the hours of 10:00 p.m. and 7:00 a.m. Outside of these hours, there is no numeric limit. Within the City of Lodi, construction activities are planned to take place between 7:00 a.m. and 7:00 p.m. It is also possible that construction beyond these hours may be necessary to reach a safe stopping point. If construction outside of these hours is

necessary to accommodate planned electrical outages (clearances) scheduled at night, PG&E will implement APM NOI-1 and APM NOI-5, which requires advance notice to property owners near construction activities. Because the County noise ordinance recognizes exceptions to these hours for emergency work and other exigencies, and any such work near a sensitive receptor will be brief, the project will be consistent with the noise policies contained in these ordinances, even in the unlikely event that work outside the prescribed hours is required. Construction of most project components will occur only for a short period of time at any given location and will move along the length of the line. Per the County regulations, construction of the project will result in a less-than-significant impact. The implementation of APMs will further minimize exposure to less-than-significant construction noise.

Operation and Maintenance

Audible noise on transmission lines and structures is caused by the effects of corona and the electric field gradient. Corona and the electric field gradient are functions of transmission line voltage, altitude, conductor diameter, and condition of the conductor and the suspension hardware. The noise emissions from a transmission line increase under wet conductor conditions because the surface irregularities resulting from the formation of water droplets on the outer surface of the conductors concentrate the electric field. Resistive heating of the conductor under load increases the conductor temperature and evaporates surface moisture. Thus, audible noise from a transmission line generally is evaluated for foul weather, which generally is defined as periods with measurable precipitation (nominally, 1 millimeter per hour). During heavy rain, the sound of the rain itself is expected to exceed that of the transmission line. Newly constructed transmission line may generate a higher level of noise for a short period (typically 1 year) and then will level off to a lower audible noise level. This happens during the initial weathering phase, which is the time when any residual surface oil from the manufacturing of the line or other irregularities resulting from the construction process dissipates. Corona typically becomes a design concern for transmission lines at 345 kV and higher.

The addition of the proposed Northern San Joaquin 230 kV Transmission Line is not predicted to cause any noise sensitive receptor to exceed 45 dBA during foul weather conditions. Corona noise generally is more noticeable on high-voltage lines and usually is not a design issue for power lines rated at 345 kV and lower (CPUC 2009). When initially energized and for a period expected to last less than approximately 1 year, there is potential for new conductor effects associated with drawing oil and residual grease on the new conductor surfaces to increase the audible noise level temporarily and nominally. The conductor's non-specular finish will minimize the duration and magnitude of the potential new conductor effects.

Proposed changes to PG&E Lockeford Substation and PG&E Thurman Switching Station do not add significant new sources of noise. The additional control and battery enclosures do not have substantial sound emissions and no new substation transformers are proposed. Table 5.13-15 provides sound pressure levels identified at PG&E Lockeford Substation and PG&E Thurman Switching Station at 5 feet. The closest residence to the new equipment at PG&E Lockeford Substation is approximately 750 ft (residence 30). At this distance the proposed new equipment sound emission is expected to be approximately 35 dBA. The closest residence to the new equipment at PG&E Thurman Switching Station is 1,680 feet (residence 92). At this distance the proposed new equipment sound emission is expected to be less than 30 dBA. Thus, no substantial increases in sound levels at noise sensitive receivers in the vicinity of PG&E Lockeford Substation and PG&E Thurman Switching Station is anticipated. Therefor the impacts from operation noise will be less than significant.

Table 5.13-15. Sound Pressure Level at 5 Feet at New PG&E Station Equipment

Equipment	Approximate Sound Pressure Level at 5 feet (dBA)
PG&E Lockeford Substation	
Control Enclosure	79
Battery Enclosure	69
PG&E Thurman Switching Station	
Battery Enclosure	69
Control Enclosure	74

Maintenance activities for the new switching station and transmission lines typically will occur over short timeframes and generate minimal noise. As with existing maintenance activities involving noise-generating equipment or vehicles, noise-reduction measures will be employed to reduce temporary noise impacts as described in APM NOI-1 through APM NOI-7. Therefore, during operation and maintenance, no exposure of persons to or generation of noise levels in excess of standards established in the local general plans or noise ordinances, or applicable standards of other agencies, is anticipated; and maintenance and operations will have a less-than-significant impact.

LEU Potential Impact Discussion

Construction

LEU's portion of the project will be consistent with the local noise ordinance. The City of Lodi limits the increase in sound levels to 5 dBA between the hours of 10:00 p.m. and 7:00 a.m. Outside of these hours, there is no numeric limit. Construction activities are planned to take place between 7:00 a.m. and 7:00 p.m. It is also possible that construction beyond these hours may be necessary to reach a safe stopping point. If construction outside of these hours is necessary to accommodate planned electrical outages (clearances) scheduled at night, LEU will implement BMP NOI-1 and BMP NOI-5, which require advance notice to property owners near construction activities. The nearest sensitive receptor that will experience the highest sound levels from construction noise is residence 92, located approximately 750 feet from the easternmost HDD pit for the underground portion of the LEU line, and the Lodi Memorial Park and Cemetery located on the opposite side of East Lodi Avenue approximately 130 feet from the easternmost HDD pit. Construction noise at residence 92 is expected to be approximately 63 to 69 dBA (Table 5.13-2). Construction noise at the cemetery is expected to range between approximately 74 and 79 dBA (Table 5.13-2). Per the City's noise ordinance, which has no numeric limit for construction occurring between 7:00 a.m. and 10:00 p.m., construction of the project will result in a less-than-significant impact. These levels also are below the construction noise thresholds established by the FTA (refer to Tables 5.13-8 and 5.13-9). The implementation of BMPs will further minimize exposure to less-than-significant construction noise.

Operation and Maintenance

The main source of noise will be the stationary electrical equipment operating at LEU Guild Substation, which includes two 230/60 kV transformers and the two HVAC units at the control enclosure located along the northern side of the yard, just south of the proposed access road. The two proposed transformers are expected to have a maximum sound level of 76 dBA in accordance with IEEE Standard C57.136 or be equipped with a comparable mitigation solution. The two HVAC units are expected to have a maximum sound level of 70 dBA at 3 feet or be equipped with a comparable mitigation solution. Transformers are approximately 900 feet from the Lodi Memorial Park and Cemetery and the HVAC units are approximately 850 feet from the Lodi Memorial Park and Cemetery. The sound level at the boundary of Lodi Memorial Park and Cemetery is predicted to be approximately 38 dBA, which is less than the applicable code requirement. Residences are located farther away than the cemetery and the substation sound level would be less than 38 dBA, which will comply with the applicable code. When construction is complete, access roads are expected to be used infrequently and not considered a significant noise source.

The modifications at LEU Industrial Substation are not expected to change the operational noise emitted from the substation. LEU Industrial Substation sound levels were included in the model and calibrated to the sound study measurements. The relocated LEU 12 kV feeder line will be located underground and is not considered a significant noise source.

b) Would the project result in exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels? *Less-than-Significant Impact*.

PG&E Potential Impact Discussion

Construction

Construction activities have the potential to result in varying degrees of temporary groundborne vibration, depending on the specific equipment used and operations involved. Vibration generated by construction equipment spreads through the ground and diminishes in magnitude as distance increases. Table 5.13-16 displays vibration levels for typical construction equipment.

Table 5.13-16. Typical Construction Equipment Vibration Levels

Equipment	PPV at 25 feet (in/sec)
Large Bulldozer	0.089
Caisson Drilling	0.089
Trucks	0.076
Jackhammer	0.035
Small Bulldozer	0.003

Source: FTA 2018

in/sec = inch(es) per second

Bulldozers and other construction equipment would be used regularly in the construction of the project. In addition, heavy trucks would be used to deliver and remove material to and from the site.

The risk of construction vibration damage from each piece of equipment can be assessed by adjusting the PPV from the reference PPV at 25 feet to the actual distance from the equipment to the receiver by applying the following equation:

$$PPV_{equip} = PPV_{ref} \times \left(\frac{25}{D}\right)^{1.5}$$

Where:

PPV_{equip} = the peak particle velocity of the equipment adjusted for distance, in/sec

PPV_{ref} = the source reference vibration level at 25 feet, in/sec

D = distance from the equipment to the receiver, feet

To determine the closest distance each type of building by building category presented in Table 5.13-5 can be to each type of equipment before sustaining damage, the equation was solved to find the distance at which the construction vibration damage criteria were met for each building category (Table 5.13-17).

Table 5.13-17. Typical Construction Equipment Vibration Levels in PV

Equipment	PPV at 25 feet (in/sec)	Building Category (Construction Vibration Damage Criteria)			
		1 (0.5 in/sec)	2 (0.3 in/sec)	3 (0.2 in/sec)	4 (0.12 in/sec)
Large Bulldozer	0.089	<25	<25	<25	<25
Caisson Drilling	0.089	<25	<25	<25	<25
Trucks	0.076	<25	<25	<25	<25
Jackhammer	0.035	<25	<25	<25	<25
Small Bulldozer	0.003	<25	<25	<25	<25

Source: FTA 2018

The distances determined indicate that, for all building categories, general construction equipment must be less than 25 feet from the building to cause damage. For this project, expected construction equipment in the upper ranges have the greatest potential to cause damage to buildings, so the closest expected construction equipment can occur to a building type of Category 4 is <25 feet. Category 4 buildings are "extremely susceptible to vibration damage" with construction very sensitive to vibration; these may be objects or buildings of historic interest. No Category 4 buildings are within approximately 25 feet of the PG&E portion of the project.

Additionally, groundborne vibration and noise will occur during daytime hours and will be short term in duration. Therefore, construction of the proposed project will result in a less-than-significant impact.

Operation and Maintenance

Equipment associated with normal operation and maintenance of the proposed project will not produce any groundborne noise or vibration; therefore, operation and maintenance of the project will result in no impact.

LEU Potential Impact Discussion

Table 5.13-17 identifies that for all building categories, general construction equipment must be less than 25 feet from the building to cause damage. For this project, expected construction equipment in the upper ranges have the greatest potential to cause damage to buildings, so the closest expected construction equipment can occur to a building type of Category 4 is <25 feet. Category 4 buildings are "extremely susceptible to vibration damage" with construction very sensitive to vibration; these may be objects or buildings of historic interest. No Category 4 buildings are within approximately 25 feet of the LEU portion of the project.

Additionally, groundborne vibration and noise will occur during daytime hours and will be short term in duration. Therefore, construction of the proposed project will result in a less-than-significant impact.

Operation and Maintenance

Equipment associated with normal operation and maintenance of the proposed project will not produce any groundborne noise or vibration; therefore, operation and maintenance of the project will result in no impact.

c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels? *No Impact.*

PG&E Potential Impact Discussion

Construction, operation, and maintenance of the PG&E project components will occur at a distance greater than 2 miles from a public airport; therefore, the project will result in no impact under this criterion.

LEU Potential Impact Discussion

Construction, operation, and maintenance of the LEU project components will occur at a distance greater than 2 miles from a public airport; therefore, the project will result in no impact under this criterion.

5.14 Population and Housing

This section describes existing conditions and potential impacts on population and housing as a result of project construction, operation, and maintenance. The analysis concludes that the project will have no impact on population and housing. The project's potential effects on population and housing were evaluated using the significance criteria set forth in Appendix G of the CEQA Guidelines. Project description information and potential impacts are organized and discussed by each participating utility's portion of the project. The conclusions are summarized in Table 5.14-1 (located in Section 5.14.3) and discussed in more detail in Section 5.14.4.

5.14.1 Methodology and Environmental Setting

To evaluate potential effects on population and housing resources, the City of Lodi General Plan Housing Element (City of Lodi 2016), the San Joaquin County General Plan (San Joaquin County 2016), SJCOG data, and U.S. Census Bureau data were reviewed. SJCOG is a regional planning group of representatives from San Joaquin County and its seven incorporated cities. The data and project information were evaluated to assess impacts according to the CEQA significance criteria in Table 5.14-1. The population and growth data and the project purpose and need were reviewed for use in evaluating whether the project could indirectly induce growth. Information on displacement of housing or people was evaluated in light of the project description and hotel and housing vacancy rates (Statista 2022). This section evaluates potential project impacts from both the construction phase and the operation and maintenance phase.

5.14.1.1 Population Estimate

In 2020, the San Joaquin Valley had a regional population of approximately 4.3 million people (Public Policy Institute of California 2020). The San Joaquin Valley is an eight-county region that includes the counties of Fresno, Kern, Kings, Madera, Merced, San Joaquin, Stanislaus, and Tulare. San Joaquin County had a population of approximately 788,140 people in 2021 (U.S. Census Bureau 2021). SJCOG estimates that the County's current growth rate is approximately 1.76% and projects the population of San Joaquin County to be approximately 870,000 by 2030 and 980,000 by 2050 (SJCOG 2022a). The majority of the Pacific Gas and Electric Company's (PG&E's) 230 kV DCTL, PG&E's Lockeford Substation, and a small portion of the eastern end of PG&E's existing Lockeford-Industrial 60 kV power line modification work is located within San Joaquin County.

As of 2021, the City of Lodi had a population of approximately 67,021 people (U.S. Census Bureau 2021). The City of Lodi's planned annual growth rate is 2% as established in its Growth Management Allocation Ordinance (City of Lodi 2010). If 2% growth occurred each year, Lodi's population would be approximately 80,096 by 2030 and approximately 119,019 by 2050. However, SJCOG estimates that Lodi's population will be 75,445 in 2030 and 82,359 in 2050 (SJCOG 2020). PG&E project components within the City of Lodi include the portions of the three existing PG&E 60 kV lines currently terminating at LEU Industrial Substation that will be reconfigured after the 230 kV source is in service; the new PG&E Thurman Switching Station; an extended PG&E 12 kV service line for secondary station power; and approximately 1.550 feet of the western extent of the new PG&E 230 kV transmission line. LEU project components within the City of Lodi include the existing LEU Industrial Substation, new LEU Guild Substation, and existing LEU 12 kV customer feeder line relocated to an underground configuration. The LEU project components are within the city limits.

5.14.1.2 Housing Estimates

As of 2019, approximately 248,636 housing units were located in San Joaquin County, with a vacancy rate of 6.7 % (U.S. Census Bureau 2022; SJCOG 2017). SJCOG projects that the number of households in San Joaquin County, based on estimates of householders, will grow to 271,810 by 2030 and 302,229 by 2045 (SJCOG 2020, Table 10). Only PG&E project components, including the majority of the new 230 kV transmission line, a portion of the PG&E 60 kV power line modifications, and PG&E Lockeford Substation, are located within San Joaquin County.

The City of Lodi had approximately 23,142 households, based on the 2015–2019 5-year estimate (U.S. Census Bureau 2022). According to the *City of Lodi General Plan*, medium-density and some high-density housing is planned for highly accessible areas near transit, commercial corridors, and downtown, and in and near mixed-use centers. The number of households in the City of Lodi is projected to grow annually at a rate of 0.5% until 2025 (City of Lodi 2016). SJCOG projects that the number of households in Lodi, based on estimates of householders, will grow to 26,085 by 2030 and 27,881 by 2045 (SJCOG 2020, Table 10). There are no approved housing developments within approximately 1 mile of the project, including both PG&E and LEU portions of the project (City of Lodi 2020; San Joaquin County 2022).

5.14.1.3 Approved Housing Developments

No approved housing developments were found within 1 mile of the project (Shahriar 2022; SJCOG 2022b).

5.14.2 Regulatory Setting

No regulatory background information is relevant to addressing potential project-related impacts on population and housing.

5.14.3 Impact Questions

The project's potential effects on population and housing were evaluated using the significance criteria set forth in Appendix G of the CEQA Guidelines. The criteria and conclusions are summarized in Table 5.14-1 and discussed in more detail in Section 5.14.4.

Table 5.14-1. CEQA Checklist for Population and Housing

Would the project:	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☐	☒
b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

5.14.3.1 Additional CEQA Impact Questions

None.

5.14.4 Potential Impact Analysis

Project impacts related to population and housing were evaluated against the CEQA significance criteria and are discussed in the following sections. The impact analysis evaluates potential project impacts during the construction phase and the operation and maintenance phase. The impact discussion is organized to describe the effects that each participating utility's portion of the project has on the environment.

5.14.4.1 Significance Criteria

According to Section 15002(g) of the CEQA Guidelines, "a significant effect on the environment is defined as a substantial adverse change in the physical conditions which exist in the area affected by the proposed project." As stated in Section 15064(b) of the CEQA Guidelines, the significance of an activity may vary

with the setting. In accordance with Appendix G of the CEQA Guidelines, the potential significance of project impacts on population and housing were evaluated for each of the criteria listed in Table 5.14-1, as discussed in Section 5.14.4.3.

5.14.4.2 Applicant-Proposed Measures and Best Management Practices

The project will have no impact on population and housing, and no APMs or BMPs are proposed.

5.14.4.3 Potential Impacts

As described in Chapter 3, Project Description, the project will provide a new 230 kV transmission source in northern San Joaquin County, in central California. The project includes extending an existing PG&E 230 kV transmission line through PG&E Lockeford Substation to a new PG&E Thurman Switching Station in Lodi, California, by installing new tubular steel poles and conductors for approximately 11 miles. PG&E Lockeford Substation will be expanded on existing substation property to accommodate the new 230 kV facility. PG&E Thurman Switching Station will transfer the new 230 kV source to the new adjacent LEU 230/60 kV Guild Substation. LEU Guild Substation will transfer the 60 kV power to the existing adjacent LEU 60 kV Industrial Substation, which will be modified to receive the new LEU 60 kV lines (via the new 230 kV source) and to disconnect the existing PG&E 60 kV sources. When disconnected, the three existing PG&E 60 kV lines will be partially removed and reconfigured mainly within their existing alignments to continue operation between PG&E Lockeford and Lodi substations. LEU distribution and the third-party telecommunication underbuild on PG&E 60 kV line portions being removed will be relocated by the respective utility owner to within or adjacent to other existing alignments. An existing PG&E distribution line will be extended underground approximately 500 feet in franchise to provide a permanent secondary service line to PG&E Thurman Switching Station. PG&E project-related work to update communication between facilities and the protection scheme system also will occur within the existing fence lines of remote-end substations Brighton, Bellota, Lodi, and Rio Oso, and a communication facility, Clayton Hill Repeater Station.

a) Would the project induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)? *No Impact.*

PG&E Potential Impact Discussion

The project consisting of both PG&E and LEU portions of the project will strengthen the existing power infrastructure to better serve existing and planned future customers in the area by preventing service interruptions. The project does not propose new housing, businesses, or other land use changes, including roads or infrastructure, that will induce population growth in the area.

PG&E construction workers (approximately 40 of approximately 66 at the peak estimate of workforce) will consist primarily of either existing PG&E workers in the local area or workers who commute from neighboring cities. Because the construction duration will be relatively short (approximately 34 months with gaps when no construction will occur at PG&E portion of the project), it is not expected that the construction workers from outside the area will permanently relocate to the area.

Operation and maintenance of the new 230 kV transmission line and the PG&E stations will be performed by existing PG&E workers. Thus, the project will not directly or indirectly induce substantial unplanned population growth, and no impact will occur.

LEU Potential Impact Discussion

The project, consisting of both PG&E and LEU portions of the project, will strengthen the existing power infrastructure to better serve existing and planned future customers in the area by preventing service interruptions. The project does not propose new housing, businesses, or other land use changes, including roads or infrastructure, that will induce population growth in the area.

With respect to LEU portion of the project, construction workers (approximately 26 of approximately 66 at the peak estimate of workforce) will consist primarily of either existing LEU workers in the local area or workers who commute from the neighboring cities. Because the construction duration for the LEU portion of the project is relatively short (approximately 13 months with gaps when no construction during the overall project construction activities), it is not expected that the construction workers from outside the area will permanently relocate to the area.

Operation and maintenance of the new and modified LEU substations will be performed by existing LEU workers. Thus, the project will not directly or indirectly induce substantial unplanned population growth, and no impact will occur.

b) Would the project displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere? *No Impact*.

PG&E Potential Impact Discussion

Project construction, operation, and maintenance of the PG&E portion of the project will not displace existing housing or people, nor will replacement housing need to be constructed; therefore, no impact will occur.

LEU Potential Impact Discussion

Project construction, operation, and maintenance of the LEU portion of the project will not displace existing housing or people, nor will replacement housing need to be constructed; therefore, no impact will occur.

5.15 Public Services

This section describes existing conditions and potential impacts on public services as a result of construction, operation, and maintenance of the project, and concludes no impacts will occur. Public services include fire and emergency protection, police protection, and maintenance of public facilities such as schools and parks. Emergency access is discussed in Section 5.17, Transportation. Temporary construction-related impacts on schools and parks—such as dust and noise—are discussed in Sections 5.3, Air Quality, and 5.13, Noise, respectively. Project compatibility with future park-planning efforts is discussed in Section 5.11, Land Use and Planning. Potential impacts to parks and recreational facilities are discussed in Section 5.16, Recreation. The project's potential effects on public services were evaluated using the significance criteria set forth in Appendix G of the CEQA Guidelines. Project description information and potential impacts are organized and discussed by each participating utility's portion of the project. The conclusions are summarized in Tables 5.15-1 in Section 5.15.3 and discussed in more detail in Section 5.15.4.3.

5.15.1 Methodology and Environmental Setting

This section was prepared based on reviews of the *City of Lodi General Plan* (City of Lodi 2010); *San Joaquin County General Plan* (San Joaquin County 2016); the websites of various entities, including the City of Lodi Fire, Police, and Parks and Recreation Departments, Linden and Lodi Unified School Districts, San Joaquin County Parks, and the San Joaquin County Sheriff's Office (SJCSO); the San Joaquin County Geographic Information System (SJC GIS); and the San Joaquin Local Agency Formation Commission (LAFCo) regarding rural fire protection.

5.15.1.1 Service Providers

Fire Protection

San Joaquin County

CAL FIRE, independent special district fire departments, and city fire departments provide fire protection services for the unincorporated areas of San Joaquin County. All public fire protection agencies in San Joaquin County operate under a master mutual aid agreement. There are 22 fire protection districts in San Joaquin County, including Mokelumne and Clements Rural Fire District (SJC GIS 2022; San Joaquin County 2014). The project is not located within or near a State Responsibility Area, as described in Section 5.20, Wildfire, therefore CAL FIRE is not responsible for providing fire protection for the project. The fire districts that the project traverses are the Mokelumne, Clements, and Lodi Fire Protection Districts (SJC GIS 2022). Outside of the City of Lodi, the project is within the Mokelumne Fire Protection District except for the portion east of North Tully Road, which is in the Clements Fire Protection District. The majority of the Pacific Gas and Electric Company's (PG&E's) 230 kV DCTL, PG&E's Lockeford Substation, and a small portion of the eastern end of PG&E's existing Lockeford-Industrial 60 kV power line modification work is located within the Mokelumne Fire Protection District and Clements Fire Protection District (Figure 5.15-1).

The total average response times for San Joaquin County (excluding the primary Public Safety Answering Point) are 9 minutes, 16 seconds for fire emergencies (excluding volunteer districts) and 7 minutes, 19 seconds for medical emergencies (excluding volunteer districts). The volunteer districts' average total response times are 11 minutes, 49 seconds for fire emergencies and 10 minutes, 52 seconds for medical emergencies. Clements Fire Protection District's average response time for fire emergencies is 5 minutes, 45 seconds, and for medical emergencies, it is 5 minutes, 8 seconds. Mokelumne Fire Protection District's average response time for fire emergencies is 4 minutes, 33 seconds, and for medical emergencies, it is 4 minutes, 16 seconds (San Joaquin LAFCo 2011).

City of Lodi

Fire protection in the City of Lodi portion of the project is provided by the City of Lodi Fire Department, which consists of four stations with a workforce of 51 firefighters, all located within City boundaries. Fire Station 2 is the closest station to the project, located on South Cherokee Lane, and it houses Fire Engine 2032 and State of California Office of Emergency Services Engine 338 (City of Lodi 2022a). The City of Lodi's response time for fire emergencies is 6 minutes for 90% of calls (City of Lodi 2010). The project is not located within or near a State Responsibility Area, as described in Section 5.20, Wildfire; therefore, CAL FIRE is not responsible for providing fire protection for the project. PG&E project components within the City of Lodi include the portions of the three existing PG&E 60 kV lines currently terminating at LEU Industrial Substation that will be reconfigured after the 230 kV source is in service; the new PG&E Thurman Switching Station; an extended PG&E electrical service line for secondary station power; and approximately 1,550 feet of the western extent of the new PG&E 230 kV DCTL. LEU project components within the City of Lodi include the existing LEU Industrial Substation, new LEU Guild Substation, and existing LEU electrical customer service line relocated to an underground configuration. The LEU project components are within 0.5 mile of the city limits.

Police Protection

San Joaquin County

The SJCSO provides law enforcement services to all unincorporated areas of San Joaquin County, including the portion of the project not located within the City of Lodi. SJCSO headquarters are located in the unincorporated community of French Camp (SJCSO 2022). The unincorporated County is divided into eight geographical areas (or "beats"); Beat 2 serves the project area (San Joaquin County 2014). The average response time within the County is appropriately 15 minutes and increases to 24 minutes for nonemergency calls. Response times vary depending on the number of officers in a patrol area, size of the patrol area, density of the population being served, distance to the call, amount of traffic congestion during the response period, and number of incidents that are simultaneously occurring (San Joaquin County 2014). The majority of the PG&E 230 kV DCTL, PG&E's Lockeford Substation, and the eastern end of the PG&E 60 kV power line reconfiguration work is within SJCSO's Beat 2 service area.

City of Lodi

The City of Lodi Police Department provides law enforcement services to the City of Lodi. There are 71 authorized sworn officers and 48 civilian employees in the City of Lodi Police Department. There are three districts within the City, and the project area is served by District 2 (City of Lodi 2022b). PG&E project components within the City of Lodi served by District 2 include the portions of the three existing PG&E 60 kV lines currently terminating at LEU Industrial Substation that will be reconfigured after the 230 kV source is in service; the new PG&E Thurman Switching Station; an extended PG&E 12 kV service line for secondary station power; and approximately 2,000 feet of the western extent of the new PG&E 230 kV DCTL. LEU project components within the City of Lodi served by District 2 include the existing LEU Industrial Substation, new LEU Guild Substation, and existing LEU 121 kV customer feeder line relocated to an underground configuration. The LEU project components are within city limits.

Official response times for the City of Lodi were unavailable; however, a 2013 article from the Lodi News indicated that response times depended on time of day and number of officers on shift and indicated that high-priority call response time was less than 5 minutes (Piombo 2013).

Schools

San Joaquin County

The San Joaquin County Office of Education includes 14 school districts. The following two school districts and two private schools, Lodi Seventh-Day Adventist Elementary School and Point Quest Education – Central Valley Campus, serve the communities within the project area. No public or private schools are located within 0.5 mile of the project. Schools are mapped within 1 mile of the project on Figure 5.15-1.

Lodi Unified School District

The Lodi Unified School District is within the San Joaquin County Office of Education and serves the project area west of North Tully Road. This district includes 32 elementary schools,15 middle and high schools, and 4 non-traditional schools within the City of Lodi, a northern area of the City of Stockton, and the surrounding communities encompassing a total of 350 square miles (Lodi Unified School District 2022). None of these schools are located within 0.5 mile of the project area. PG&E project components near the Lodi Unified School District include approximately 1.40 miles of the new PG&E 230 kV DCTL east of PG&E Lockeford Substation, PG&E Lockeford Substation, the new PG&E 230 kV DCTL west of PG&E Lockeford Substation, the portions of the three existing PG&E 60 kV lines currently terminating at LEU Industrial Substation that will be reconfigured after the 230 kV source is in service, the new PG&E Thurman Switching Station, and an extended PG&E 12 kV service line for secondary station power. LEU project components near the Lodi Unified School District include the existing LEU Industrial Substation, new LEU Guild Substation, and existing LEU electrical customer 12 kV feeder line relocated to an underground configuration.

Linden Unified School District

The Linden Unified School District is within the San Joaquin County Office of Education and serves the project area east of North Tully Road. This district includes four elementary schools, one high school, and one continuing education school. None of these schools are located within 0.5 mile of the project (Linden Unified School District 2022). The western 2.4 miles of the new PG&E 230 kV DCTL east of PG&E Lockeford Substation is located within the Linden Unified School District.

Parks and Other Public Facilities

There are several federal and state park facilities as well as 11 regional parks and recreation areas within San Joaquin County, none of which are within the project area. Local parks, including neighborhood parks, community parks, and mini parks, are primarily owned and operated by cities (San Joaquin County 2014). There are no San Joaquin County parks within 1 mile of the project (San Joaquin County Parks 2022). Additional information about impacts on recreational resources is provided in Section 5.16, Recreation.

The City of Lodi Parks, Recreation, and Cultural Services Department operates and maintains the eight public parks and recreation areas that are found within approximately 1 mile of the western end of the project in Lodi (Figure 5.15-1). These include Blakely Park, Chapman Field (Armory), Grape Bowl (Stadium), Grape Festival Grounds, Hale Park, Lawrence Park, Pixley Park, and Zupo Field (City of Lodi 2022c). Pixley Park is the closest City of Lodi facility to the western end of the project. Pixley Park is approximately 0.40 mile south of the new LEU and PG&E station facilities that would be located along East Thurman Road and South Guild Avenue, and approximately 0.60 mile west of the new PG&E 230 kV DCTL when it is located outside city limits (Figure 5.15-1).

5.15.2 Regulatory Setting

No regulatory background information is relevant to addressing potential project-related impacts on public services.

5.15.3 Impact Questions

The project's potential effects on public services were evaluated using the significance criteria set forth in Appendix G of the CEQA Guidelines. The criteria and conclusions are summarized in Table 5.15-1 and discussed in more detail in Section 5.15.4.

Table 5.15-1. CEQA Checklist for Public Services

Would the project:	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a) Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:				
Fire protection?	☐	☐	☐	☒
Police protection?	☐	☐	☐	☒
Schools?	☐	☐	☐	☒
Parks?	☐	☐	☐	☒
Other public facilities?	☐	☐	☐	☒

5.15.3.1 Additional CEQA Impact Questions

None

5.15.4 Potential Impact Analysis

Project impacts related to public services were evaluated against the CEQA significance criteria and are discussed in the following sections. The impact analysis evaluates potential project impacts during the construction phase and the operation and maintenance phase. The impact discussion is organized to describe the effects that each participating utility's portion of the project has on the environment.

5.15.4.1 Significance Criteria

According to Section 15002(g) of the CEQA Guidelines, "a significant effect on the environment is defined as a substantial adverse change in the physical conditions which exist in the area affected by the proposed project." As stated in Section 15064(b) of the CEQA Guidelines, the significance of an activity may vary with the setting. Per Appendix G of the CEQA Guidelines, the potential significance of project impacts on mineral resources were evaluated for each of the criteria listed in Table 5.15-1, as discussed in Section 5.15.4.3.

5.15.4.2 Applicant-Proposed Measures and Best Management Practices

The project will have no impact on public services, so no APMs or BMPs are proposed.

5.15.4.3 Potential Impacts

As described in Chapter 3, Project Description, the project will provide a new 230 kV transmission source in northern San Joaquin County, in central California. The project includes extending an existing PG&E 230 kV transmission line through PG&E Lockeford Substation to a new PG&E Thurman Switching Station in Lodi, California, by installing new tubular steel poles and conductors for approximately 11 miles. PG&E Lockeford Substation will be expanded on existing substation property to accommodate the new 230 kV facility. PG&E Thurman Switching Station will transfer the new 230 kV source to the new adjacent LEU 230/60 kV Guild Substation. LEU Guild Substation will transfer the 60 kV power to the existing adjacent LEU 60 kV Industrial Substation, which will be modified to receive the new LEU 60 kV lines (via the new 230 kV source) and to disconnect the existing PG&E 60 kV sources. When disconnected, the three existing

PG&E 60 kV lines will be partially removed and reconfigured mainly within their existing alignments to continue operation between PG&E Lockeford and Lodi substations. LEU distribution and the third-party telecommunication underbuild on PG&E 60 kV line portions being removed will be relocated by the respective utility owner to within or adjacent to other existing alignments. An existing PG&E distribution line will be extended underground approximately 500 feet in franchise to provide a permanent secondary service line to PG&E Thurman Switching Station. PG&E project-related work to update communication between facilities and the protection scheme system also will occur within the existing fence lines of remote-end substations Brighton, Bellota, Lodi, and Rio Oso, and a communication facility, Clayton Hill Repeater Station.

a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services: fire protection, police protection, schools, parks, other public facilities? *No Impact.*

PG&E Potential Impact Discussion

Project construction will result in a temporary short term increase of up to approximately 66 construction workers. Although construction workers traveling to the project may use existing public services or amenities, this potential increase in demand will be minimal and temporary, and will not require new or altered government facilities. The project will not include development of new residential units that will directly or indirectly increase population; therefore, no increase in the demand for public services in the area will occur. Furthermore no new or altered public facilities are needed. Therefore no construction impact will occur. Operation and maintenance visits will be conducted occasionally by PG&E staff but no increases in staff levels would be required that would trigger the need for new or altered facilities that could result in environmental impacts. Therefore, no operations or maintenance impacts will occur. Details are provided by service type in the following sections.

Fire and Police Protection

No new or altered fire or police protection facilities will be required to maintain acceptable response times or service ratios. In the unlikely event of fire at the project site, fire protocols described in Section 5.20, Wildlife will be followed. Construction vehicles and equipment will access project construction areas by using existing paved, dirt, or gravel roads and overland travel routes. Construction vehicles and equipment will be staged or parked within project area rights-of-way, approved temporary construction easements, or alongside access roads. Further, as described in Section 5.17, Transportation, during project construction, PG&E will coordinate any road closures with LEU and with emergency service providers so that response times are not affected. Therefore, no impact will occur.

Schools

The project will not involve developing new residential units or services that will generate a new residential population in the area. Therefore, the project will not cause an increase in the demand on existing schools that would affect school enrollment or performance objectives. No new or altered school facilities will be required to serve workers during construction, and operation does not require new permanent workers; therefore, no impact on schools will occur.

Parks and Other Public Facilities

Eight public parks and recreation areas are located within 1 mile of the western end of the project. The project will not involve developing new residential units or services that will generate a new daytime or residential population in the area that will increase the demand on parks. Construction workers traveling to the area may use existing public services or amenities such as parks; however, this potential increase in demand will be minimal and temporary and will not exacerbate the need for, or deterioration of, the park facilities nor result in the need for new facilities. Therefore, no impacts to public parks will occur. Potential construction- and operation-related recreation impacts to parks and other public facilities in the project area are evaluated in Section 5.16, Recreation.

LEU Potential Impact Discussion

Project construction will result in a temporary short term increase of up to approximately 66 construction workers. Although construction workers traveling to the project may use existing public services or amenities, this potential increase in demand will be minimal and temporary, and will not require new or altered government facilities. The project will not include development of new residential units that will directly or indirectly increase population; therefore, no increase in the demand for public services in the area will occur. Furthermore no new or altered public facilities are needed. Therefore no construction impact will occur. Operation and maintenance visits will be conducted occasionally by LEU staff but no increases in staff levels would be required that would trigger the need for new or altered facilities that could result in environmental impacts. Therefore no operations or maintenance impacts will occur. Details are provided by service type in the following sections.

Fire and Police Protection

No new or altered fire or police protection facilities will be required to maintain acceptable response times or service ratios. In the unlikely event of fire at the project site, fire protocols described in Section 5.20, Wildfire will be followed. Construction vehicles and equipment will access project construction areas by using existing paved, dirt, or gravel roads and overland travel routes. Construction vehicles and equipment will be staged or parked within project area rights-of-way, approved temporary construction easements, or alongside access roads. Further, as described in Section 5.17, Transportation, during project construction, LEU will coordinate any road closures with PG&E and with emergency service providers so that response times will not be affected. Therefore, no impact will occur.

Schools

The project will not involve developing new residential units or services that will generate a new residential population in the area. Therefore, the project will not cause an increase in the demand on existing schools that would affect school enrollment or performance objectives. No new or altered school facilities will be required to serve workers during construction, and operation does not require new permanent workers; therefore, no impact on schools will occur.

Parks and Other Public Facilities

Eight public parks and recreation areas are located within 1 mile of the western end of the project within the City of Lodi. The project will not involve developing new residential units or services that will generate a new daytime or residential population in the area that will increase the demand on parks. Construction workers traveling to the area may use existing public services or amenities such as parks; however, this potential increase in demand will be minimal and temporary and will not exacerbate the need for, or deterioration of, the park facilities nor result in the need for new facilities. Therefore, no impacts to public parks will occur. Potential construction- and operation-related recreation impacts to parks and other public facilities in the project area are evaluated in Section 5.16, Recreation.

5.16 Recreation

This section describes existing conditions and potential impacts on recreational resources as a result of construction, operation, and maintenance of the project and concludes that no impacts will occur in this area. The project's potential effects on recreation were evaluated using the significance criteria set forth in Appendix G of the CEQA Guidelines. Project description information and potential impacts are organized and discussed by each participating utility's portion of the project. The conclusions are summarized in Tables 5.16-1 and 5.16-2 in Section 5.16.3 and discussed in more detail in Section 5.16.4.

5.16.1 Methodology and Environmental Setting

Recreation resources include recreational facilities, such as state, local, and regional parks. To identify parks and recreation areas within 1 mile of the project, the California Department of Parks and Recreation website and the Community Development Element of the *San Joaquin County General Plan* (San Joaquin County 2016) were reviewed as part of the recreational resources evaluation, as was the website of the San Joaquin County Parks and Recreation Department.

5.16.1.1 Regional Setting

The proposed PG&E 230 kV DCTL, PG&E Lockeford Substation, and a portion of the PG&E 60 kV power line modification project components are located primarily within unincorporated areas of northern San Joaquin County. No state, federal, or county park or trail is located within the boundaries of the PG&E portion of the project within San Joaquin County or within 0.5 mile of the project in San Joaquin County. There is one private recreational facility within 1 mile of PG&E Lockeford Substation; the Lockeford Springs Golf Course is located approximately 0.3 mile north of PG&E's Lockeford Substation. Refer to Figure 5.16-1, for a map of parks and recreation areas within 1 mile of the project in San Joaquin County.

The existing PG&E Clayton Hill Repeater Station is located approximately 2 miles from Mount Diablo State Park the 20,000-acre park in Contra Costa County (Mount Diablo State Park 2018). The PG&E station also is approximately 0.20 mile from the 8,439-acre East Bay Regional Park District Black Diamond Mines Regional Preserve. The first approximately 1.25 mile of the paved, gated access road to the PG&E Clayton Hill Repeater Station allows public pedestrian access to connect with trails leading to the nearby Black Dimond Mines park (EBRPD 2020).

5.16.1.2 Local Setting

The project does not pass through any parks within the City of Lodi. PG&E project components within the City of Lodi include the portions of the three existing PG&E 60 kV lines currently terminating at Industrial Substation that will be reconfigured after the 230 kV source is in service; the new Thurman Switching Station; an extended electrical service line for secondary station power; and approximately 1,550 feet of the western extent of the new PG&E 230 kV DCTL. LEU project components within the City of Lodi include the existing LEU Industrial Substation, new Guild Substation, and existing electrical customer service line relocated to an underground configuration. The LEU project components are within 0.5 mile of the city limits.

Eight public parks and recreation areas are found within 1 mile of the PG&E and LEU project components located within the City of Lodi: Blakely Park, Chapman Field (Armory Park), the Grape Bowl stadium, Grape Festival Grounds, Hale Park, Lawrence Park, Pixley Park, and Zupo Field.

- **Blakely Park:** Blakely Park is located 1 mile from LEU Industrial Substation to the southwest. The park facilities include a baseball diamond, basketball court, picnic areas, playground, and pool (City of Lodi 2022).
- **Chapman Field (Armory Park):** Chapman Field is a baseball diamond located 1 mile from LEU Industrial Substation to the northwest (City of Lodi 2022).
- **Grape Bowl:** The Grape Bowl is a football stadium located 1 mile northwest of LEU Industrial Substation (City of Lodi 2022).

- **Grape Festival Grounds:** The Lodi Grape Festival Grounds are located 0.8 mile from LEU Industrial Substation to the northwest. This is a 20-acre venue with 75,000 square feet of inside space, a 1,500-seat outdoor amphitheater, and RV hookups. The Grape Festival Grounds are used for the Lodi Grape Festival and Harvest Fair held every September and for the yearly Lodi Spring Wine Show (City of Lodi 2007).
- **Hale Park:** Hale Park is located 0.9 mile from LEU Industrial Substation to the northwest. The park facilities include a basketball court, playground, and picnic tables (City of Lodi 2022).
- **Lawrence Park:** Lawrence Park is located 1 mile from LEU Industrial Substation to the northwest. The park facilities include a picnic area and playground (City of Lodi 2022).
- **Pixley Park:** Pixley Park is located 0.4 mile southwest of LEU Industrial Substation and is an undeveloped park that is predominantly used for remote control airplanes (San Joaquin County Resource Conservation District 2002).
- **Zupo Field:** Zupo Field, a baseball stadium, is located 1 mile northwest of LEU Industrial Substation (City of Lodi 2022).

The parks within the City of Lodi are maintained by the City of Lodi Parks and Recreation Department. No public trail is adjacent to, or will be affected by, the PG&E and LEU project components located within the City of Lodi.

5.16.2 Regulatory Setting

No federal or state regulations related to recreation are applicable to the project.

Because the CPUC has exclusive jurisdiction over project siting, design, and construction, PG&E's portion of the project is not subject to local (city and county) discretionary regulations except for air districts and CUPAs with respect to air quality and hazardous waste regulations. However, local plans and policies are considered for informational purposes and to assist with the CEQA review process. No local regulations related to recreation are applicable to the project.

The City of Lodi is a local agency and must comply with its own local plans and policies.

5.16.3 Impact Questions

The project's potential effects on recreational resources were evaluated using the significance criteria set forth in Appendix G of the CEQA Guidelines. The criteria and conclusions are summarized in Table 5.16-1 and discussed in more detail in Section 5.16.4.

Table 5.16-1. CEQA Checklist for Recreation

Would the project:	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a) Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☐	☒
b) Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	☐	☒

5.16.3.1 Additional CEQA Impact Questions

The project's potential effects on recreational resources also were evaluated using the CPUC's Additional CEQA Impact Questions for Recreation in the *Guidelines for Energy Project Applications Requiring CEQA Compliance: Pre-filing and Proponent's Environmental Assessments* (CPUC 2019). These additional impact questions are evaluated using the significance criteria set forth in Appendix G of the CEQA Guidelines. The conclusions are summarized in Table 5.16-2 and discussed in more detail in Section 5.16.4.

Table 5.16-2. Additional CEQA Impact Questions for Recreation

Would the project:	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a) Reduce or prevent access to a designated recreation facility or area?	☐	☐	☐	☒
b) Substantially change the character of a recreational area by reducing the scenic, biological, cultural, geologic, or other important characteristics that contribute to the value of recreational facilities or areas?	☐	☐	☐	☒
c) Damage recreational trails or facilities?	☐	☐	☐	☒

5.16.4 Potential Impact Analysis

Project impacts related to recreational resources were evaluated against the CEQA significance criteria and are discussed in the following sections. The impact analysis evaluates potential project impacts during the construction phase and the operation and maintenance phase. The impact discussion is organized to describe the effects that each participating utility's portion of the project has on the environment.

5.16.4.1 Significance Criteria

According to Section 15002(g) of the CEQA Guidelines, "a significant effect on the environment is defined as a substantial adverse change in the physical conditions which exist in the area affected by the proposed project." As stated in Section 15064(b) of the CEQA Guidelines, the significance of an activity may vary with the setting. Per Appendix G of the CEQA Guidelines, the potential significance of project impacts on

recreation were evaluated for each of the criteria listed in Table 5.16-1 and Table 5.16-2, as discussed in Section 5.16.4.2.

5.16.4.2 Applicant-Proposed Measures and Best Management Practices

The project will have no impact on recreational resources, so no APMs or BMPs are proposed.

5.16.4.3 Potential Impacts

As described in Chapter 3, Project Description, the project will provide a new 230 kV transmission source in northern San Joaquin County, in central California. The project includes extending an existing PG&E 230 kV transmission line through PG&E Lockeford Substation to a new PG&E Thurman Switching Station in Lodi, California, by installing new tubular steel poles and conductors for approximately 11 miles. PG&E Lockeford Substation will be expanded on existing substation property to accommodate the new 230 kV facility. PG&E Thurman Switching Station will transfer the new 230 kV source to the new adjacent LEU 230/60 kV Guild Substation. LEU Guild Substation will transfer the 60 kV power to the existing adjacent LEU 60 kV Industrial Substation, which will be modified to receive the new LEU 60 kV lines (via the new 230 kV source) and to disconnect the existing PG&E 60 kV sources. When disconnected, the three existing PG&E 60 kV lines will be partially removed and reconfigured mainly within their existing alignments to continue operation between PG&E Lockeford and Lodi substations. LEU distribution and the third-party telecommunication underbuild on PG&E 60 kV line portions being removed will be relocated by the respective utility owner to within or adjacent to other existing alignments. An existing PG&E distribution line will be extended underground approximately 500 feet in franchise to provide a permanent secondary service line to PG&E Thurman Switching Station. PG&E project-related work to update communication between facilities and the protection scheme system also will occur within the existing fence lines of remote-end substations Brighton, Bellota, Lodi, and Rio Oso, and a communication facility, Clayton Hill Repeater Station.

a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated? *No Impact.*

PG&E Potential Impact Discussion

Increases in overall permanent demand for recreational facilities typically are associated with substantial increases in population, either by the construction of new residences or by the creation of a major job generator that will indirectly increase the number of residents in an area. Implementation of the project will not result in a substantial increased demand for recreational facilities or adversely affect the existing recreational resources in a permanent manner. PG&E construction workers may use local parks and recreational facilities, but a majority of the workers are anticipated to live in the area and already use these facilities; the limited number of PG&E workers from outside the area needed for construction of the PG&E portion of the project will not result in a substantial increase in demand on such facilities, causing their accelerated physical deterioration. PG&E workers who do not live in the area may use nearby park facilities during project construction, but any increase associated with such use will be negligible and temporary and will not contribute substantially to the physical deterioration of existing facilities. Therefore, no impact will occur.

LEU Potential Impact Discussion

With respect to LEU, LEU construction workers may use local parks and recreational facilities, but a majority of the LEU workers are anticipated to live in the area and already use these facilities; the limited number of LEU workers from outside the area needed for construction of the LEU portion of the project will not result in a substantial increase in demand on such facilities, causing their accelerated physical deterioration. LEU workers who do not live in the area may use nearby park facilities during project construction, but any increase associated with such use will be negligible and temporary and will not contribute substantially to the physical deterioration of existing facilities. Therefore, no impact will occur.

b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment? *No Impact.*

PG&E Potential Impact Discussion

With respect to the PG&E portion of the project, the project will not include recreational facilities or require the construction or expansion of recreational facilities. Therefore, no impact will occur.

LEU Potential Impact Discussion

With respect to the LEU portion of the project, the project will not include recreational facilities or require the construction or expansion of recreational facilities. Therefore, no impact will occur.

5.16.4.4 Additional CEQA Impact Questions

a) Would the project reduce or prevent access to a designated recreation facility or area? *No Impact.*

PG&E Potential Impact Discussion

No public park access will be affected by construction of PG&E portion of the project, either temporarily or permanently. No public park access or area will be removed or constrained by the PG&E work. PG&E's project activities at PG&E Clayton Hill Repeater Station will be a temporary and minor increase of truck trips on a portion of existing recreational trail already used for existing facility operation and maintenance activities. Analysis of visual and noise impacts to recreational users resulting from construction of the PG&E portion of the project is provided in Section 5.1, Aesthetics, and Section 5.13, Noise, respectively. No new facilities or deterioration to the physical condition of the existing facilities will occur; therefore, the project will have no impact on these facilities.

LEU Potential Impact Discussion

With respect to LEU, construction of LEU portion of the project in the City of Lodi would not affect public park access, temporarily or permanently. No public park access or area will be removed or constrained by the LEU work. Analysis of visual and noise impacts to recreational users resulting from construction of the LEU portion of the project is provided in Section 5.1, Aesthetics, and Section 5.13, Noise, respectively. No new facilities or deterioration to the physical condition of the existing facilities will occur; therefore, the project will have no impact on these facilities.

b) Would the project substantially change the character of a recreational area by reducing the scenic, biological, cultural, geologic, or other important characteristics that contribute to the value of recreational facilities or areas? *No Impact.*

PG&E Potential Impact Discussion

With respect to the PG&E portion of the project, the project will not cross or be adjacent to Blakely Park, Chapman Field (Armory Park), the Grape Bowl stadium, Grape Festival Grounds, Hale Park, Lawrence Park, Pixley Park, Zupo Field, or Lockeford Springs Golf Course; public use of those facilities will not be affected by the project, and there will be no change in scenic, biological, cultural, geological, or other important resources. PG&E minor modification to the existing PG&E Clayton Hill Repeater Station tower will not be noticeable at the distance of the station from with Mount Diablo or Black Dimond Mines parks. No impact will occur.

LEU Potential Impact Discussion

With respect to the LEU portion of the project, the project will not cross or be adjacent to Blakely Park, Chapman Field (Armory Park), the Grape Bowl stadium, Grape Festival Grounds, Hale Park, Lawrence Park, Pixley Park, or Zupo Field. Public use of those facilities located in the City of Lodi will not be affected by the project and there will be no change in scenic, biological, cultural, geological or other important resources. No impact will occur.

c) Would the project damage recreational trails or facilities? *No Impact.*

PG&E Potential Impact Discussion

The PG&E portion of the project will not impact any recreational trails or facilities located within unincorporated San Joaquin County or within the City of Lodi; therefore, no impact will occur. PG&E Clayton Hill Repeater Station is an existing facility and the temporary and limited additional truck trips on a paved road will not damage the recreational trail use. No impact will occur.

LEU Potential Impact Discussion

The LEU portion of the project does not impact any recreational trails or facilities located in the City of Lodi; therefore, no impact will occur.

5.17 Transportation

This section describes existing conditions and potential impacts on transportation as a result of construction, operation, and maintenance of the project. The analysis concludes that, although traffic conditions will be temporarily affected by project construction, project-related impacts to transportation will be less than significant. The APMs and BMPs, as described in Section 5.17.4.2, will further reduce impacts. The project's potential effects on transportation and traffic were evaluated using the significance criteria set forth in Appendix G of the CEQA Guidelines. Project description information and potential impacts are organized and discussed by each participating utility's portion of the project. The conclusions are summarized in Table 5.17-2 (located in Section 5.17.3) and discussed in more detail in Section 5.17.4.

5.17.1 Methodology and Environmental Setting

Traffic data and other transportation system information were obtained from maps, literature searches, and aerial photographs. Traffic volumes for regional roadways in the study area were obtained from the San Joaquin County Department of Public Works website, and average daily traffic (ADT) volumes for local roadways were obtained from the City of Lodi website (San Joaquin County Department of Public Works 2022; City of Lodi 2020). Annual average daily traffic (AADT) volumes for 2017 were obtained from the Caltrans website for surrounding state facilities (Caltrans 2017). Transit data were obtained from the City of Lodi website (City of Lodi 2020).

This section includes a description of the roadways that will be used by workers, equipment, materials, and deliveries during construction. Access routes will vary depending on the origin of the worker or truck and the type of activity that day. The project will use the existing network of paved and unpaved public and private roads to access structure work areas, pull/tension sites, and laydown areas. Figure 3.5-1 shows existing roads planned for project use. While not specifically highlighted on Figure 3.5-1, the broader network of paved roads leading to project access roads or work areas also will be used during construction. The roads that are most likely to be affected are described, with the highest-volume roadways described first.

5.17.1.1 Circulation System

The regional and local circulation system in the project area, shown on Figure 5.17-1, consists mainly of two-lane county and local roadways, with three state routes also included. The CCT Company Railroad is a regional freight railroad with at-grade crossings at various roadway locations (CCT 2022). Transit service facilities and stops are not located within 1,000 feet of the project; however, the City of Lodi has existing pedestrian networks and proposed bicycle facilities along roads within 1,000 feet of the project. Refer to Figure 5.17-2.

5.17.1.2 Existing Roadways and Circulation

Three state routes are included within the project area: SR 99, SR 12, and SR 88. City -maintained roads include South Guild Avenue, Beckman Road, and a portion of East Kettleman Lane in the City of Lodi. County roads include East Sargent Road and a portion of East Kettleman Lane. These roadways and their circulation patterns are described in the following sections.

SR 99. This state highway is the backbone of the regional transportation system in the project vicinity near the western termination of the proposed PG&E 230 kV transmission line and new and modified stations and line reconfiguration near the existing LEU Industrial Substation. SR 99 is a north-south freeway that connects Lodi with Sacramento to the north and Stockton to the south. This roadway will be used to access the project area during construction, operation, and maintenance. SR 99 also is known as Highway 99, Golden State Highway, and Purple Heart Veterans Highway. In the project vicinity, SR 99 is a four-lane freeway with two travel lanes in each direction. SR 99 is designated a route of regional significance.

SR 12. This state highway also is called East Victor Drive within the project area. It is an east-west two-lane arterial road. Between Interstate 80 and SR 88, which includes the project area, SR 12 is part of the National Highway System, a network of highways considered by the FHWA to be essential to defense and the economy (FHWA 2023). The existing PG&E Industrial Tap 60 kV and CCT Railroad cross SR 12 at approximately 0.25 mile east of North Guild Avenue. PG&E Industrial Tap connects with the existing PG&E Lockeford-Lodi No. 2 60 kV line on the north side of SR 12 immediately west of the railroad tracks. This roadway will be used to access the western end of the project work in northern San Joaquin County within the City of Lodi during construction, operation, and maintenance. SR 12 is designated a route of regional significance.

SR 88. This state highway, also known as the Carson Pass Highway, is an east-west two-lane arterial road. SR 88 through the project area is part of the National Highway System (FHWA 2023). It will be used to access the proposed PG&E 230 kV double-circuit line and PG&E Lockeford Substation during construction, operation, and maintenance. SR 88 is designated a route of regional significance.

East Kettleman Lane. This road is an east-west two-lane arterial east of Pixley Parkway and a four-lane arterial west of Pixley Parkway. West of SR 99, East Kettleman Lane is part of SR 12. East of SR 99, East Kettleman Lane is maintained by the City of Lodi within the city limits, just west of Wells Lane. From the city limits to the east, East Kettleman Lane is maintained by San Joaquin County. The CCT Railroad crosses East Kettleman Lane approximately 0.25 mile east of Wells Lane. East Kettleman Lane, from SR 99 to Beckman Road, is a Surface Transportation Assistance Act (STAA) Terminal Access Route. STAA establishes a national network of roadways that large trucks within federal width and length limits can use, and it prohibits any state from denying reasonable access to the national network (Caltrans 2022). This roadway will be used to access the project area during construction and operation.

Beckman Road. The roadway is a north-south two-lane collector extending from East Victor Road to East Kettleman Lane. There is a dedicated bicycle lane on the eastern side of Beckman Road that is more than 1,000 feet from the project. Sidewalks run parallel to the roadway on either side from Auto Center Drive to East Victor Drive. From East Kettleman Lane to Industrial Way, Beckman Road is an STAA Terminal Access Route. Beckman Road is maintained by the City of Lodi. This roadway will be used to access the project area during construction and operation.

North Guild / South Guild Avenue. This two-lane local road runs north-south. There are sidewalks along the eastern and western sides of the roadway. The CCT Railroad crosses South Guild Avenue approximately 100 feet south of East Lodi Avenue. From Industrial Way to East Pine Street, South Guild Avenue is an STAA Terminal Access Route. South Guild Avenue is maintained by the City of Lodi. North Guild Avenue begins north of East Pine Street. This roadway will be used to access the project area during construction and operation. Work will occur within the roadway during the extension of the existing PG&E service line on South Guild Avenue to PG&E's new Thurman Switching Station.

East Sargent Road. East Sargent Road running from the CCT Railroad tracks to Tecklenburg Road is an east-west two-lane local road. East Sargent Road is maintained by San Joaquin County. This roadway will be used to access the project area during construction and operation.

East Pine Street. East Pine Street is an east-west two-lane collector. There are sidewalks along the northern and southern sides of the roadway west of South Guild Avenue. The CCT Railroad crosses East Pine Street approximately 1,300 feet east of South Guild Avenue. East Pine Street is maintained by the City of Lodi west of the CCT Railroad. East of the CCT Railroad, East Pine Street is maintained by San Joaquin County. East Pine Street is an STAA Terminal Access Route. This roadway will be used to access the project area during construction and operation.

Table 5.17-1 provides roadway conditions for the main existing roadways that will be used to access the project, and the distance from the roadway to the closest project component.

Table 5.17-1. Roadway Existing Conditions

Roadway Segment		Jurisdiction	Number of Lanes	ADT	AADT	Closest Project Component	Distance from Closest Project Component to Roadway Segment (ft)
SR 99	SR 12 West to SR 12 East	Caltrans	4	n/a	85,000	LEU Industrial Substation	1,400
SR 12/ E Victor Rd	East of S Cluff Av	Caltrans	2	n/a	10,300	PG&E Lodi-Industrial pole 22	50
SR 88	North of E Harney Ln	Caltrans	2	n/a	10,900	PG&E Lockeford-Thurman W12	30
E Kettleman Ln	SR 99 to City Limits	City of Lodi	2	8,380	n/a	PG&E Lockeford-Thurman W36	3,350
	City Limits to SR 88	San Joaquin County	2	6,030	n/a	PG&E Lockeford-Thurman W35	420
	SR 88 to Jack Tone Rd	San Joaquin County	2	1,284	n/a	PG&E Lockeford-Thurman W4	30
	N Jack Tone Rd to N Tully Rd	San Joaquin County	2	477	n/a	PG&E Bellota-Brighton Loop E14 to E8	830
Beckman Rd	SR 12 East to E Pine St	City of Lodi	2	5,740	n/a	LEU Industrial Substation	1,910
	E Pine St to E Lodi Av	City of Lodi	2	3,770	n/a	LEU Industrial Substation	1,350
	E Lodi Ave to E Kettleman Ln	City of Lodi	2	7,920	n/a	PG&E Thurman Switching Station	1,320
N Guild/S Guild Ave	East SR 12 to E Lodi Av	City of Lodi	2	3,240	n/a	PG&E 12 kV distribution line pole	66
S Guild Ave	E Lodi Ave to Auto Center Dr	City of Lodi	2	2,340	n/a	PG&E Lockeford-Thurman W47 to W49	15
E Sargent Rd	CCT to Tecklenburg Rd	San Joaquin County	2	37	n/a	PG&E Lockeford-Industrial pole 10	15
E Pine St	East of Guild Av	City of Lodi	2	1,490	n/a	PG&E Lodi-Industrial pole 18	15

Sources: State of California 2019; San Joaquin County 2021; City of Lodi 2020

Notes:

ft = foot (feet)
n/a = not applicable

5.17.1.3 Transit and Rail Services

Lodi Transit Center Route 5 is located within 0.5 mile from the project along with two local bus stops, as shown on Figure 5.17-2. Route 5 runs once per hour, between approximately 6:30 a.m. and 7:30 p.m. on weekdays and approximately 6:30 a.m. and 6:30 p.m. on weekends (City of Lodi 2022). The City of Lodi operates and maintains five local bus routes that operate primarily west of SR 99. Lodi Transit Center has several transit and rail service partner agencies with regular route stops in Lodi. San Joaquin Regional Transit District (SJRTD) serves the City of Stockton and its surrounding areas. The SJRTD provides bus service between Stockton and Lodi on two routes, Route 93 and Route 163 (SJRTD 2023). Route 93, including the route and bus stops, is located outside the half-mile radius around the project. Route 163 runs on SR 99 between Stockton and Sacramento, with one stop in Lodi immediately southwest of the intersection of SR 12 and SR 99, just outside the half-mile radius around the project. Route 163 runs on weekdays, twice during peak a.m. traffic and twice during peak p.m. traffic.

The California High-Speed Rail is currently under Phase 1 construction in the Central Valley. Phase 2 will extend the system to Sacramento and San Diego. The Merced-to-Sacramento project section of Phase 2 is approximately 115 miles long and includes four proposed station locations, including Merced, Modesto, Stockton, and Sacramento. The Merced-to-Sacramento draft route map published in July 2018 appears to route the alignment to the east of the City of Lodi. The high-speed rail route appears to cross the proposed new PG&E 230 kV line potentially near the current north-south alignment of the existing freight rail services east of the City of Lodi (California High-Speed Rail Authority 2021).

Freight rail services are mapped within 5 miles of the project on Figure 5.17-1. The City of Lodi is served by two national freight rail lines: the UPRR and the BNSF, as well as a regional freight rail line, CCT Railroad. BNSF has handling carrier and trackage rights in the area with UPRR and CCT (BNSF 2021). CCT provides switching services for UPRR and BNSF at the Port of Stockton and the Central Valley Branch—Lodi, which provides switching services for six Stockton- and Lodi-based customers (CCT 2022).

Reconfiguration of the three existing PG&E 60 kV lines terminating at LEU Industrial Substation will include removing PG&E Lockeford-Industrial pole 1 through pole 9 starting at the span at pole 10 at the eastern end of East Sargent Road into LEU Industrial Substation, as shown on Figure 5.17-3. The existing LEU 12 kV feeder line underbuild on PG&E Lockeford-Industrial, which will be relocated to an underground configuration immediately south of the new PG&E 230 kV line alignment, is parallel to the CCT line spur. The proposed PG&E 230 kV transmission line parallels the CCT rail line for approximately 1.25 miles at a distance of approximately 600 feet when immediately east of Lodi's city limits. When the proposed PG&E transmission line turns west into the City of Lodi city limits, it crosses both the CCT tracks that run north-south and CCT industrial tracks that turn west for approximately 1 mile and parallel the south side of East Lodi Avenue. The extension of PG&E's 12 kV service line on South Guild Avenue to provide secondary station service to PG&E Thurman Switching Station will cross under the CCT spur line where the tracks cross South Guild Avenue. The three PG&E 60 kV lines connecting LEU Industrial Substation each have an existing span across a CCT line and parallel one or more of the CCT lines near or within the City of Lodi city limits. Additional reconfiguration of PG&E 60 kV lines will include removing the spans of PG&E Lodi-Industrial and PG&E Industrial Tap that cross CCT rail lines when heading north from LEU Industrial Substation toward East Lodi Avenue. A new span between PG&E Lodi-Industrial pole 2 and PG&E Industrial Tap pole 2 will be located along East Lodi Avenue and will be parallel to the CCT rail lines immediately south. A new span will connect PG&E Industrial Tap pole 13 and PG&E Lockeford-Industrial pole 10 across CCT rail lines at the western end of East Sargent Road. The 60 kV portion of PG&E Industrial Tap pole 14 to pole 22 that parallels CCT to the west between East Sargent Road and SR 12 will be removed. PG&E 60 kV Industrial Tap includes existing PG&E distribution underbuild. After the 60 kV portion of PG&E Industrial Tap is removed, the existing PG&E distribution will remain unchanged as part of the project. A new horizontal guy span will be installed in the PG&E Industrial Tap alignment across SR 12 between PG&E Industrial Tap pole 22 and an existing PG&E distribution pole on the south side of SR 12.

5.17.1.4 Bicycle Facilities

Figure 5.17-2 illustrates existing and proposed bicycle lanes, routes, and paths within approximately 1,000 feet of the project. San Joaquin County has no designated bicycle facilities located within approximately 1,000 feet of the project. The *City of Lodi Bikeway Master Plan* describes the existing and proposed bikeways, or bicycle facilities, in the City of Lodi. Class I bikeways are defined as paved bike paths or multi-use trails completely separated from any street or highway. Class II bikeways are defined as on-street routes intended to provide continuity to bikeway systems. A Class I bikeway is proposed along East Victor Road (SR 12) within the project vicinity. Three Class II bikeways are proposed in the project vicinity, along South Guild Avenue, west from South Guild Avenue on East Lodi Avenue, and along East Victor Road (SR 12). No existing bikeways are located within approximately 1,000 feet of the project.

5.17.1.5 Pedestrian Facilities

The City of Lodi maintains sidewalks along city streets in the project area. When outside the City of Lodi city limits, no sidewalks are present within the project area. Within approximately 1,000 feet of the project, city roads in the industrial and commercial land use area have sidewalks on both sides of the road except for the south side of East Lodi Avenue along the CCT spur line west from South Guild Avenue, East Pine Street, and the north side of East Victor Road (SR 12).

5.17.1.6 Vehicle Miles Traveled

Per CEQA Guidelines, Section 15064.3, VMT is the "amount and distance of automobile travel attributable to a project" and "is the most appropriate measure of transportation impacts." In San Joaquin County, the residential baseline VMT is 26.6 miles per capita and the work baseline VMT is 19.1 miles per employee (San Joaquin County 2020). The total daily average VMT on rural and urbanized public roadways in San Joaquin County is 17,598,440 miles (Caltrans 2021).

5.17.2 Regulatory Setting

5.17.2.1 Federal

Americans with Disabilities Act Standards for Accessible Design

The proposed project will involve reconstructing sidewalks and trails at station and line locations and will be required to comply with Americans with Disabilities Act (ADA) standards. The Department of Justice enacted the ADA in 1990, which adopted enforceable accessibility standards for facility design. The revised ADA standards adopted in 2010 set minimum requirements for newly designed and constructed or altered state and local government facilities, public accommodations, and commercial facilities. State and local government facilities must adhere to the following requirements of the 2010 standards:

- Title II regulations at 28 CFR 35.151
- 2004 ADA Accessibility Guidelines at 36 CFR 1191, Appendices B and D

5.17.2.2 State

Caltrans owns the rights-of-way (ROWs) for state facilities, including any on- and off-ramps that provide access to the project area. Any project-related work within state ROWs requires an encroachment permit from Caltrans.

Caltrans also is the administering agency for regulations related to traffic safety, including licensing drivers, limiting weights and loads, transporting hazardous and combustible materials, and safely operating vehicles.

Senate Bill 743

In December 2018, the California Natural Resources Agency updated the CEQA Guidelines to incorporate SB 743. As a result, CEQA Guidelines, Section 15064.3, shifts the focus of a CEQA analysis of transportation impacts away from quantification of automobile delay to focus on VMT to determine the significance. VMT refers to the amount and distance of automobile travel attributable to a project. VMT is a measure of the total number of miles driven to or from a development, sometimes expressed as an average per trip or per person. Subdivision (b)(3), Qualitative Analysis, recognizes that lead agencies may not be able to quantitatively estimate VMT for every project type and indicates that a qualitative analysis of construction traffic may be appropriate. The project is not a traditional land use project that would generate VMT on a regular basis. Additionally, San Joaquin County has not yet adopted a County-specific VMT threshold of significance.

California Vehicle Code

Section 21400 of the California Vehicle Code directs the California Department of Transportation to adopt rules and regulations prescribing uniform standards and specifications for all official traffic control devices placed pursuant to the vehicle code. The *California Temporary Traffic Control Handbook* provides the basic standards for the safe movement of traffic, including motorists, bicyclists, and pedestrians, on streets, highways, and bikeways, during highway construction or utility work in accordance with Section 21400 of the California Vehicle Code. The *California Manual on Uniform Traffic Control Devices* provides uniform standards and specifications for all official traffic control devices in California, pursuant to the provisions of Section 21400 of the California Vehicle Code.

5.17.2.3 Local

Because the CPUC has exclusive jurisdiction over project siting, design, and construction, PG&E's portion of the project is not subject to local (city and county) discretionary regulations except for air districts and CUPAs with respect to air quality and hazardous waste regulations. However, local plans and policies are considered for informational purposes and to assist with the CEQA review process.

The City of Lodi is a local agency and must comply with its own local plans and policies.

San Joaquin County

The *San Joaquin County General Plan*, Transportation and Mobility Element, focuses on enhancing the connections between cities and communities and creating an integrated multimodal system. San Joaquin County has guiding principles to promote regional and interstate transit connections that reduce vehicle trips, enhance goods movement infrastructure, and create safe connections between cities and unincorporated communities (San Joaquin County 2016).

The *San Joaquin County General Plan* identifies Level of Service (LOS) standards consistent with the SJCOG Congestion Management Program (CMP) for state highways and designated county roadways and intersections of regional significance (SJCOG 2021). LOS is a mechanism used to determine how well a transportation facility is operating from a traveler's perspective. Typically, six levels of service are defined and each is assigned a letter designation from A to F, with LOS A representing the best operating conditions and LOS F the worst. Per the CMP, all designated CMP roadways and intersections will operate at LOS D or better. LOS standards for non-CMP intersections and roadways classified as minor arterials, or a higher classification, indicate LOS D or better. All other non-CMP intersections and roadways will operate at LOS C or better (San Joaquin County 2016).

City of Lodi

The *City of Lodi General Plan* includes goals and policies to expand multimodal transportation choices, increase interconnectivity, enhance bicycle and pedestrian facilities, and promote an integrated transit

system (City of Lodi 2010). The City of Lodi supports alternative transportation through the *City of Lodi Bikeway Master Plan* (City of Lodi 2012*)*.

The *City of Lodi General Plan* identifies LOS compliance with the SJCOG CMP for routes of regional significance. For purposes of design review and environmental assessment, the City of Lodi employs a standard of LOS E during peak hour conditions for all streets in the city's jurisdiction (City of Lodi 2010).

5.17.3 Impact Questions

The project's potential effects on transportation were evaluated using the significance criteria set forth in Appendix G of the CEQA Guidelines. The criteria and conclusions are summarized in Table 5.17-2 and discussed in more detail in Section 5.17.4.

Table 5.17-2. CEQA Checklist for Transportation

Would the project:	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a) Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities?	☐	☐	☒	☐
b) Conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b)?	☐	☐	☒	☐
c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☐	☒
d) Result in inadequate emergency access?	☐	☐	☒	☐

5.17.3.1 Additional CEQA Impact Questions

The project's potential effects on transportation also were evaluated using the CPUC's Additional CEQA Impact Questions for Transportation in the *Guidelines for Energy Project Applications Requiring CEQA Compliance: Pre-filing and Proponent's Environmental Assessments* (CPUC 2019). These additional impact questions are evaluated using the significance criteria set forth in Appendix G of the CEQA Guidelines. The conclusions are summarized in Table 5.17-3 and discussed in more detail in Section 5.17.4.

Table 5.17-3. Additional CEQA Impact Questions for Transportation

Would the project:	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a) Create potentially hazardous conditions for people walking, bicycling, or driving or for public transit operations?	☐	☐	☒	☐
b) Interfere with walking or bicycling accessibility?	☐	☐	☒	☐

Would the project:	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
c) Substantially delay public transit?	☐	☐	☐	☒

5.17.4 Potential Impact Analysis

The following subsections describe significance criteria for transportation impacts derived from Appendix G of the CEQA Guidelines, provide APMs and BMPs, and assess potential project-related construction, operation, and maintenance impacts on transportation. The impact discussion is organized to describe the effects of each participating utility's portion of the project on the environment.

5.17.4.1 Significance Criteria

According to Section 15002(g) of the CEQA Guidelines, "… a significant effect on the environment is defined as a substantial adverse change in the physical conditions which exist in the area affected by the proposed project." As stated in Section 15064(b) of the CEQA Guidelines, the significance of an activity may vary with the setting. In accordance with Appendix G of the CEQA Guidelines, the potential significance of project impacts on transportation were evaluated for each of the criteria listed in Table 5.17-2 and Table 5.17-3, as discussed in Section 5.17.4.2.

SB 743, which requires consideration of VMT, is discussed in Section 5.17.2.2. Because the project will generate only temporary construction-related traffic, a qualitative analysis of transportation impacts related to VMT is used in this Proponent's Environmental Assessment.

In Chapter 3, Project Description, Table 3.6-1 provides the number of workers and vehicles for each stage of construction and the duration of use for each vehicle. VMT was calculated based on the average daily miles for each vehicle and a daily 30-mile round trip assumption per worker. The O&M for the new LEU Guild Substation, PG&E Thurman Switching Station, and PG&E 230 kV transmission lines will be controlled remotely. Maintenance trips for LEU Guild Substation typically will be planned in conjunction with LEU Industrial Substation's existing maintenance trips; however, an additional four hours of monthly truck use are estimated to occur. At PG&E Thurman Switching Station and expanded PG&E Lockeford Substation, maintenance trips involve single-day monthly visual inspections and detailed annual and 5-year inspections. Station component or system inspections may be scheduled every 2 to 8 years for a given station component or system. Conservatively, yearly inspections are estimated at up to 24 workdays annually to accommodate potential inspections and maintenance that may occur in a given year.

No additional O&M staff are required by either PG&E or LEU. A minimal additional VMT is anticipated for the new or modified LEU portion of the project, or no additional VMT for the PG&E existing or modified substations and lines. A relatively small amount of additional O&M VMT will be necessary for PG&E to complete O&M activities at the new PG&E Thurman Switching Station, potentially the expanded 230 kV portion of PG&E Lockeford Substation, and new PG&E 230 kV lines. Additional VMT for monthly PG&E visual station inspections is estimated at approximately 50 miles for each visit. Annual inspections are estimated to occur over 24 workdays at 50 miles each day. If insulator washing is required, an annual estimate is again approximately 50 miles per day for up to approximately 24 workdays. Other cyclic station inspection and maintenance trips (occurring potentially every 2-8 years) are estimated at approximately 50 miles for 12 workdays. PG&E 230 kV transmission line annual inspections typically begin 5 years after the lines are placed into service. As described in Section 5.17.4.3, inspections of overhead PG&E transmission lines typically commence after 5 years of operation and are conducted annually in accordance with PG&E's *Transmission Owner Maintenance Practices for Electrical Overhead Transmission Lines*. Annual PG&E transmission line inspection and maintenance will have between

approximately 1,925 VMT and approximately 3,125 VMT depending on whether insulator washing is required.

In addition to VMT, capacity utilization was calculated to assess the potential for any effects on traffic operations, specifically on roadways affected by construction-related activities. Capacity was determined based on roadway type, area type, and speed limit and converted to daily capacity based on the number of lanes and an assumed k-factor (percent of daily traffic in the peak hour) of 10%. The calculated capacity was compared to existing ADT counts, obtained from Caltrans and the City of Lodi, to determine the existing capacity utilization. The existing capacity utilization was compared with capacity utilization including construction traffic. The results are presented in Section 5.17.4.3.

5.17.4.2 Applicant-Proposed Measures and Best Management Practices

The project will implement the following transportation APMs and BMPs:

APM TRA-1: PG&E Temporary Traffic Controls. PG&E will obtain any necessary transportation and encroachment permits from Caltrans and the local jurisdictions, as required, including those related to state route crossings and the transport of oversized loads and certain materials, and will comply with permit requirements designed to prevent excessive congestion or traffic hazards during construction. PG&E will develop traffic control plans to detail road and lane closure or width reduction or traffic diversions as required by the encroachment permits. Construction activities that are in, along, or cross local roadways will follow best practices and local jurisdictional encroachment permit requirements—such as traffic controls in the form of signs, cones, and flaggers—to minimize impacts on traffic and transportation in the project area. PG&E will provide the CPUC with copies of permits obtained prior to construction activity in a given jurisdiction or location. If required for obtaining a local encroachment permit, PG&E will establish a Traffic Management Plan (TMP) to address haul routes, timing of heavy equipment and building material deliveries, potential street or lane closures, signing, lighting, and traffic control device placement. When working on state highways, PG&E will ensure traffic control operations are compliant with both the *California Temporary Traffic Control Handbook*, 2018 edition, and the *California Manual on Uniform Traffic Control Devices*, 2014 edition.

BMP TRA-1: LEU Temporary Traffic Controls. LEU will obtain any necessary transportation and encroachment permits from Caltrans and the local jurisdictions, as required, including those related to the transport of oversized loads and certain materials, and will comply with permit requirements designed to prevent excessive congestion or traffic hazards during construction. LEU will develop traffic control plans to detail road and lane closure or width reduction or traffic diversions as required by the encroachment permits. Construction activities that are in, along, or cross local roadways will follow best practices and local jurisdictional encroachment permit requirements—such as traffic controls in the form of signs, cones, and flaggers—to minimize impacts on traffic and transportation in the project area. If required for obtaining a local encroachment permit, LEU will establish a TMP to address haul routes, timing of heavy equipment and building material deliveries, potential street or lane closures, signing, lighting, and traffic control device placement.

APM TRA-2: PG&E Repair of Damaged Transportation Infrastructure. As part of the final construction activities of the project, PG&E will restore all removed curbs, gutters, and sidewalks, and repave all removed or damaged paved surfaces associated with PG&E construction activities.

BMP TRA-2: LEU Repair of Damaged Transportation Infrastructure. As part of the final construction activities of the project, LEU will restore all removed curbs, gutters, and sidewalks, and repave all removed or damaged paved surfaces associated with LEU construction activities.

5.17.4.3 Potential Impacts

As described in Chapter 3, Project Description, the project will provide a new 230 kV transmission source in northern San Joaquin County, in central California. The project includes extending an existing PG&E 230 kV transmission line through PG&E Lockeford Substation to a new PG&E Thurman Switching Station in

Lodi, California, by installing new tubular steel poles and conductors for approximately 11 miles. PG&E Lockeford Substation will be expanded on existing substation property to accommodate the new 230 kV facility. PG&E Thurman Switching Station will transfer the new 230 kV source to the new adjacent LEU 230/60 kV Guild Substation. LEU Guild Substation will transfer the 60 kV power to the existing adjacent LEU 60 kV Industrial Substation, which will be modified to receive the new LEU 60 kV lines (via the new 230 kV source) and to disconnect the existing PG&E 60 kV sources. When disconnected, the three existing PG&E 60 kV lines will be partially removed and reconfigured mainly within their existing alignments to continue operation between PG&E Lockeford and Lodi substations. LEU distribution and the third-party telecommunication underbuild on PG&E 60 kV line portions being removed will be relocated by the respective utility owner to within or adjacent to other existing alignments. An existing PG&E distribution line will be extended underground approximately 500 feet in franchise to provide a permanent secondary service line to PG&E Thurman Switching Station. PG&E project-related work to update communication between facilities and the protection scheme system also will occur within the existing fence lines of remote-end substations Brighton, Bellota, Lodi, and Rio Oso, and a communication facility, Clayton Hill Repeater Station.

During construction, vehicle trips will be generated by construction workers, equipment deliveries, and material delivery trucks. Personnel generally will drive to the worksite at the beginning of the day and leave at the end of the day, with few personnel traveling to and from the worksite throughout the day. Construction-related traffic will vary according to the construction phase.

Overall, peak workforce is estimated to be up to approximately 66 workers per day during the peak months of construction (2027 Q2), with work activities potentially occurring at PG&E Lockeford Substation, PG&E new 230 kV line structure locations, PG&E Thurman Switching Station, PG&E 12 kV service line extension, PG&E Clayton Hill Repeater Station, LEU Industrial Substation, and LEU Guild Substation. On a typical workday during 2027, as many as approximately 6 to 8 crews will be performing project activities. A typical daily workforce during the peak period of construction is expected to consist of approximately 3 to 18 workers per project activities. Approximately 22% of the workforce during the peak period is expected to be supporting LEU's portion of the project and approximately 78% is expected to be supporting PG&E's portion of the project. During PG&E transmission line work, crews typically will be working at adjacent or nearby poles. During PG&E transmission conductor stringing activities, approximately 18 construction crew members may be in the field, working at approximately two pull-and-tension sites, usually approximately 3.5 miles apart. On a typical peak workday with civil work complete, 4 to 10 construction crew members will be working at a station. Work at PG&E remote-end stations will have approximately two workers and, conservatively, the workers are included in the peak months total. Typically, approximately one or two truck drivers and approximately 3 to 4 inspectors and monitors are estimated as a daily average across all project components. Different phases of the construction process will require varying numbers of construction personnel.

It is estimated that construction activities will result in up to approximately 524 large truck (line trucks, semi-trucks, concrete trucks, flatbeds, and cranes) trips per day and up to approximately 222 transport vehicle (crew-cab trucks, pickups, and other light-duty vehicles) trips per day. Vehicle trips will not occur at the same time, since they include both vehicles arriving at and departing the site at the beginning and end of the workday, and delivery and water trucks during the course of the workday. Furthermore, not all trips will affect the same roads, as crew members will be working at multiple locations.

The anticipated temporary and short-term construction-related traffic impacts will be related to truck routes and project area access routes. Section 3.6 describes the typical construction crew size and required construction equipment during each phase of project construction. Although construction activities may generate slight increases in traffic on SRs and local roads, the effects will be minimal, short term, and periodic.

The maximum number of daily vehicle trips associated with construction, described in Section 5.17.4.3, was compared to the available capacity of the roadways to gain an understanding of the proposed project's potential impacts. The analysis conservatively assumed that all trips generated by the project's

construction would use all roadway segments in the area. The results of this analysis are presented in Table 5.17-4.

Lodi Transit stops are located within approximately 0.5 mile of the project. Construction activities or O&M activities are not expected to impact operation of the Lodi Transit routes across SR 99.

Detailed PG&E transmission line inspections and routine patrols will be performed in accordance with PG&E's Transmission Owner Maintenance Practices for Electrical Overhead Transmission Lines, in the latest revision, as filed with the California Independent System Operator. Typically, there are no O&M inspections conducted on a new PG&E transmission line for the first 5 years following the in-service date. After 5 years, PG&E inspections typically are performed annually, by either vehicle or helicopter. Additionally, routine maintenance will be performed to correct conditions identified during inspections. As such, additional traffic from operational activities would be minimal and infrequent. LEU inspections will not change in frequency or resources required when the project is built.

Table 5.17-4. Estimated Roadway Capacity Utilization

Roadway Segment		Capacity[a] (vphpl)	Daily Capacity[b] (vpd)	Existing		Existing with Project	
				ADT	Capacity Utilization (%)	ADT	Capacity Utilization (%)
SR 99	SR 12 West to SR 12 East	2,000	88,889	85,000	96	85,792	97
SR 12/ E Victor Rd	S Cluff Ave	920	18,400	10,300	56	11,092	60
SR 88	E Harney Ln	850	17,000	10,900	64	11,692	69
E Kettleman Ln	SR 99 to Pixley Pkwy	920	36,800	8,380	23	9,172	25
	Pixley Pkwy to SR 88	1,500	30,000	6,030	20	6,822	23
	SR 88 to N Jack Tone Rd	1,500	30,000	1,284	4	2,076	7
	N Jack Tone Rd to N Tully Rd	1,500	30,000	477	2	1,269	4
Beckman Rd	East SR 12 to E Pine St	920	18,400	5,740	31	6,532	36
	E Pine St to E Lodi Ave	920	18,400	3,770	20	4,562	25
	E Lodi Ave to E Kettleman Ln	920	18,400	7,920	43	8,712	48
S Guild Ave	East SR 12 to E Lodi Ave	920	18,400	3,240	18	4,032	22
	E Lodi Ave to Auto Center Dr	920	18,400	2,340	13	3,132	17
E Pine St	East of Guild Ave	920	18,400	1,490	8	2,282	13

Sources: State of California 2019; City of Lodi 2020

[a] Capacity, vehicles per hour per lane (vphpl), follows Florida Department of Transportation 2020

[b] Daily capacity, vehicles per day (vpd), is calculated using an assumed k-factor of 10%

a) Would the project conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities? *Less-than-Significant Impact*.

PG&E Potential Impact Discussion

Most construction activities will occur within PG&E's new (acquired as part of the proposed project) or existing property, franchise, or ROW. Work within public ROW will be limited to construction activities in, along, or crossing roadways and sidewalks within the City of Lodi. Guard structures will be installed where construction activities on PG&E lines will cross over major roads and railroad lines. The following roadways would be spanned by the new PG&E 230 kV transmission line segment: SR 88, South Guild Avenue, East Kettleman Lane, East Realty Road, North Curry Avenue, Vintage Road, North Alpine Road, East Locust Tree Road, North Jack Tone Road, North Tully Road, North Jory Road, and North Linn Road. Reconfiguration of the PG&E 60 kV lines and any underbuild will require span work along East Lodi Avenue and East Sargent Road and across South Guild Avenue, East Pine Street, and SR 12 (East Victor Road). Extension of the secondary service into PG&E Thurman Switching Station will occur within a lane of South Guild Avenue and cross the CCT rail tracks south of East Lodi Avenue. Temporary road closures (rolling stops) are anticipated when certain sections of the PG&E line are being reconductored at the road overhead crossings. Road closures on private and county roads are not expected to exceed 5 minutes in duration. For the SR 88 and SR 12 crossings, CHP and Caltrans will be contacted to organize 5- to 10-minute rolling stops. The new PG&E 230 kV line and reconfiguration of PG&E's existing 60 kV lines will require work across or along CCT rail line locations in or near the City of Lodi. The extension of PG&E's existing 12 kV line south within South Guild Avenue is expected to be installed using a trenchless method and cross under the CCT tracks. Any necessary encroachment permits will be obtained from the affected agencies or entities. Temporary lane closures also will be required at various locations for public safety. Removal of the western portion of PG&E's Lockeford-Industrial Line into LEU Industrial Substation, the LEU 12 kV underbuild, and third-party communication lines underbuild are partially located on private property or span driveways where large trucks may be accessing the LEU customer warehouse. In addition to traffic control and other safety measures, PG&E would provide, as part of the TMP, notification to property owners and businesses in advance of work. In addition, where the installation of guard structures is required, APM TRA-1, which requires that traffic controls and other traffic safety measures be in place to maintain proper traffic flow, will further reduce any impacts.

As shown in Table 5.17-4, project construction traffic would increase the capacity utilization of affected roadways by approximately 5% or less. The highest rate of capacity utilization would occur on SR 99, which is the highest rate of capacity utilization, approximately 96%, for these roadways under existing conditions. With the addition of the construction vehicle trips associated with the PG&E portion of the project (approximately 579 PG&E trips of approximately 828 total project trips), the capacity utilization would be approximately 97% for SR 99. PG&E will use traffic controls and other traffic safety measures to maintain proper traffic flow during temporary construction activities, further minimizing any effects on traffic. Implementation of APM TRA-2 will restore all removed or damaged curbs, gutters, sidewalks, and paved surfaces, as necessary.

The vehicle trips generated by the proposed project during operation would be limited to PG&E personnel conducting periodic inspections and as-needed maintenance/repair activities. Proposed PG&E O&M activities would not be expected to require lane or road closures or operation of heavy equipment within public roadways; however, if these activities were to be required (for example, because of a significant repair of a line structure or conductor adjacent to a roadway), traffic control would be implemented and adherence to requirements in any encroachment permits would reduce traffic impact.

Project construction will not conflict with any policies, plans, or programs that support alternative transportation (for example, bus turnouts or bicycle racks). No transit facilities or bike facilities exist within approximately 1,000 feet of PG&E project components; however, there are proposed bike lanes on South Guild Avenue, East Lodi Avenue and East Victor Road (SR 12), and a proposed bike path along Lockeford Street, located within approximately 1,000 feet of the project. Lacking proper protocols, temporary lane or road closures required for crossing-structure installation could result in substantial delays and potential

safety hazards for local pedestrians and bicycles. Because none of the existing bikeways or bicycle facilities in the area are located within or directly adjacent to the proposed project work areas, no impact will occur. The sidewalks along South Guild Avenue from approximately 200 feet north of East Lodi Avenue to East Thurman Road could be temporarily affected by project construction to modify or remove existing PG&E lines, install the new PG&E transmission line, and install the driveways for vehicle access into the new switching station. Sidewalk and lane closures may detour pedestrians temporarily, but impacts would be short term and temporary. An alternate pedestrian route via Beckman Road would result in an approximately 1-mile detour. The proposed project would have no lasting impact on demand for alternative transportation or on alternative transportation facilities.

PG&E will obtain all necessary road permits, including encroachment permits, prior to construction and would comply with all the applicable conditions of approval. One-way traffic controls and short-term road closures will be implemented to allow for certain construction activities and to maintain public safety. PG&E will apply for an encroachment permit that will include a Traffic Control Plan from the City of Lodi. If required by the City of Lodi, a TMP would establish methods for minimizing construction effects on transit service and bicycle facilities.

Construction and O&M impacts will be less than significant. The APMs, BMPs, and TMP, if required, would further reduce impacts during construction.

LEU Potential Impact Discussion

Most construction activities will occur within LEU's existing property or ROW. Work within public ROW will be limited to construction activities in, along, or crossing roadways and sidewalks within the City of Lodi. Any necessary encroachment permits will be obtained from the affected agencies or entities. Temporary lane closures also will be required at various locations for public safety. In addition, BMP TRA-1, which requires that traffic controls and other traffic safety measures be in place to maintain proper traffic flow, will further reduce any impacts.

The anticipated temporary and short-term construction-related traffic impacts will be related to truck routes and project area access routes. Section 3.6 describes the typical construction crew size and required construction equipment during each phase of project construction. Although construction activities may generate slight increases in traffic on SRs and local roads, the effects will be minimal, short term, and periodic.

The maximum number of daily vehicle trips associated with construction, described in Section 5.17.4.3, was compared to the available capacity of the roadways to gain an understanding of the proposed project's potential impacts. The analysis conservatively assumed that all trips generated by the project's construction would use all roadway segments in the area. The results of this analysis are presented in Table 5.17-4.

As shown in Table 5.17-4, project construction traffic would increase the capacity utilization of affected roadways by approximately 5% or less. The highest rate of capacity utilization would occur on SR 99, which is the highest rate of capacity utilization, approximately 96%, for these roadways under existing conditions. With the addition of the construction vehicle trips associated with the LEU portion of the project (approximately 249 LEU trips of approximately 828 total project trips), the capacity utilization would be approximately 97% for SR 99. LEU will use traffic controls and other traffic safety measures to maintain proper traffic flow during temporary construction activities, further minimizing any effects on traffic. Implementation of BMP TRA-2 will restore all removed or damaged curbs, gutters, sidewalks, and paved surfaces, as necessary.

The vehicle trips generated by the proposed project during operation would be limited to LEU personnel conducting periodic inspections and as-needed maintenance/repair activities. Proposed LEU O&M activities would not be expected to require lane or road closures or operation of heavy equipment within public roadways; however, if these activities were to be required, traffic control would be implemented and adherence to requirements in any encroachment permits would reduce traffic impact.

Project construction will not conflict with any policies, plans, or programs that support alternative transportation (for example, bus turnouts or bicycle racks). No transit facilities or bike facilities exist within approximately 1,000 feet of LEU project components; however, a proposed bikeway is located within approximately 1,000 feet of the project along South Guild Avenue, and along East Lodi Avenue. The sidewalks along South Guild Avenue from approximately 200 feet north of East Lodi Avenue to East Thurman Road could be temporarily affected by project construction to modify or remove existing LEU underbuild and distribution on PG&E lines and install the driveways for vehicle access into the new LEU substation. Sidewalk and lane closures may detour pedestrians temporarily, but impacts would be short term and temporary. An alternate pedestrian route via Beckman Road would result in an approximately 1-mile detour. The proposed project would have no lasting impact on demand for alternative transportation or on alternative transportation facilities.

LEU will obtain all necessary road permits, including encroachment permits, prior to construction and would comply with all the applicable conditions of approval. One-way traffic controls and short-term road closures will be implemented to allow for certain construction activities and to maintain public safety. LEU will apply for an encroachment permit from the City of Lodi. If required by the City of Lodi, a TMP would establish methods for minimizing construction effects on transit service and bicycle facilities.

Construction and O&M impacts will be less than significant. The APMs, BMPs, and TMP, if required, would further reduce impacts during construction.

b) Conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b)? *Less-than-Significant Impact.*

PG&E Potential Impact Discussion

The project does not propose new housing, businesses, or other land use changes that will induce population growth in the area. Construction of the PG&E project components could result in a temporary increase in local traffic as a result of PG&E construction-related workforce traffic and material deliveries and construction activities occurring within the public ROW. The primary offsite impacts from the movement of construction trucks will include short-term and intermittent effects on traffic operations because of slower movements and larger turning radii of the trucks compared to passenger vehicles. The VMT for the proposed project construction-related vehicle trips would depend on several factors, including the origin of construction worker commute trips (for example, distance from their homes or temporary lodging to the construction site), origin of materials and equipment deliveries to the construction site, and distance to landfills or other disposal sites from the construction site. While these factors are not all precisely known at this time, the relatively low overall number of vehicle trips generated during the proposed project construction would equate to a relatively low total VMT. Additionally, the construction vehicle trips and associated VMT would be temporary, minimizing the potential long-term impact of the proposed project in terms of greenhouse gas emissions. When construction is completed, construction-related traffic will cease and VMT levels will return to pre-existing conditions with minimal and infrequent trips generated, as described in Section 5.17.4.3. The project will not conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b). Therefore, impacts will be less than significant.

LEU Potential Impact Discussion

The project does not propose new housing, businesses, or other land use changes that will induce population growth in the area. Construction of the LEU project components could result in a temporary increase in local traffic as a result of LEU construction-related workforce traffic and material deliveries and construction activities occurring within the public ROW. The primary offsite impacts from the movement of construction trucks will include short-term and intermittent effects on traffic operations because of slower movements and larger turning radii of the trucks compared to passenger vehicles. The VMT for the proposed project construction-related vehicle trips would depend on several factors, including the origin of construction worker commute trips (for example, distance from their homes or temporary lodging to the construction site), origin of materials and equipment deliveries to the construction site, and distance to

landfills or other disposal sites from the construction site. While these factors are not all precisely known at this time, the relatively low overall number of vehicle trips generated during the proposed project construction would equate to a relatively low total VMT. Additionally, the construction vehicle trips and associated VMT would be temporary, minimizing the potential long-term impact of the proposed project in terms of greenhouse gas emissions. When construction is completed, construction-related traffic will cease and VMT levels will return to pre-existing conditions with minimal and infrequent trips generated, as described in Section 5.17.4.3. The project will not conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b). Therefore, impacts will be less than significant.

c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)? *No Impact.*

PG&E Potential Impact Discussion

No construction, geometric alteration, or incompatible uses of any public roads are proposed. PG&E is currently performing O&M activities, including inspections, at existing PG&E stations and lines that are part of the project. The incremental increase in PG&E O&M activities expected to occur at the modified and new facilities as part of the project will not increase hazards or incompatible uses. Therefore, no impacts would occur.

LEU Potential Impact Discussion

No construction, geometric alteration, or incompatible uses of any public roads are proposed. LEU is currently performing O&M activities, including inspections, at existing LEU stations and lines that are part of the project. The incremental increase in LEU O&M activities expected to occur at the modified and new facilities as part of the project will not increase hazards or incompatible uses Therefore, no impacts would occur.

d) Result in inadequate emergency access? *Less-than-Significant Impact.*

PG&E Potential Impact Discussion

The PG&E project components will not create transportation-related hazards or result in a substantial negative effect on emergency access. Emergency access will be maintained throughout PG&E's construction and O&M. PG&E construction vehicles and equipment are anticipated to access project construction areas by using existing PG&E access and existing paved, dirt, or gravel roads and overland travel routes. Construction vehicles and equipment needed at the pull sites are expected to be staged or parked within project area ROWs, approved temporary construction easements, or alongside access roads. Any lane closures or other road restrictions will be temporary and short term and would include the following.

- Road crossings for reconductoring. Road closures on private and county roads are not expected to exceed 5 minutes in duration. For the SR 88 and SR 12 crossings, CHP and Caltrans will be contacted to organize 5- to 10-minute rolling stops. The temporary disruption of access during wire stringing operations at any particular location would be fewer than 5 business days.

- Extension of the PG&E 12 kV line within South Guild Avenue. The extension will require lane and sidewalk closure for the two HDD work areas for up to 2 months. Given the width of the road, PG&E anticipates that a temporary parking restriction in the vicinity of the work area will allow for one lane of traffic in each direction to be open at all times. Flaggers and rerouting will be used as needed.

- Temporary lane closures also will be required at various locations for public safety. Removal of the western portion of PG&E's Lockeford-Industrial Line into LEU Industrial Substation, the LEU 12 kV underbuild, and third-party communication lines underbuild are partially located on private property or span driveways where large trucks may be accessing the LEU customer warehouse. In

addition to traffic control and other safety measures, PG&E would provide, as part of the TMP, notification to property owners and businesses in advance of work. In addition, where the installation of guard structures is required, traffic controls and other traffic safety measures will be in place to maintain proper traffic flow.

PG&E closures will be coordinated with Caltrans or local jurisdictions to reduce the effects of potential temporary and short-term emergency access. Any required TMP would further reduce impacts. Therefore, any impacts to emergency access will be less than significant.

LEU Potential Impact Discussion

The LEU project components will not create transportation-related hazards or result in a substantial negative effect on emergency access. Emergency access will be maintained throughout LEU project construction and O&M. LEU construction vehicles and equipment are anticipated to access project construction areas by using existing LEU access and existing paved, or new gravel roads. Any lane closures will be temporary and short term, and these closures will be coordinated with local jurisdictions to reduce the effects of potential temporary and short-term emergency access. Any required TMP would further reduce impacts. Therefore, any impacts to emergency access will be less than significant.

5.17.4.4 Additional Impact Questions

a) Would the project create potentially hazardous conditions for people walking, bicycling, or driving or for public transit operations? *Less-than-Significant Impact*.

PG&E Potential Impact Discussion

No creation of potentially hazardous conditions for people walking, bicycling, or driving or for public transit operations is proposed as part of the project. Temporary construction-related lane and sidewalk closures, along with associated traffic and construction site access control, will be used to separate people from potentially hazardous conditions that may be present inside a PG&E construction site work area. PG&E construction vehicles on roadways will be present only temporarily and cause limited-duration changes to walking, bicycling, and driving conditions as the vehicles travel on roads during construction. Use of existing access roads or overland access during construction will not create potentially hazardous conditions. No transit routes are located within approximately 1,000 feet of PG&E project components. Proposed bikeways are located within approximately 1,000 feet of the PG&E project components along South Guild Avenue, East Lodi Avenue, East Victor Road (SR 12), and East Lockeford Street; however, because construction activities are temporary in nature, potentially hazardous conditions will be less than significant.

LEU Potential Impact Discussion

No creation of potentially hazardous conditions for people walking, bicycling, or driving or for public transit operations is proposed as part of the project. Temporary construction-related lane and sidewalk closures, along with associated traffic and construction site access control, will be used to separate people from potentially hazardous conditions that may be present inside an LEU construction site work area. LEU construction vehicles on roadways will be present only temporarily and cause limited-duration changes to walking, bicycling, and driving conditions as the vehicles travel on roads during construction. Use of existing access roads or overland access during construction will not create potentially hazardous conditions. No transit routes or existing bikeways are located within approximately 1,000 feet of the LEU project components. Proposed bikeways are located within approximately 1,000 feet of the LEU project components along East Lodi Avenue and South Guild Avenue; however, because construction activities are temporary in nature, potentially hazardous conditions will be less than significant.

b) Would the project interfere with walking or bicycling accessibility? *Less-than-Significant Impact.*

PG&E Potential Impact Discussion

PG&E vehicles would be operated according to applicable laws and regulations, and thus would not interfere with walking or bicycling accessibility. The sidewalks along South Guild Avenue would be temporarily closed to pedestrian access during construction adjacent to and spanning across South Guild Avenue, where the construction activities would cross the roadway. Implementation of the TMP would reduce interference with walking accessibility during construction activities and will provide an alternate pedestrian route on sidewalks when needed. With the completion of the project crossing South Guild Avenue, sidewalk accessibility would return to preconstruction conditions. PG&E O&M will not impact pedestrian facilities. No existing bicycle route is within approximately 1,000 feet from the PG&E project components. Proposed bicycle routes are located within approximately 1,000 feet from the PG&E project components along South Guild Avenue, East Lodi Avenue, East Victor Road (SR 12), and East Lockeford Street. Temporary construction activities and operation activities are not expected to directly impact bicycle facilities. Overall, the project impact on walking and bicycling accessibility will be less than significant.

LEU Potential Impact Discussion

LEU vehicles would be operated according to applicable laws and regulations, and thus would not interfere with walking or bicycling accessibility. The sidewalks along South Guild Avenue would be temporarily closed to pedestrian access during construction adjacent to and spanning across South Guild Avenue, where the construction activities would cross the roadway. Implementation of the TMP would reduce interference with walking accessibility during construction activities and will provide an alternate pedestrian route on sidewalks when needed. With the completion of the project crossing South Guild Avenue, sidewalk accessibility would return to preconstruction conditions. LEU O&M will not impact pedestrian facilities. No existing bicycle route is within approximately 1,000 feet from the LEU project components. A proposed bicycle route is located within approximately 1,000 feet from the LEU project components along East Lodi Avenue and South Guild Avenue. Temporary construction activities and operation activities are not expected to directly impact bicycle facilities. Overall, the project impact on walking and bicycling accessibility will be less than significant.

c) Would the project substantially delay public transit? *No Impact*.

PG&E Potential Impact Discussion

The project's construction and O&M of PG&E project components are not located within approximately 1,000 feet of public transit. No impact will occur.

LEU Potential Impact Discussion

The project's construction and O&M of LEU project components are not located within approximately 1,000 feet of public transit. No impact will occur.

5.18 Tribal Cultural Resources

This section describes existing conditions and potential impacts on tribal cultural resources as a result of project construction, operation, and maintenance. The analysis concludes that impacts on tribal cultural resources will be less than significant; the APMs and BMPs described in Section 5.18.4.2 will further reduce the project's less-than-significant impacts on tribal cultural resources. The project's potential effects on tribal cultural resources were evaluated using the significance criteria set forth in Appendix G of the CEQA Guidelines. Project description information and potential impacts are organized and discussed by each participating utility's portion of the project. The conclusions are summarized in Table 5.18-2 (located in Section 5.18.3) and discussed in more detail in Section 5.18.4. NAHC and Native American tribe correspondence is included as Appendix D4.

5.18.1 Methodology and Environmental Setting

5.18.1.1 Outreach to Tribes

PG&E Senior Cultural Resource Specialist, Mike Taggart, contacted the NAHC with an initial request for a search of the Sacred Lands File on November 4, 2015. The Commission's response, dated November 25, 2015, stated that no Native American sacred sites are documented within the area of potential impact (API). The Commission also provided a list of seven Native American contacts that may have knowledge about archaeological and/tribal cultural resources in the area. Mike Taggart sent initial outreach letters to the contacts listed by the Commission in May and November of 2016. These letters included information about the proposed project and public open houses to learn more about the project and provide feedback about the potential transmission line corridors. Wilton Rancheria Tribal Resources Coordinator, Ed Silva, responded on December 6, 2016, stating that they were unable to attend the open house dates but requested a meeting with PG&E.

A meeting to discuss the project was held on January 12, 2017; attendees included two contacts from the Wilton Rancheria, Ed Silva and Cultural Resource Officer Antonio Ruiz; PG&E's Mike Taggart and Bob Donovan; and Colleen Taylor from Jacobs. The meeting reviewed project information discussed at the open houses that occurred in 2016. The tribal representatives were encouraged to identify resources to support avoiding or minimizing potential impact during the project design/development and analysis phase that year. Subsequently, the project was put on hold for a couple years and consultation also was paused temporarily.

On April 13, 2021, Far Western, on behalf of PG&E, contacted the Commission with a new request for a current search of the Sacred Lands File. The Commission's response, dated May 10, 2021, stated that no Native American sacred sites are documented within the API. The Commission also provided a list of 18 Native American contacts that may have knowledge about archaeological and tribal cultural resources in the area. On June 17, 2021, Far Western sent letters with associated project maps to the contacts listed by the Commission to inform them of the proposed project and request input regarding tribal cultural resources and areas of cultural sensitivity. At the time of this report, three responses have been received from the Buena Vista Rancheria of Me-Wuk Indians, the United Auburn Indian Community of the Auburn Rancheria, and Wilton Rancheria.

Far Western sent a second letter with the Addendum API project maps to the original 18 Native American contacts on February 8, 2023. Far Western also sent a second request for a search of the Sacred Lands File on January 26, 2023. The Commission's response, dated March 1, 2023, stated that no Native American cultural sites are documented within the Addendum API. The Commission also provided a list of 15 Native American contacts that may have knowledge about archaeological and tribal cultural resources in the area, all of which were originally contacted. As of July 27, 2023, three tribes have contacted PG&E's Starla Lane with requests to consult on this project. The Buena Vista Rancheria of Me-Wuk Indians requests formal government-to-government consultation under CEQA to discuss a site visit and other potential measures to protect the cultural resources. They also requested a copy of the cultural resources

assessment. The Confederated Villages of Lisjan and United Auburn Indian Community of the Auburn Rancheria both had representatives respond on March 7, 2023, requesting additional information on the cultural assessment findings. PG&E's Starla Lane responded on July 27, 2023, with access to the cultural resources reports, results of the NAHC file search, and GIS shapefiles of the project.

The correspondence timeline and responses are summarized in Table 5.18-1.

Coordination between PG&E and the responding tribes regarding the project is currently underway and any formal comments or recommendations provided by the tribes will be addressed by PG&E cultural resources specialists or forwarded to the CPUC as appropriate.

Table 5.18-1. Summary of the Native American Outreach Efforts.

Native American Tribes Contacted	Contact Name provided by NAHC	Letters Sent On	Responder/Response /Date/Actions
-	Randy Yonemura	May 25, 2016 November 14, 2016 May 26, 2021	No response
Buena Vista Rancheria of Me-Wuk Indians	Rhonda Morningstar Pope	November 14, 2016 May 26, 2021 June 17, 2021 February 8, 2023	A response was received via email on July 12, 2021, from Ivan Senock to PG&E cultural resources specialist, Starla Lane. The response said, "After review of the notification and examination of the property using the Google Earth mapping application, it is determined BVR has no objection to commencement of the project. If Tribal Cultural Resources should be inadvertently encountered, during the project, Buena Vista Rancheria requests additional notification so steps may be taken to protect and preserve them." A response was received on March 17, 2023, from Ivan Senock. The tribe requests formal government-to-government consultation under CEQA to discuss a site visit and other potential measures to protect the cultural resources. They also requested a copy of the cultural resources assessment. PG&E responded on July 27, 2023, with access to the cultural resources reports.
California Valley Miwok Tribe	-	May 25, 2016 November 14, 2016 May 26, 2021 June 17, 2021 February 8, 2023	No response
California Valley Miwok Tribe AKA Sheep Rancheria of Me-Wuk Indians of CA	-	February 8, 2023	No response
Chicken Ranch Rancheria of Me-Wuk Indians	Lloyd Mathiesen	June 17, 2021 February 8, 2023	No response

Native American Tribes Contacted	Contact Name provided by NAHC	Letters Sent On	Responder/Response /Date/Actions
Guidiville Indian Rancheria	Donald Duncan	June 17, 2021 February 8, 2023	No response
Ione Band of Miwok Indians	Crystal Martinez	May 25, 2016 November 14, 2016 May 26, 2021	No response
Ione Band of Miwok Indians	Sara Dutschke	June 17, 2021 February 8, 2023	No response
Ione Band of Miwok Indians Cultural Committee	-	May 25, 2016 November 14, 2016 May 26, 2021	No response
Muwekma Ohlone Indian Tribe of the SF Bay Area	Monica Arellano	June 17, 2021 February 8, 2023	No response
Nashville Enterprise Miwok-Maidu-Nishinam Tribe	Cosme Valdez	June 17, 2021 February 8, 2023	No response
North Valley Yokuts Tribe	Katherine Perez	June 17, 2021 February 8, 2023	No response
North Valley Yokuts Tribe	Timothy Perez	June 17, 2021 February 8, 2023	No response
Tule River Indian Tribe	Joey Garfield	June 17, 2021 February 8, 2023	No response
Tule River Indian Tribe	Neil Peyron	June 17, 2021 February 8, 2023	No response
Tule River Indian Tribe	Kerri Vera	June 17, 2021 February 8, 2023	No response
United Auburn Indian Community of the Auburn Rancheria	Gene Whitehouse	June 17, 2021 February 8, 2023	A response was received via email on July 6, 2021, from Anna Cheng to PG&E cultural resources specialist, Starla Lane, stating that the United Auburn Indian Community of the Auburn Rancheria wishes to consult on this project. The United Auburn Indian Community replied that they do not show any previously recorded CHRIS sites in the API; however, that may be because private property was not surveyed. Ms. Cheng inquired whether a cultural resources survey has been conducted or is scheduled, and if one has already been conducted, they request that it is shared with them. Response received on March 7, 2023, from Anna Starkey. The tribe requested GIS shapefiles of the project area. PG&E responded on July 27, 2023, with access to the cultural resources reports and the GIS shapefiles.

Native American Tribes Contacted	Contact Name provided by NAHC	Letters Sent On	Responder/Response /Date/Actions
Wilton Rancheria	Raymond Hitchcock	May 25, 2016 November 14, 2016 May 26, 2021	A response was received on December 6, 2016, from Wilton Rancheria tribal representative, Ed Silva, stating that they couldn't make any of the open house dates but requesting a meeting.
Wilton Rancheria	Steven Hutchason	May 25, 2016 November 14, 2016 May 26, 2021 June 17, 2021 February 8, 2023	A response was received on June 25, 2021, via email from Mariah Mayberry to PG&E cultural resources specialist, Starla Lane, stating that Wilton Rancheria would like to request consultation on this project. Wilton Rancheria requested any other maps of the project along with the Cultural Resources Assessment once completed. PG&E responded on July 27, 2023, with access to the cultural resources reports and the GIS shapefiles.
Wilton Rancheria	Dahlton Brown	June 17, 2021 February 8, 2023	Refer to previous response from Mariah Mayberry.
Wilton Rancheria	Jesus Tarango	June 17, 2021 February 8, 2023	Refer to previous response from Mariah Mayberry.
The Confederated Villages of Lisjan	Corrina Gould	June 17, 2021 February 8, 2023	Response received from Corrina Gould on March 7, 2023, with a request for a the NAHC results. PG&E responded on July 27, 2023, with access to the cultural resources reports and the NAHC results. Chairperson Gould responded via email on August 2, 2023, with no further information about the project location. They asked to be notified if there are any findings during construction, and reminded the construction team to remain vigilant during construction since the project is on their ancestorial land and unanticipated discoveries are possible.

5.18.1.2 Tribal Cultural Resources

An Archaeological Survey Report for the Project was prepared by Far Western in September 2021 and a report addendum was prepared in May 2023. Because the report and its addendum contain confidential information about the locations and characteristics of cultural sites and tribal cultural resources, the technical report is not included in this PEA for public review but can be made available to agencies and other professionals for review as necessary. The study included a cultural resources records search, consultation with Native American individuals and organizations, outreach with a local historical society, buried and subsurface site sensitivity analyses, and a pedestrian survey of the project area. The following section summarizes the results of this study and efforts to identify tribal cultural resources within the API.

The record searches did not identify any precontact resources. The buried site sensitivity identified a "High" potential for buried precontact resources in the central portion of the project area, near SR 88 and Bear Creek due to the proximity to freshwater and the relatively recent age of the sediments. However, aside from this small portion, due to the relatively low sensitivity in the project area overall, no subsurface archaeological remains are expected. No precontact resources were identified during the pedestrian surveys.

The NAHC file search did not identify any known culturally sensitive sites. No precontact resources have been identified ahead of the AB 52 process. NAHC and Native American tribe correspondence is listed in Table 5.18-1 and copies are provided in Appendix D4. Four Native American stakeholders responded with request for additional information or consultation.

On March 17, 2023, Buena Vista Rancheria of Me-Wuk Indians requested formal government-to-government consultation under CEQA to discuss a site visit and other potential measures to protect the cultural resources and a copy of the cultural resources assessment. PG&E responded on July 27, 2023 with access to the cultural resources reports and the GIS shapefiles.

United Auburn Indian Community of the Auburn Rancheria requested a copy of the cultural resources report and GIS shapefiles on July 6, 2021 and March 7, 2023, respectively. PG&E responded on July 27, 2023 with access to the cultural resources reports and the GIS shapefiles.

In response to Wilton Rancheria's meeting request on December 6, 2016, an initial project meeting with Wilton Rancheria was held on January 12, 2017 to share project information and receive information (refer to Section 5.18.1.1). No culturally sensitive sites were identified during the meeting within the proposed project. Wilton Rancheria requested consultation and a copy of the cultural resources assessment on June 25, 2021. PG&E responded on July 27, 2023 with access to the cultural resources reports and the GIS shapefiles.

The Confederated Villages of Lisjan requested additional project information on March 7, 2023. PG&E responded on July 27, 2023 with access to the cultural resources reports and the GIS shapefiles. Chairperson Gould responded via email on August 2, 2023, with no further information about the project location. They asked to be notified if there are any findings during construction, and reminded the construction team to remain vigilant during construction since the project is on their ancestorial land and unanticipated discoveries are possible.

PG&E will forward Native American tribe project correspondence received after the CPCN application is filed to the CPUC.

5.18.1.3 Ethnographic Study

Native American stakeholders have not indicated a need for an ethnography to be produced. Historically, the Central Valley was home to no fewer than seven Native California ethnic groups, all related to a single linguistic superfamily—Penutian. It has been estimated that slightly more than 100,000 people lived in the Central Valley when Europeans first ventured into the basin about AD 1772 (Cook 1955, 1976; Moratto 1984:171). If this projection is correct, the valley alone was home to almost one third of the entire state's estimated Native population (Cook 1955, 1976, 1978).

At the time of European contact, almost the entire San Joaquin Valley, including the current API, was held by the Yokuts; only the region immediately east and south of the delta was outside Yokuts territory, controlled instead by the Plains Miwok. At least 50 separate Yokuts groups lived in the San Joaquin Valley and adjacent Sierra Nevada foothills, each having a distinct name, dialect, and territory (Latta 1949). As Moratto (1984:173) points out, the Yokuts may have been the largest ethnic group in California with an estimated precontact population approaching 41,000 people (Cook 1955). According to Milliken (2006), the precontact archaeological sites east of the API fall within the territory of the Coybos, a Northern Valley Yokuts group who lived along the San Joaquin River near the modern town of Lathrop. Milliken estimates a postcontact population density for the Coybos of almost five persons per square mile, among the highest population in the northern part of the valley.

Settlement and Political Organization

Because of early missionization and extended Euro-American contact beginning during the Gold Rush, very little information was recorded about the Coybos and other Northern Valley Yokuts communities (Wallace 1978). Like elsewhere in western California, the Yokuts were organized into small, independent

political groups, referred to as tribelets. Each tribelet was controlled by a single headman and included a single principal settlement and occasionally smaller hamlets. It was the primary task of the headman to organize ceremonies, mediate disputes, mete-out punishment for anti-social behavior, authorize exchange and food collecting expeditions, and assist the needy.

The principal village was home to the headman and as many as 250 to 300 others. These settlements were typically located on an elevated levee ridge in the valley bottom or along a major tributary stream outside the active floodplain of the San Joaquin River. Wallace (1978:463) suggests that most settlements were situated east of the river, as the arid plains fringing the Coast Ranges were relatively unproductive. In contrast, the marshes, sloughs, and forests to the east contained a variety of economically important plant foods, fish, water birds, and terrestrial animals.

Houses were typically simple frame structures covered by tule mats. In the south, large communal houses were built in this manner, providing shelter to as many as 10 families; however, single-family dwellings appear to have been the norm among the Northern Valley groups (Wallace 1978). Sweat-houses were more substantial, semi-subterranean, earth-covered structures and were built in all principal villages. Simple shade structures were also constructed with a wooden framework covered by matting.

Subsistence and Technology

Fishing was an important economic activity carried out with nets and other devices, often from well-made tule boats. Salmon may have been among the most valued species captured by the Northern Valley Yokuts, but sturgeon and various resident fishes were probably as economically significant. Fish were often dried for later use, as was deer, elk, and pronghorn meat. Various water birds, which arrived in great abundance during the fall and winter, were also an important food source, probably second only to fish (Wallace 1978:464). These species were captured in nets, often with the help of decoys fashioned from tule stalks. Domestic dogs were kept by the Yokuts and probably also served as a source of food. Rabbits and pronghorn were hunted in communal drives, while deer and elk were hunted individually. Other small mammals were trapped or snared.

Plant foods included acorns and other nut crops collected from dryer areas away from the river, as well as numerous types of small seeds, bulbs, roots, and greens. These foods were collected and stored in various kinds of baskets. Although salmon and acorns were important staples for the Northern Valley Yokuts, they were not readily available to the south, and thus were not a significant component of the diet among Southern Valley groups (Wallace 1978:464).

Historic Period Disruption

The Northern Valley Yokuts were among the first native groups encountered by Spanish expeditions from the coast. As early as 1776, Lieutenant-Colonel Juan Bautista de Anza led a party from Monterey Bay into the San Joaquin Valley after exploring the edges of San Francisco Bay. Anza's party followed the western edge of the Delta, until a point near modern day Altamont Pass, where they headed inland via the Livermore Valley (Schenck 1926). Between 1776 and 1796, the Spanish established mission outposts and military settlements throughout the Coast Range valleys as far north as San Francisco. During that same period, at least two more Spanish expeditions passed through or near Coybos territory on their way up the San Joaquin River (Schenck 1926). Shortly thereafter, most Yokuts groups left their homeland for the Missions. As recorded in baptismal records, the Coybos moved to Mission San Jose between 1809 and 1813 (Eidsness and Milliken 2004). Thus, when Jedediah Smith passed along the western side of the San Joaquin Valley in 1829, he found no occupied villages from near modern-day Firebaugh to the confluence of the San Joaquin and Calaveras rivers, including the Coybos homeland (Eidsness and Milliken 2004:17).

The modern Northern Valley Yokut tribe is active is advocating for their cultural resources and tribal heritage. They frequently participate in archaeological and cultural resources reviews, surveys, and important collaborative efforts to document Native American resources and remain an important part of California tribal history and modern community.

5.18.2 Regulatory Setting

5.18.2.1 Federal

No federal regulations related to cultural resources are applicable to the project.

5.18.2.2 State

AB 52 established that Tribal Cultural Resources (TCR) must be considered by the lead agency under CEQA. AB 52 provides for additional Native American consultation requirements to be undertaken by the lead agency. A TCR is a site, feature, place, cultural landscape, sacred place, or object that is considered of cultural value to a California Native American Tribe, and that is:

i) Listed or eligible for listing in the CRHR, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k)

ii) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1; in applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency will consider the significance of the resource to a California Native American tribe

5.18.2.3 Local

Because the CPUC has exclusive jurisdiction over project siting, design, and construction, PG&E's portion of the project is not subject to local (city and county) discretionary regulations except for air districts and CUPAs with respect to air quality and hazardous waste regulations. However, local plans and policies are considered for informational purposes and to assist with the CEQA review process.

City of Lodi is a local agency and must comply with its own local plans and policies.

Background research indicated that no tribal cultural resources designated for local listing are located in the project area.

5.18.3 Impact Questions

The project's potential effects on tribal cultural resources will be evaluated by the CPUC during the AB 52 process using the significance criteria set forth in Appendix G of the CEQA Guidelines. The CEQA checklist for Tribal Cultural Resources is listed in Table 5.18-2 and discussed in more detail in Section 5.18.4.

Table 5.18-2. CEQA Checklist for Tribal Cultural Resources

Would the project:	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a) 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				

Would the project:	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
object with cultural value to a California Native American tribe, and that is:				
i Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or				
ii A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code § 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code § 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.				

5.18.3.1 Additional CEQA Impact Questions

None.

5.18.4 Potential Impact Analysis

Project impacts related to tribal cultural resources were evaluated against the CEQA significance criteria and are discussed in the following sections. The impact analysis evaluates potential project impacts during the construction phase and the operation and maintenance phase. The impact discussion is organized to describe the effects that each participating utility's portion of the project has on the environment.

5.18.4.1 Significance Criteria

According to Section 15002(g) of the CEQA Guidelines, "a significant effect on the environment is defined as a substantial adverse change in the physical conditions which exist in the area affected by the proposed project." As stated in Section 15064(b) of the CEQA Guidelines, the significance of an activity may vary with the setting. In accordance with Appendix G of the CEQA Guidelines, the potential significance of project impacts on tribal cultural resources were evaluated for each of the criteria listed in Table 5.18-1, as discussed in Section 5.18.4.2.

5.18.4.2 Applicant-Proposed Measures and Best Management Practices

The project will implement the following APMs and BMPs:

APM TCR-1: Undiscovered Potential Tribal Cultural Resources. The following procedure will be employed (after stopping work and following the procedure for determining eligibility in APM CUL-4) if a resource is encountered and determined by the geographically affiliated tribe in collaboration with the project's qualified archaeologist (if appropriate) to be potentially eligible for the CRHR or a local register of historic resources and is associated with a California Native American Tribe with a traditional and cultural affiliation with the geographic area of the proposed project:

- The PG&E cultural resources specialist will notify the CPUC for appropriate action. PG&E will assist the CPUC if needed to identify the lead contact person for the California Native American Tribe(s) potentially associated with the cultural resource and with a traditional and cultural affiliation with the geographic area of the proposed project. The CPUC will communicate with the lead contact person to set up a meeting with PG&E and the CPUC.
- The PG&E cultural resources specialist will participate with the CPUC in discussions with the California Native American Tribe(s) to determine whether the resource is a "tribal cultural resource" as defined by PRC Section 21074 and the tribe(s)' preferred method of mitigation, if the resource is determined to be a TCR.

If no agreement can be reached for mitigation after discussions with the California Native American Tribe(s) or it is determined that the tribe(s)' preferred mitigation is not feasible, PG&E will implement one of the example mitigation measures listed in PRC Section 21084.3(b), or other feasible mitigation.

BMP TCR-1: Undiscovered Potential Tribal Cultural Resources. The following procedure will be employed (after stopping work and following the procedure for determining eligibility in BMP CUL-4) if a resource is encountered and determined by the geographically affiliated tribe in collaboration with the project's qualified archaeologist (if appropriate) to be potentially eligible for the CRHR or a local register of historic resources and is associated with a California Native American Tribe with a traditional and cultural affiliation with the geographic area of the proposed project:

- The LEU cultural resource lead will notify the CPUC for appropriate action. LEU will assist the CPUC if needed to identify the lead contact person for the California Native American Tribe(s) potentially associated with the cultural resource and with a traditional and cultural affiliation with the geographic area of the proposed project. The CPUC will communicate with the lead contact person to set up a meeting with LEU and the CPUC.
- The LEU cultural resource lead will participate with the CPUC in discussions with the California Native American Tribe(s) to determine whether the resource is a "tribal cultural resource" as defined by PRC Section 21074 and the tribe(s)' preferred method of mitigation, if the resource is determined to be a TCR.

If no agreement can be reached for mitigation after discussions with the California Native American Tribe(s) or it is determined that the tribe(s)' preferred mitigation is not feasible, LEU will implement one of the example mitigation measures listed in PRC Section 21084.3(b), or other feasible mitigation.

5.18.4.3 Impact Questions

As described in Chapter 3, Project Description, the project will provide a new 230 kV transmission source in northern San Joaquin County, in central California. The project includes extending an existing PG&E 230 kV transmission line through PG&E Lockeford Substation to a new PG&E Thurman Switching Station in Lodi, California, by installing new tubular steel poles and conductors for approximately 11 miles. PG&E Lockeford Substation will be expanded on existing substation property to accommodate the new 230 kV facility. PG&E Thurman Switching Station will transfer the new 230 kV source to the new adjacent LEU 230/60 kV Guild Substation. LEU Guild Substation will transfer the 60 kV power to the existing adjacent LEU 60 kV Industrial Substation, which will be modified to receive the new LEU 60 kV lines (via the new 230 kV source) and to disconnect the existing PG&E 60 kV sources. When disconnected, the three existing PG&E 60 kV lines will be partially removed and reconfigured mainly within their existing alignments to continue operation between PG&E Lockeford and Lodi substations. LEU distribution and the third-party telecommunication underbuild on PG&E 60 kV line portions being removed will be relocated by the respective utility owner to within or adjacent to other existing alignments. An existing PG&E distribution line will be extended underground approximately 500 feet in franchise to provide a permanent secondary service line to PG&E Thurman Switching Station. PG&E project-related work to update communication between facilities and the protection scheme system also will occur within the existing fence lines of remote-end substations Brighton, Bellota, Lodi, and Rio Oso, and a communication facility, Clayton Hill Repeater Station.

5.18.4.4 Potential Impact Analysis

The project's potential effects on tribal cultural resources will be evaluated by the CPUC during the AB 52 process using the significance criteria set forth in Appendix G of the CEQA Guidelines.

a) Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:

i) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k), or ***Impact Determination to be provided by CPUC***

PG&E Potential Impact Discussion

The project's potential effects on tribal cultural resources as it pertains to the PG&E portion of the project will be evaluated by the CPUC during the AB 52 process.

LEU Potential Impact Discussion

The project's potential effects on tribal cultural resources as it pertains to the LEU portion of the project will be evaluated by the CPUC during the AB 52 process.

ii) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in 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 will consider the significance of the resource to a California Native American tribe. ***Impact Determination to be provided by CPUC***

PG&E Potential Impact Discussion

The project's potential effects on tribal cultural resources as it pertains to the PG&E portion of the project will be evaluated by the CPUC during the AB 52 process.

LEU Potential Impact Discussion

The project's potential effects on tribal cultural resources as it pertains to the LEU portion of the project will be evaluated by the CPUC during the AB 52 process.

5.19 Utilities and Service Systems

This section describes existing conditions and potential impacts on utilities and service systems as a result of construction, operation, and maintenance of the project. The analysis concludes that, although these resource areas will be temporarily affected by project construction, project-related impacts to utilities and service systems will be less than significant. Under CEQA, utilities and service systems include water, wastewater, and solid waste collection and treatment. This section also addresses potential impacts on power, natural gas, and telecommunication facilities. Project description information and potential impacts are organized and discussed by each participating utility's portion of the project.

5.19.1 Methodology and Environmental Setting

5.19.1.1 Methodology

General plans and official websites were reviewed for wastewater collection and treatment, water supply, stormwater drainage, solid waste disposal, electricity, and natural gas service providers within the project area. PG&E project-related work at remote-end substations and repeater stations outside of the main project area occurring within existing, fenced facilities will have no impact on utilities or service systems and is not discussed further. Electric and gas services information was obtained from PG&E and from municipal websites. Individual utility provider websites documented coverage areas and system information. These providers and agencies included the City of Lodi, North San Joaquin Water Conservation District, San Joaquin County, LEU, PG&E, and a variety of telecommunication providers detailed in the following subsections. The references section includes a complete list of documents and websites that were reviewed to develop this analysis.

5.19.1.2 Environmental Setting

Utility Providers

Electricity and Natural Gas

PG&E provides electricity and natural gas services to San Joaquin County (PG&E 2014). The City of Lodi is serviced by LEU (City of Lodi 2017). The electricity distributed by LEU is generated by NCPA and sources include geothermal, hydroelectric, and natural gas. California DWR is leading and funding construction of a 48 MW power generating unit in the City of Lodi for use during extreme peak-demand events (City of Lodi 2023). The new power plant is expected to be available for operation by the end of the summer 2023 to feed directly into the LEU grid as needed and at the direction of CAISO in response to an emergency event when supplemental power supply is required (Dudek 2023). Electricity and natural gas supply during construction and operation of the project will be provided by both PG&E and LEU, if required. Electricity sources include several hydroelectric facilities (named as a powerhouse, PH), including NCPA Collierville PH, PG&E Tiger Creek PH, PG&E Electra PH, PG&E Salt Springs PH, and PG&E West Point PH, which all feed PG&E Bellota Substation; and PG&E Poe PH, PG&E Rock Creek PH, and PG&E Cresta PH, which all serve PG&E Rio Oso Substation. The NCPA Lodi combustion turbine uses diesel fuel to generate electricity primarily during high-load periods.

Stormwater Drainage

San Joaquin County

The main project components are located in the San Joaquin Valley, where the major rivers and tributaries flow into the San Joaquin River. The river flows into the San Joaquin Delta (San Joaquin County Flood Control & Water Conservation District 2022).

Stormwater drainage is conveyed via County storm drains to the Calaveras, Mokelumne, Old, and San Joaquin Rivers, where it ultimately flows into the Delta. The Public Works Department manages the stormwater system and associated facilities for San Joaquin County (San Joaquin County 2022). Refer to Section 5.10, Hydrology and Water Quality, for further discussion of area drainage.

There are no community stormwater drainage systems within the proposed PG&E Lockeford Substation expansion or 230 kV transmission line project ROW in San Joaquin County (SJC GIS 2022).

City of Lodi

The City drainage system is bounded by the Mokelumne River on the north; East Harney Lane on the south; the CCT Company Railroad, East Kettleman Lane, and SR 99 on the east; and Woodbridge Irrigation District (WID) Canal approximately 2,600 feet west of Sacramento Road on the west. The City drainage area totals approximately 6,673 acres (10.4 square miles). In 2020, the population of the City was 67,930. The City maintains an intricate, gravity-based stormwater system built around stormwater detention basins and disposal of runoff by pumping to the Woodbridge Canal, Lodi Lake, or Mokelumne River. The detention basins are located throughout the City and are maintained as parks and recreational facilities during non-runoff periods (City of Lodi 2020).

There are no pump stations, outfalls, valves, storm drain maintenance holes, or storm mains within the project area (City of Lodi 2022c).

Telecommunications

A variety of wireless companies, including AT&T, XFinity, Viasat, HughesNet, Softcom, Unwired, CalDSL, and other companies, provide wireless phone service, television, and Internet in San Joaquin County and the City of Lodi (Broadbandnow 2022).

Water Supply

San Joaquin County

The NSJWCD supplies water for northeastern San Joaquin County, including the project area (NSJWCD 2021). The NSJWCD service area covers approximately 150,000 acres, including approximately 70,000 acres of irrigated farmland. Existing infrastructure that delivers water to northern San Joaquin County includes Camanche Reservoir, owned by East Bay Municipal Utility District (EBMUD), for seasonal water storage; NSJWCD's North Pump Station and pipeline on the Mokelumne River, which are non-operable; and NSJWCD's South Pump Station and pipeline on the Mokelumne River, which are partially operable (NSJWCD 2021). NSJWCD also owns two recharge facilities, the Tracy Lake Recharge Project and the Cal-Fed Recharge Project (NSJWCD 2021). The NSJWCD south pipeline appears to be located along a private farm road between Alpine Road and North Locust Tree Road near proposed PG&E Structure W22 (NSJWCD 2020). The proposed structure would be located about 25 feet from the edge of the private farm road and the pipeline would be under the adjacent span to the west. The NSJWCD District Engineer communicated to PG&E that the District should have no concern regarding project overhead lines crossing NSJWCD pipelines (de Graaf 2022).

The San Joaquin County Flood Control and Water Conservation District develops and maintains groundwater monitoring networks and data systems to support the Eastern San Joaquin Groundwater Sustainability Plan (SJCFCWCD 2023).

City of Lodi

The City of Lodi currently uses both surface water and groundwater for drinking water supply (City of Lodi 2021). The City of Lodi Water Utility is the sole water purveyor for the City. Approximately half of the City's water supply is surface water from the Mokelumne River, purchased from WID and delivered via WID canal

facilities near Woodbridge Dam. The surface water is treated at the Lodi Surface Water Treatment Plant (SWTP), which is located in the northwest part of the City and began operation in 2012.

The primary water supply is provided by groundwater from a system of 28 groundwater production wells in the Eastern San Joaquin Subbasin and distributed throughout the water service area. In addition, the City has a system of pipelines and four water storage tanks to store treated water from the SWTP (City of Lodi 2021). The nearest tank to the project is Storage Tank C, located on East Thurman Road directly south of the PG&E Lodi Substation and west of the site for the proposed LEU Guild Substation and PG&E Thurman Switching Station. The City has a 12-inch water main in East Thurman Road and a 10-inch water main in South Guild Avenue that could provide up to 4,000 gallons per minute to the site (Shahriar 2023).

Wastewater Collection and Treatment Services

San Joaquin County

The collection, treatment, and disposal of wastewater in San Joaquin County occurs in two ways: (1) community collection and treatment systems that discharge into various rivers, watercourses, and the Delta, and (2) individual onsite treatment systems that discharge to the ground. There are nine community collection and treatment systems in San Joaquin County, including the Cities of Stockton, Tracy, Lodi, Manteca, Ripon, and Escalon; the Woodbridge Sanitary District; the Lockeford Community Services District; and the Linden County Water District (San Joaquin County 2016). Rural residential developments and structures on surrounding farmlands that are not served by centralized wastewater systems rely on individual septic systems (SJCEHD 2016). There are no community wastewater collection systems within the PG&E expanded Lockeford Substation footprint or proposed 230 kV transmission line ROW in San Joaquin County (SJC GIS 2022).

City of Lodi

Wastewater is the responsibility of the City of Lodi Utilities Department, which manages and maintains the wastewater collection system. The City's wastewater system currently consists of about 191 miles of collection system pipelines that flow southwest to the City's White Slough Water Pollution Control Facility located approximately 6 miles west of the city (City of Lodi 2012). The City distributes a portion of the treated effluent for recycled water use; in 2020, 4,746 AF of recycled water was distributed for use in the Lodi service area (City of Lodi 2021).

There are no wastewater maintenance holes, mains, services, or lift stations within the project area in Lodi (City of Lodi 2022c).

5.19.1.3 Utility Lines

The new PG&E 230 kV line will cross approximately 18 existing PG&E distribution lines, approximately three 60 kV lines, and approximately one 115 kV line in San Joaquin County, as shown on Figure 3.5-1. Temporary guard structures will be constructed, and no disturbance is expected to these lines. Refer to Figure 3.5-3 for example photos of guard structures.

When entering the City of Lodi, the new PG&E 230 kV alignment will reuse the existing PG&E Lockeford-Industrial 60 kV power line alignment. Before the western extent of the proposed PG&E 230 kV line is constructed, the western end of PG&E's Lockeford-Industrial line will be removed along with the aboveground LEU 12 kV feeder lines and Comcast telecommunication lines using the joint poles. The LEU 12 kV feeder line segment in service will be relocated to an adjacent underground alignment, and the existing feeder spans not in service will be removed. Comcast has been notified of the project and the potential need to relocate its facilities. Comcast is aware of the proposed project and is awaiting CPUC project approval before removing its facilities from the joint power pole (Glisson 2022). Refer to Figure 3.5-1 and Figure 5.19-1 for existing and proposed line details related to this project within the City of Lodi along with existing known utility lines. Where the new PG&E 230 kV line will cross South Guild Avenue, the

transmission line also will cross the new underground PG&E 12 kV secondary station service for PG&E's Thurman Switching Station.

A 10-inch City of Lodi water main with one 6-inch water service line to a fire hydrant is near PG&E's existing Lockeford-Industrial pole 7, where the new 230 kV line will reuse the 60 kV alignment. Refer to Figures 5.19-1. The new 230 kV structure W45 and the LEU 12 kV feeder line relocated to an underground alignment will avoid this water main and the service line. Another 10-inch water main runs along the center of South Guild Avenue and will be crossed aboveground by the new 230 kV line and by the underground extension of PG&E's 12 kV service line to PG&E's Thurman Switching Station (City of Lodi 2022c). The driveway from South Guild Avenue into the PG&E Thurman Switching Station south gate will be approximately 40 feet south of the existing fire hydrant and its 6-inch service line from the 10-inch water main in the roadway.

The City of Lodi storm drain access point in the southwest portion of the intersection of East Lodi Avenue and South Guild Avenue connects two 15-inch City of Lodi water mains located under the eastbound lane of East Lodi Avenue and located under the southbound lane of South Guild Avenue, north of East Lodi Avenue. The South Guild Avenue 15-inch water main extends approximately 120 feet before connecting with two stormwater laterals and narrowing to a 12-inch main for the remainder of its length to the north. One of these stormwater laterals connects to a stormwater catch basin along the curb of the South Guild Avenue northbound lane approximately 80 feet south of the existing PG&E 12 kV pole where the secondary station services extension will start. A City of Lodi 8-inch wastewater main has a similar configuration, with an access point on the northwest side of the intersection of East Lodi Avenue and South Guild Avenue. The wastewater main appears to be under the sidewalk or paved shoulder of the southbound lane of South Guild Avenue (City of Lodi 2022c).

The proposed underground PG&E service line extension in South Guild Avenue in the vicinity of its intersection with East Lodi Avenue will avoid these City of Lodi water mains, stormwater line, wastewater lines, laterals, catch basins, and access points through communication with the City of Lodi and potholing by PG&E before construction to inform about its alignment within franchise.

An increase in corrosion rate can occur with adjacent circuits through inductance, especially with direct current circuits. While inductance is not likely with the proposed project given the type of circuit, there are circumstances where stray alternating current can cause an increase in corrosion rate. The adjacent alternating circuit 230 kV lines will be insulated from one another as part of standard design, which prevents an increase in corrosion rate. Any resulting stray alternating current from an adjacent circuit is expected to follow an alternative path than to another insulated line.

5.19.1.4 Approved Utility Projects

There are no known additional approved utility projects within the project construction access or work areas, or permanent alignments or facilities other than the utility modifications described in Chapter 3, Project Description. The project includes reconfiguration of four of PG&E's existing 60 kV power lines, expansion and reconfiguration of PG&E Lockeford Substation to accommodate the new 230 kV lines, modifications to PG&E's remote-end substations and repeater station, and modification to LEU's existing 12 kV lines. Additionally, LEU Industrial Substation will be modified to connect to the new, adjacent LEU Guild Substation's 60 kV bus with the new LEU Guild-Industrial #1 and #2 60 kV lines and disconnected from PG&E's three existing 60 kV lines. Existing LEU 60 kV conductors within LEU Industrial Substation will be transposed to address the changes in 60 kV feed. Portions of two LEU 12 kV lines extending from LEU Industrial Substation and partially located on PG&E Lockeford-Industrial poles will be removed and relocated by LEU to continue existing customer service. Comcast's telecommunication lines underbuilt on PG&E's Lockeford-Industrial pole 4 will be relocated as part of the approved project.

5.19.1.5 Water Supply

San Joaquin County

Potable water for domestic use and for irrigation is provided in San Joaquin County through multiple agencies, including federal, regional, and local water districts and special districts, as well as private systems and wells (San Joaquin County 2014). The portion of San Joaquin County in which the project is located is served by the NSJWCD. Communities and agricultural areas not served by water districts or water systems that provide surface water must rely on groundwater. Most water supply districts in San Joaquin County have been transitioning away from groundwater sources to surface water to reduce overdraft of groundwater (San Joaquin County 2014).

NSJWCD has a relatively junior water right to divert up to 20,000 acre-feet of water per year from the Mokelumne River, which runs through the District (NSJWCD 2021). NSJWCD has never fully used its right because of a lack of efficient and functional water delivery infrastructure. Most agricultural users in the district rely exclusively on groundwater, pumping an average of 140,000 acre-feet every year from the critically overdrafted Eastern San Joaquin Groundwater Subbasin (NSJECD 2021). The Eastern San Joaquin Subbasin is not adjudicated and is currently managed under the *Eastern San Joaquin Groundwater Sustainability Plan*. Additional discussion of the Eastern San Joaquin Groundwater Basin is provided in Section 5.10, Hydrology and Water Quality.

NSJWCD's Strategic Plan includes actions to upgrade and expand its South Pump System and to improve and to make operable its North Pump System (NSJECD 2021) so that it increases use of its surface water rights and reduces overdraft of the Eastern San Joaquin Groundwater Subbasin. The Strategic Plan also calls for funding and full operation of its existing recharge facilities. In addition, NSJWC is participating with EBMUD and other agencies in the Demonstration Recharge, Extraction and Aquifer Management (DREAM) pilot project to diversify water supplies, enhance drought resilience, and restore the aquifer through groundwater recharge (San Joaquin County 2023).

City of Lodi

The City's sources of water supply are from its groundwater wells and from Mokelumne River surface water treated at the SWTP. The City purchases 6,000 acre-feet per year (AFY) from WID, with a banked supply currently of 53,534 AF per its agreement with WID (City of Lodi 2021). Previously, the City also had an agreement to purchase up to 1,000 AFY from NSJWCD, but that agreement ended in October 2020. The City's primary source of water is groundwater that it pumps using 28 groundwater production wells distributed throughout the water service area. The 28 wells have a combined capacity of 38,355 gallons per minute, with a maximum capacity at this rate of approximately 62,000 AFY (City of Lodi 2021). The wells operate automatically on water pressure demand and pump directly into the distribution system. In 2020, the City pumped 7,475 AF of groundwater.

In addition, the City distributed 4,746 AF of recycled water for use on the land immediately surrounding the WWTP for agricultural irrigation, power generation, and fish pond replenishment. Since those recycled water users were never intended to use potable water, they are not offsetting potable demand and are, therefore, not included in the City's gross water use (City of Lodi 2021).

Not all water accounts in the City are metered; the City's Water Meter Program should ensure that all accounts are metered by 2025 (City of Lodi 2021). Approximately 67% of accounts were metered as of 2020. Total water use in the City during 2020 was 13,429 AF, consisting of approximately 70% residential, approximately 22% commercial, approximately 6% government, and approximately 2% industrial (City of Lodi 2021).

5.19.1.6 Landfills and Recycling

San Joaquin County

The San Joaquin County Department of Public Works is the lead department for administration of solid wastes and operation of facilities in the County. The greatest volume of waste in the County is municipal waste from residential, commercial, and industrial sources. The San Joaquin County Solid Waste Division provides transfer, disposal, and recycling services to Stockton, Tracy, Lodi, Manteca, Ripon, Lathrop, Escalon, and unincorporated San Joaquin County.

There are two County-owned landfills that could provide service to the project: the North County Recycling Center and Sanitary Landfill (operated by the County) and the Foothill Sanitary Landfill (privately operated) (SJCDPW 2023). In addition, the County operates the Lovelace Materials Recovery Facility and Transfer Station, which sends waste to Foothill Sanitary Landfill and also could serve the project. Treated wood waste is expected to be taken to Forward Landfill, Chemical Waste Management - Kettleman Hills, or Clean Harbors Buttonwillow. Any contaminated soil or hazardous materials are expected to be taken to Kettleman Hills or Clean Harbors Buttonwillow. Capacities and estimated closure dates are listed in Table 5.19-1.

Table 5.19-1. Landfills and Recycling Facilities

Landfill Name	Remaining Total Landfill Capacity (yd^3)	Landfill Average Daily Volume or Capacity	Estimated Closure Date	Takes Construction Waste?
North County Recycling Center and Sanitary Landfill (Lodi)	35,400,000	1,200 tons per day	2048	Yes
Foothill Sanitary Landfill (Linden)	125,000,000	951 tons per day	2082	Yes
Lovelace Materials Recovery Facility and Transfer Station (Manteca)	n/a (recovery and transfer)	743 tons per day	n/a	Yes
Forward Landfill (Manteca)	24,720,669	4,000 tons per day	2043	Yes
Chemical Waste Management - Kettleman Hills (Unit B-18) (Kettleman Hills)	15,600,000	N/A	2042	Yes (hazardous)
Clean Harbors Buttonwillow (Buttonwillow)	13,250,000 (maximum capacity)	10,500 tons per day	2040	Yes (hazardous)

Source: SJCDPW 2023, CalRecycle 2019; DTSC 2014

City of Lodi

The City of Lodi has contracted Waste Management Solutions to provide residential and commercial garbage collection, transportation, and disposal and the collection of recyclable materials (City of Lodi 2022a). Waste Management also owns and operates the Lodi Recovery and Transfer Station Facility. Waste collected is disposed of at the area landfills.

5.19.2 Regulatory Setting

This section details the applicable federal, state, and local laws, policies, and standards for utilities and services in the project area.

5.19.2.1 Federal

No federal regulations pertaining to utilities and service systems are applicable to the proposed project.

5.19.2.2 State

California Government Code

Section 4216 of the California GC protects underground structures during excavation. Under this law, excavators are required to contact a regional notification center at least 2 days prior to excavation of any subsurface installations. In the project area, USA is the regional notification center. USA notifies utility providers with buried lines within 1,000 feet of the excavation, and those providers are required to mark the specific location of their facilities prior to excavation. The code also requires excavators to probe for and expose existing utilities, in accordance with state law, before using power equipment.

California Water Code

California Water Code Section 10910 requires that a city or county undertaking CEQA for a project identify public water systems that may supply water to the project and to complete a water supply assessment. Per Section 10912, this requirement applies to residential and commercial projects large than a certain size and to proposed industrial, manufacturing, or processing plants or industrial parks 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. The requirement also applies to other projects that would demand an amount of water equivalent to, or greater than, the amount of water required by a 500-dwelling unit project. If the city or county does not have an adopted urban water management plan, the water supply assessment must analyze whether the public water system's total projected water supplies available during normal, single dry, and multiple dry water years during a 20-year projection will meet the projected water demand associated with the proposed project, in addition to the public water system's existing and planned future uses, including agricultural and manufacturing uses.

California Water Code Section 1300 lays out the requirements for a statewide program for the control of the quality of all the waters of the state. Section 13140 says that the California State Water Board shall formulate and adopt state policy for water quality control. Section 13172 includes requirements for waste management facilities, both hazardous and nonhazardous, as defined in Section 13173, to protect water quality.

Hazardous Waste Fee Health and Safety Code

The Hazardous Waste Fee Health and Safety Code (CA HSC Chapter 6.5, Section 25143 et seq.) provides definition and guidance on wood waste and its disposal. Wood waste is defined in part as poles, crossarms, pilings, and fence posts that have been previously treated with a preservative.

Wood waste materials removed from electric, gas, or telephone service are exempt from the requirements for disposal provided certain conditions are met, including the following:

- If the wood waste is not subject to regulation as a hazardous waste under a federal act and it is disposed of in a composite-lined portion of a municipal solid waste landfill that meets any requirements imposed by the state policy adopted pursuant to Section 13140 of the Water Code and regulations adopted pursuant to Sections 13172 and 13173 of the Water Code
- If the solid waste landfill used for disposal is authorized to accept the wood waste under waste discharge requirements issued by the RWQCB pursuant to Division 7 (commencing with Section 13000) of the Water Code

Local

Because the CPUC has exclusive jurisdiction over project siting, design, and construction, PG&E's portion of the project is not subject to local (city and county) discretionary regulations except for air districts and CUPAs with respect to air quality and hazardous waste regulations. However, local plans and policies are considered for informational purposes and to assist with the CEQA review process.

The City of Lodi is a local agency and must comply with its own local plans and policies.

San Joaquin County

In 2009, San Joaquin County instituted a Construction, Demolition, and Landscaping Debris Recycling and Diversion (C&D) Ordinance. This ordinance requires that all applicable projects must divert 50% of all construction and demolition debris, excluding inert and organic material, and 90% of inert and organic material from the landfill through reuse and recycling. Construction, demolition, and renovation projects greater than 1,200 square feet are deemed "applicable projects" under San Joaquin County's C&D Ordinance. PG&E will comply with the C&D Ordinance as part of its application for a County building permit for its expansion of its Lockeford Substation. County permit applicants are required to submit a Diversion Plan prior to construction and Diversion Report within 30 days of construction completion to prove compliance with County recycling requirements (San Joaquin County 2022).

City of Lodi

The City of Lodi requires an Industrial Waste Hauler Permit from any construction and demolition projects as part of its Solid Waste Ordinance (City of Lodi 2022a). PG&E and LEU each may obtain the permit directly or a PG&E or LEU contractor or vendor may obtain the required permit for industrial waste hauling activities from the project work within the City of Lodi.

5.19.3 Impact Questions

The project's potential effects on utilities and service systems were evaluated using the significance criteria set forth in Appendix G of the CEQA Guidelines. The criteria and conclusions are summarized in Table 5.19-2 and discussed in more detail in Section 5.19.4.

Table 5.19-2. CEQA Checklist for Utilities and Service Systems

Would the project:	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	☐	☐	☒	☐
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years?	☐	☐	☒	☐

Would the project:	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
c) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☐	☒
d) Generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	☐	☐	☐	☒
e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	☐	☐	☐	☒

5.19.3.1 Additional CEQA Impact Questions

The project's potential effects on recreational resources also were evaluated using the CPUC's Additional CEQA Impact Questions for Recreation in the *Guidelines for Energy Project Applications Requiring CEQA Compliance: Pre-filing and Proponent's Environmental Assessments* (CPUC 2019). These additional impact questions are evaluated using the significance criteria set forth in Appendix G of the CEQA Guidelines. The conclusions are summarized in Table 5.19-3 and discussed in more detail in Section 5.19.4.

Table 5.19-3. Additional CEQA Impact Questions for Utilities and Service Systems

Would the project:	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a) Would the project increase the rate of corrosion of adjacent utility lines as a result of alternating current impacts?	☐	☐	☐	☒

5.19.4 Potential Impact Analysis

Project impacts related to utilities and service systems were evaluated against the CEQA significance criteria and are discussed in the following subsections. The impact analysis evaluates potential project impacts during the construction phase and the operation and maintenance phase.

5.19.4.1 Significance Criteria

According to Section 15002(g) of the CEQA Guidelines, "… a significant effect on the environment is defined as a substantial adverse change in the physical conditions which exist in the area affected by the proposed project." As stated in Section 15064(b) of the CEQA Guidelines, the significance of an activity may vary with the setting. Per Appendix G of the CEQA Guidelines, the potential significance of project impacts on utilities and service systems was evaluated for each of the criteria listed in Table 5.19-2, as discussed in Section 5.19.4.3.

5.19.4.2 Applicant-Proposed Measures and Best Management Practices

The project will have less-than-significant impacts on utilities and service systems, so no APMs or BMPs are proposed.

5.19.4.3 Potential Impacts

As described in Chapter 3, Project Description, the project will provide a new 230 kV transmission source in northern San Joaquin County, in central California. The project includes extending an existing PG&E 230 kV transmission line through PG&E Lockeford Substation to a new PG&E Thurman Switching Station in Lodi, California, by installing new tubular steel poles and conductors for approximately 11 miles. PG&E Lockeford Substation will be expanded on existing substation property to accommodate the new 230 kV facility. PG&E Thurman Switching Station will transfer the new 230 kV source to the new adjacent LEU 230/60 kV Guild Substation. LEU Guild Substation will transfer the 60 kV power to the existing adjacent LEU 60 kV Industrial Substation, which will be modified to receive the new LEU 60 kV lines (via the new 230 kV source) and to disconnect the existing PG&E 60 kV sources. When disconnected, the three existing PG&E 60 kV lines will be partially removed and reconfigured mainly within their existing alignments to continue operation between PG&E Lockeford and Lodi substations. LEU distribution and the third-party telecommunication underbuild on PG&E 60 kV line portions being removed will be relocated by the respective utility owner to within or adjacent to other existing alignments. An existing PG&E distribution line will be extended underground approximately 500 feet in franchise to provide a permanent secondary service line to PG&E Thurman Switching Station. PG&E project-related work to update communication between facilities and the protection scheme system also will occur within the existing fence lines of remote-end substations Brighton, Bellota, Lodi, and Rio Oso, and a communication facility, Clayton Hill Repeater Station.

a) Would the project require or result in the relocation or construction of new or expanded water, wastewater treatment or stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects? *Less-than-Significant Impact.*

PG&E Potential Impact Discussion

The PG&E portion of the project will not require or result in the relocation or construction of new or expanded water, wastewater treatment or stormwater drainage, electric power, natural gas, or telecommunications facilities that could cause significant environmental effects. However, the nature of the project includes planned modification of existing electric power facilities that will relocate or expand existing and construct new electric transmission, power, distribution, and telecommunication facilities and those activities will result in a less-than-significant impact during the construction and relocation. The relocation of existing PG&E and LEU electric facilities and the construction of new and expanded PG&E and LEU electric facilities are required to achieve the project identified by CAISO. PG&E has communicated with LEU, Comcast, and NSJWCD about the proposed PG&E facilities and potential relocation. NSJWCD has indicated that the PG&E transmission line spanning its water pipelines appears to be compatible and no relocation is expected. LEU plans to relocate an existing 12 kV feeder line segment in service and remove its 12 kV feeder spans not in service on the joint utility poles of PG&E's Lockeford-Industrial. Comcast will remove its telecommunication lines from the PG&E joint utility pole and reconfigure its telecommunication lines as needed at the time of construction.

The PG&E 230 kV transmission line structures are located to avoid known well locations. Two wells are identified within the proposed PG&E transmission line ROW. As the design is finalized, well information will be updated in coordination with landowners and, if necessary, the PG&E transmission line design will be adjusted to accommodate new wells. Appropriate vertical and horizontal clearances have been accounted for in the PG&E transmission line design to provide adequate clearance for well maintenance equipment at known well locations. It is not anticipated that wells will need to be relocated as part of the proposed project. The PG&E 230 kV transmission line is designed to safely span above other existing PG&E

distribution and power lines with regulated line clearance distance. The PG&E 230 kV transmission line will span underground water lines and structures will not impact underground water line facilities. The final design of the extended PG&E 12 kV service line will be coordinated with the City of Lodi to avoid impact to existing underground water, stormwater, and wastewater facilities in South Guild Avenue.

Although project construction will require the use of water and wastewater facilities by construction workers, this use will be temporary and short term. Water trucks, typically with a capacity of up to approximately 3,000 gallons, will support project construction activities and dust suppression. As many as approximately three or four water trucks with an approximate 3,000-gallon capacity may be used daily for dust suppression during the peak periods of construction when ground disturbance may be occurring at 230 kV structure locations and PG&E stations. However, the total volume available within the trucks onsite is not expected to be used daily. Water use will vary with type of activities (increased use when activity is ground disturbing) and other daily site conditions such as wind speed. Up to approximately 8,000 to 12,000 gallons of water may be needed daily for dust suppression during peak periods of construction. Furthermore, the construction workforce will be relatively small (up to approximately 40 workers of an estimated peak project workforce of 66), so minimal water use and wastewater generation will occur. Wastewater service will be provided by portable toilets, and waste will be disposed of at appropriately licensed offsite facilities. Water will be used for dust control and worker needs. This use will be temporary and short term and will not require construction of new water and wastewater treatment facilities. The project will not require new or expanded water or wastewater treatment facilities, and existing water and wastewater facilities are sufficient to serve project needs. Therefore, no impact will occur.

The project will involve installing new PG&E 230 kV transmission lines and reconductoring existing PG&E power lines, which will not require stormwater drainage facilities. The project will construct new stormwater containment facilities at PG&E Thurman Switching Station and expand existing containment facilities at PG&E Lockeford Substation. In addition to an expanded PG&E Lockeford Substation stormwater basin, the existing stormwater drainage ditch will be relocated and extended on the substation parcel. The expanded drainage will collect and direct additional stormwater generated by the expanded substation footprint into the expanded stormwater basin. During construction of new and expansion of existing stormwater containment facilities, erosion and sediment control will minimize construction impacts on surface water quality, as well as reduce the potential for stormwater to impact adjacent properties through implementation of an SWPPP. PG&E's relocation of and construction of new and expanded stormwater facilities will not cause significant environmental effects. No change or expansion to stormwater drainage would occur during operation and maintenance of PG&E project components; no impact will occur.

The project will not require the construction of new or expanded natural gas or public telecommunications facilities. The project will not require relocation and construction of new or expanded electric utility facilities that are outside the scope of the project. As required by state law, PG&E will notify other utility companies to locate and mark existing underground structures at proposed work areas prior to any ground-disturbing activities. No impact will occur.

The minimal water potentially needed for transmission line conductor washing would be required infrequently and would not require construction of new water facilities. The project's operation and maintenance are not known to require or result in the relocation or construction of new or expanded water, wastewater treatment or stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects. No impact will occur.

LEU Potential Impact Discussion

The LEU portion of the project will not require or result in the relocation or construction of new or expanded water, wastewater treatment or stormwater drainage, electric power, natural gas, or telecommunications facilities that could cause significant environmental effects. However, the nature of the project includes planned modification of existing electric power facilities that will relocate or expand existing and construct new electric transmission, power, distribution and telecommunication facilities and

those activities will result in a less-than-significant impact during the construction and relocation. The relocation of existing PG&E and LEU electric facilities and the construction of new and expanded PG&E and LEU electric facilities are required to achieve the project identified by the CAISO. LEU has communicated with PG&E about the proposed modification to LEU Industrial Substation and relocation of the connections with existing PG&E 60 kV lines that will no longer be needed.

Construction of LEU project components will require the use of water and wastewater facilities by construction workers, but this use will be temporary and short term. LEU estimates that its LEU Guild Substation will require approximately 40,000 gallons of water (approximately 3 acre-feet). However, daily water use during the LEU construction period will vary based on the construction phase, but it is estimated that the average water use per day will be approximately 200 gallons over the course of the estimated total of approximately 7 months of construction with ground-disturbing activities. Furthermore, the construction workforce will be relatively small (up to approximately 26 workers of an estimated peak project workforce of 66), so minimal water use and wastewater generation will occur. Wastewater service will be provided by portable toilets, and waste will be disposed of at appropriately licensed offsite facilities. Water will be used for dust control and worker needs. This use will be temporary and short term and will not require construction of new water and wastewater treatment facilities. The project will not require new or expanded water or wastewater treatment facilities, and existing water and wastewater facilities are sufficient to serve project needs. Therefore, no impact will occur.

The project will construct new stormwater containment facilities at LEU Guild Substation. During construction of new stormwater containment facilities, erosion and sediment control to minimize construction impacts on surface water quality, as well as reduce the potential for stormwater to impact adjacent properties will be implemented through an SWPPP. LEU's construction of new stormwater facilities will not cause significant environmental effects. No change or expansion to stormwater drainage would occur during operation and maintenance of LEU project components; no impact will occur.

The project will not require the construction of new or expanded natural gas or public telecommunications facilities. The project will not require relocation and construction of new or expanded electric utility facilities that are outside the scope of the project. No impact will occur.

The project's operation and maintenance are not known to require or result in the relocation or construction of new or expanded water, wastewater treatment or stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects. No impact will occur.

b) Would the project have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years? *Less-than-Significant Impact.*

PG&E Potential Impact Discussion

A water supply assessment per California Water Code Section 10910 is not required for the project. As noted in Section 5.19.2.2, industrial projects are required to prepare a water supply assessment if the project site is planned to house more than 1,000 persons, occupy more than 40 acres of land, or have more than 650,000 square feet of floor area. The project does not house any new employees or residents or include any building floor area. The total acreage of land occupied by new project facilities is approximately 14 acres. In addition, the project's operational water use, approximately 45,000 gallons every 5 years for cleaning, is significantly less than the water required by a 500 dwelling unit project. In the Lodi area, the average household account water use was approximately 132,860 gallons per year (City of Lodi 2021), which would be more than 66 million gallons per year for 500 households.

The primary need for water will be for construction-related dust control activities, and recycled water from the City of Lodi will be used for that purpose if feasible; other potential water sources for dust suppression include groundwater from the City of Lodi or other local wells. Also, a small amount of potable water will be supplied to PG&E construction workers for drinking and will be delivered to PG&E work areas by

construction vehicles and equipment. Water trucks used for dust control during construction generally have capacity for 3,000 gallons of water; up to three or four trucks per day would be used during peak construction activities. This is equivalent to the daily use of approximately 33 local households, or approximately 0.01% of current industrial water use in Lodi, and would only occur for short periods. In its UWMP, the City of Lodi has determined that sufficient supplies will be available in a 5-year drought at least through 2035, which covers the construction period of the project (City of Lodi 2021). The minimal water needed for dust control and construction crew consumption will not exceed available supplies. Existing offsite water entitlements and resources will be sufficient to accommodate the project's minor temporary and short-term water needs and relatively small number of construction workers. Impacts would be less than significant.

PG&E operation and maintenance visits will be conducted occasionally, and insulators washing is the only known activity that would require water. If an inspector requires that insulators be washed as part of the 5-year PG&E transmission line, PG&E Thurman Switching Station, or PG&E Lockeford Substation inspection findings, a pumper truck (3,000-gallon volume) would be used to clean insulators that required washing. Approximately 45,000 gallons of water would be required for the washing. In its UWMP, the City of Lodi has determined that sufficient supplies will be available in a 5-year drought at least through 2035 (City of Lodi 2021). Should there be constrained water use in Lodi in later years because of a multi-year drought, the small amount of water needed could be obtained from other sources such as recycled water or water trucked in from areas with sufficient supplies. Therefore, operations and maintenance would not result in significant impacts to water supply.

LEU Potential Impact Discussion

The primary need for water will be for construction-related dust control activities and recycled water will be used if feasible. The primary need for water will be for construction-related dust control activities, and recycled water from the City of Lodi will be used for that purpose if feasible; other potential water sources for dust suppression include groundwater from the City of Lodi or other local wells. Also, potable water will be supplied to LEU construction workers for drinking and will be delivered to LEU work areas by construction vehicles and equipment. Water trucks used for dust control during construction generally have capacity for 3,000 gallons of water. The minimal water needed for dust control and construction crew consumption will not exceed available supplies. Existing offsite water entitlements and resources will be sufficient to accommodate the project's minor temporary and short-term water needs and relatively small number of construction workers. No impact will occur.

LEU operation and maintenance visits will be conducted occasionally, but water is not required for these activities. Therefore, no operations or maintenance impact to water supply will occur.

c) Would the project result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments? *No Impact.*

PG&E Potential Impact Discussion

Portable toilets will be provided for construction workers during construction of PG&E portion of the project. Sanitary waste will be maintained by a licensed sanitation contractor and the licensed contractor will dispose of the waste at an offsite location at the closest feasible wastewater treatment district facility, such as the City of Lodi's White Slough Water Pollution Control Facility. This temporary and short-term use will not require expansion of existing water and wastewater treatment facilities or construction of new facilities. Therefore, no impact will occur.

The project does not include construction of PG&E facilities that will generate wastewater; therefore, operations and maintenance will have no impact.

LEU Potential Impact Discussion

Portable toilets will be provided for construction workers during construction of LEU portion of the project. Sanitary waste will be maintained by a licensed sanitation contractor and the licensed contractor will dispose of the waste at an offsite location at the closest feasible wastewater treatment district facility, such as the City of Lodi's White Slough Water Pollution Control Facility. This temporary and short-term use will not require expansion of existing water and wastewater treatment facilities or construction of new facilities. Therefore, no impact will occur.

The project does not include construction of LEU facilities that will generate wastewater; therefore, operations and maintenance will have no impact.

d) Would the project generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals? *No Impact.*

PG&E Potential Impact Discussion

The PG&E portion of the project would not generate solid waste in excess of state or local standards or local capacity, or otherwise impair solid waste reduction goals.

PG&E estimates generating approximately 3,550 yd^3 (approximately 1,210 tons) of agricultural and green waste, including removed trees. Vegetation is expected to be taken to a suitable facility such as North County Recycling Center and Sanitary Landfill, Foothill Sanitary Landfill, or Lovelace Materials Recovery Facility and Transfer Station, and would be composted where feasible.

Approximately 8 yd^3 of pavement will be cut and removed by PG&E for the HDD excavations for its secondary service line extension. PG&E estimates that approximately 1 yd^3 of 60 kV conductor and guy wire will be recycled or reused by PG&E after being removed as part of the PG&E 60 kV reconfiguration. The metal framing removed from PG&E's 60 kV poles is expected to have 10% recycled (approximately 0.05 yd^3) and 90% (approximately 0.50 yd^3) disposed as construction waste. If PG&E removes the line tuners and wave trap equipment from PG&E Bellota, PG&E Brighton, and PG&E Rio Oso substations, approximately 34% (approximately 1.1 yd^3) is expected to be recycled or reused by PG&E and 66% (approximately 2.2 yd^3) disposed as construction waste. The approximately 3,150 feet of fence material (approximately 11 yd^3) removed from PG&E Lockeford Substation perimeter fence will be recycled. The cut volume of approximately 3,206 yd^3 of soil at the PG&E Thurman Switching Station will be hauled for disposal.

Treated wood waste has the potential to be classified as hazardous waste if it contains elevated levels of arsenic, chromium, copper, pentachlorophenol, or creosote. Treated wood waste often can be identified visually by tags or markings on the wood, when cut staining is visible around the perimeter only, or by discoloration or odor. If encountered, such as with the removed or topped PG&E 60 kV poles, the treated wood waste will be managed in accordance with applicable California and federal regulations. Approximately 10 yd^3 of PG&E wood poles or pole tops are estimated to be removed and managed as treated wood waste in accordance with applicable California and federal regulations. PG&E will dispose of utility generated waste, including treated wood waste, under the Hazardous Waste Fee Health and Safety Code (CA HSC Chapter 6.5, Section 25143 et seq.). Under this exemption, the wood waste would be disposed of in a composite lined portion of a municipal solid waste landfill that meets requirements imposed by the state policy adopted pursuant to Section 13140 of the Water Code and regulations adopted pursuant to Sections 13172 and 13173 of the Water Code. Further, the solid waste landfill used for disposal is authorized to accept the wood waste under waste discharge requirements issued by the RWQCB pursuant to Division 7 (commencing with Section 13000) of the Water Code. Forward Landfill, Kettlemen Hills, or Buttonwillow Landfill (example facilities with an appropriate licensed Class 1 or a composite-lined portion of a solid waste landfill) can be used for the disposal of the treated wood poles generated by this project. All landfills have sufficient capacity to accept this waste.

Construction debris will be picked up regularly from construction areas and stored in approved onsite containers; the debris will be hauled away for recycling or disposal periodically during construction. This general solid waste is estimated to be approximately 38 tons for PG&E's portion of the project. At construction staging areas, crews will gather and sort recyclable and salvageable materials into bins. When possible, various waste materials generated during construction will be recycled and salvaged. Salvageable items (such as useable conductor, steel, and hardware) will be taken to recycling facilities or sold through available markets. Some examples of items that may be recycled include damaged steel from pole assemblies, conductor segments, conductor reels, pallets, and broken hardware. Construction generated waste materials that cannot be reused or recycled (materials such as soil and sanitation waste) will be taken to waste management facilities for disposal. The facilities that would accept the waste for composting, recycling, or disposal have sufficient capacity to accommodate the project construction waste (refer to Table 5.19-1).

The project also will generate minimal solid waste from the food, glass, paper, plastic, and packing materials consumed by the up to approximately 40 construction workers who will be onsite at peak construction periods. Existing landfills in the project area have adequate capacity to accommodate this negligible amount of solid waste.

Because existing facilities that would accept the project construction waste streams have sufficient capacity to accommodate the project construction waste, no impacts would occur.

PG&E will comply with the San Joaquin County C&D Ordinance by planning and reporting on its reuse and recycling to divert the required amount of debris from landfill disposal. PG&E will divert 50% of all construction and demolition debris, excluding inert and organic material, and 90% of inert and organic material from the landfill through reuse and recycling. PG&E will conduct a final survey to determine whether cleanup activities have been successfully completed as required.

PG&E operation and maintenance visits will be conducted occasionally. Any small amount of solid waste generated during these activities will not impact landfill capacity. Therefore, no operations and maintenance impact to landfill capacity will occur.

LEU Potential Impact Discussion

LEU's existing wood training poles on the LEU Guild Substation site are not treated wood and will not be managed as hazardous waste. Approximately 8 yd^3 of LEU wood training poles are estimated to be removed, and all are expected to be reused or recycled.

LEU estimates that approximately 1,000 feet of 12 kV electrical conductor and four sets of metal framing will be removed from the underbuild position on PG&E Lockeford-Industrial 60 kV. Approximately 1 yd^3 of pavement will be cut and removed by LEU for the HDD excavations for its feeder line relocation. The solid waste generated for disposal or recycling by LEU's relocation of its existing 12 kV feeder line is expected be approximately 1.5 yd^3. LEU estimates approximately 400 feet of fence material (approximately 1.4 yd^3) removed from LEU Industrial Substation eastern perimeter fence will be recycled.

Construction debris including recyclables (metal poles, pole framing, fencing, and pavement), untreated wood, and clean soil will be taken to a licensed recycle facility such as North County Recycling Center and Sanitary Landfill, Foothill Sanitary Landfill, or Lovelace Materials Recovery Facility and Transfer Station. This general solid waste is estimated to be approximately 11 tons for LEU's portion of the project.

Spoils that are not useable and/or are identified as contaminated through appearance will be tested to characterize before appropriate transportation to a licensed landfill facility. Approximately 2,550 yd^3 of soils will be hauled for disposal.

The project also will generate minimal solid waste from the food, glass, paper, plastic, and packing materials consumed by the up to approximately 26 construction workers who will be onsite at peak

construction periods. Existing landfills in the project area have adequate capacity to accommodate this negligible amount of solid waste.

Because existing facilities that would accept the project construction waste streams have sufficient capacity to accommodate the project construction waste, no impacts would occur.

LEU operation and maintenance visits will be conducted occasionally. Any small amount of solid waste generated during these activities will not impact landfill capacity. Therefore, no operations and maintenance impact to landfill capacity will occur.

e) Would the project comply with federal, state, and local management and reduction statutes and regulations related to solid waste? *No Impact.*

PG&E Potential Impact Discussion

PG&E will manage solid waste generated during construction and maintenance and operation of the PG&E project components by hauling to appropriate landfills as described previously. PG&E will comply with the San Joaquin County C&D Ordinance by planning and reporting on its reuse and recycling to divert the required amount of debris from landfill disposal. PG&E, or its designated and licensed hauler, will apply for a City of Lodi Industrial Waste Hauler Permit(s) as needed. PG&E will comply with all applicable federal, state, and local statutes and regulations related to solid waste. Therefore, no impact will occur.

LEU Potential Impact Discussion

LEU will manage solid waste generated during construction and maintenance and operation of the LEU project components by hauling to appropriate landfills as described previously. LEU, or its designated and licensed hauler, will apply for a City of Lodi Industrial Waste Hauler Permit(s) as needed. LEU will comply with all applicable federal, state, and local statutes and regulations related to solid waste. Therefore, no impact will occur.

5.19.4.4 Additional CEQA Impact Questions

a) Would the project increase the rate of corrosion of adjacent utility lines as a result of alternating current impacts? *No Impact*.

PG&E Potential Impact Discussion

An increase in corrosion rate can occur with adjacent circuits through inductance, especially with direct current circuits. While inductance is not likely with this project given the type of circuit, there are circumstances where stray alternating current can cause an increase in corrosion rate. The adjacent alternating circuit lines are insulated from one another, which prevents an increase in corrosion rate. Any resulting stray alternating current from an adjacent circuit is expected to follow an alternative path than to another insulated line. There are no adjacent utility lines to which the PG&E project components would contribute an increased rate of corrosion of as a result of alternating currents during construction, operation, or maintenance. There would be no impact from the project on the rate of corrosion pertaining to adjacent utility lines.

LEU Potential Impact Discussion

There are no adjacent utility lines to which the LEU project components would contribute an increased rate of corrosion of as a result of alternating currents during construction, operation, or maintenance. Therefore, no impact would occur.

5.20 Wildfire

This section describes existing conditions and potential impacts related to wildfire as a result of construction, operation, and maintenance of the project. The analysis concludes that any impacts related to wildfire hazards and hazardous materials will be less than significant. The project's potential effects associated with wildfire were evaluated using the significance criteria set forth in Appendix G of the CEQA Guidelines. Project description information and potential impacts are organized and discussed by each participating utility's portion of the project. The conclusions are summarized in Table 5.20-1 and discussed in more detail in Section 5.20.3.

5.20.1 Methodology and Environmental Setting

The potential for the project's activities and equipment to pose wildfire hazards was evaluated by reviewing the following:

- Fire hazard maps, fire occurrence maps, and GIS data from CAL FIRE and CPUC
- Information provided in the Safety Elements of the San Joaquin County General Plan, Contra Costa County General Plan, and City of Lodi General Plan
- CPUC, PG&E, and LEU fire hazard rules and policies, including the current Wildfire Management Plan (WMP) from PG&E and LEU, respectively
- San Joaquin County, Contra Costa County, and City of Lodi emergency plans and evacuation routes

5.20.1.1 High Fire Risk Areas and State Responsibility Areas

The CAL FIRE FHSZ maps identify locations that are within an FRA, SRA, or LRA for preventing or suppressing fires. Within SRAs, the Director of CAL FIRE has designated areas as moderate, high, and very high FHSZs based on factors such as potential fuel sources, terrain, weather, fire behavior characteristics, burn probabilities, and the likelihood of vegetation exposure. Within LRAs, CAL FIRE has recommended areas as very high FHSZs, which may or may not be adopted by local governing agencies. The CAL FIRE maps also show FRA areas and fire hazard designations within those federal areas.

According to CAL FIRE maps, the main project components in northern San Joaquin County are located entirely within an LRA and not within an identified very high FHSZ. The nearest CAL FIRE designated very high FHSZ is located approximately 24.3 miles northeast of PG&E Structure E1 (CAL FIRE 2022a). The San Joaquin County GIS also has mapped fire severity zones and results show no portions of the project within an identified severity zone. The nearest San Joaquin County GIS-designated very high FHSZ is located approximately 38.5 miles southwest of PG&E Structure W34 (SJC GIS 2022). Three PG&E remote-end substations (Brighton, Bellota, and Rio Oso) are located within LRAs; none are within an identified very high FHSZ. PG&E Clayton Hill Repeater Station is approximately 850 feet from a southern boundary of the Black Diamond Regional Preserve, an 8,533-acre area operated by the East Bay Regional Park District (EBRPD 2020). The station is also located approximately 1.8 miles northeast of the Mount Diablo State Park boundary (Mount Diablo State Park 2018). PG&E Clayton Hill Repeater Station is located in Contra Costa County within an SRA that is identified as a high FHSZ. The nearest very high FHSZ is an isolated polygon located approximately 1 mile south of the station; the very high FHSZ associated with the higher elevation of Mount Diablo begins approximately 2 miles south-southwest of the station (CAL FIRE 2022a).

The CPUC has adopted fire hazard mapping most recently with its High Fire-Threat Map in 2021, which designates fire-threat areas that require enhanced fire safety. Other than PG&E Clayton Hill Repeater Station within Tier 2 – Elevated, the project components are located outside of any mapped fire hazard zones (areas of fire hazard also are categorized by HFTD) on the CPUC's High Fire-Threat Map. For the main project components within northern San Joaquin County, the nearest CPUC-designated Tier 3 Extreme fire zone is located approximately 42.5 miles northeast of PG&E Structure E1 (CPUC 2021).

Fire protection services and equipment relevant to this project are discussed in detail in this Proponent's Environmental Assessment (PEA) in Section 5.15, Public Services.

PG&E has not independently identified a high FHSZ known to occur within the project vicinity.

5.20.1.2 Fire Occurrence

The *Guidelines for Energy Project Applications Requiring CEQA Compliance: Pre-filing and Proponent's Environmental Assessments*, published by the CPUC, request projects identify large fires that have occurred within the project vicinity during the last 10 years. The "project vicinity" for this project is 5 miles from project components, given the setting of LRAs and not being located within a very high FHSZ. The National Wildfire Coordinating Group (NWCG), a federal government working group that coordinates wildfire term standardization, provides the following definition of a "large fire": "(1) A fire burning more than a specified area of land, e.g., 300 acres for statistical purposes, and (2) A fire burning with a size and intensity such that its behavior is determined by interaction between its own convection column and weather conditions above the surface." (NWCG 2022) PG&E also defines a "large fire" as, "A fire that burns 300 or more acres but does not meet the definition of a Destructive or Catastrophic fire." A "Destructive or Catastrophic fire" is defined as, "A fire that destroys 100 or more structures and a serious injury and/or fatality does not result or does result, respectively." (PG&E 2022)

CAL FIRE's incident reporting data only go back to 2013, fewer than10 years prior to this document. According to CAL FIRE incident reporting (CAL FIRE 2022b) and the CAL FIRE *Perimeters 1950+* dataset (CAL FIRE 2022c), within the past 10 years no wildfire incidents greater than 300 acres were reported within 5 miles of the project in northern San Joaquin County or PG&E Brighton or Rio Oso substations (CAL FIRE 2022b, 2022d). Five large fires occurred within 5 miles of project components with only one destroyed structure reported. None of these historic fires meet the PG&E definitions of Destructive or Catastrophic. Two large fires have a perimeter edge at approximately 5 miles from PG&E Bellota Substation. In 2013, the Shelton Fire off North Shelton Road in the Linden Peters area burned 303 acres, starting from an unknown cause. The cause is also unknown for the Waverly Fire off North Waverly Road and North Shelton Road that burned 12,300 acres and destroyed one structure in 2018.

Three large fires occurred within 5 miles of PG&E Clayton Hill Repeater Station. In 2013, the Kirker Fire burned 478 acres. The nearest fire perimeter was 1.80 miles from the station and the fire cause is listed as a powerline. Also in 2013, the Morgan Fire, with a miscellaneous cause, burned 3,108 acres with the nearest fire perimeter at 2.60 miles from the station. In 2019, arson is listed as the cause for the Marsh Creek 3 Fire of 340 acres, which was 4.97 miles from the station at its closest fire point.

5.20.1.3 Fire Risk

Fuel modeling and digital elevation models were not prepared because of the main portion of the project's location within a low fire risk area and being surrounded mainly by agricultural fields or industrial use. Additionally, project-related work at PG&E remote-end stations is either in a low fire risk area or will occur within a paved station, using paved access, and will not include "hot" work. A summary of the average wind direction and speed, relative humidity, temperature, elevation, terrain, and vegetation is provided for the main portion of the project followed by the PG&E remote-end stations. Historic weather data, including hourly records from January 1, 1980, to December 31, 2016, are used to provide an estimated value for the main portion of the project and each PG&E remote-end station (Weather Spark 2022a).

In the main portion of the project, mid-April through early September is the windier part of the year, with average wind speeds of more than 6.9 mph, peaking in June with an average hourly wind speed of approximately 8.2 mph. From early September to mid-April, wind is calmer with an average hourly wind speed of approximately 5.7 mph in October. The wind is most often from the west between late February and late November. From late November to late February, the wind is most often from the south. During hot afternoons when the air is extremely dry, relative humidity generally is less than 20%. The annual normal relative humidity is approximately 63%. The average daily high temperature is greater than 85°F for June through September. July typically is the hottest month of the year, with an average high of 93°F

and low of 60°F. The cool season typically occurs from late November to mid-February, with an average daily high temperature less than 61°F. The coldest month of the year is December, with an average low of 40°F and high of 55°F (Weather Spark 2022a, NCEI 2022a).

The topography in the area generally is flat with rolling hills increasing to the east. Elevation ranges from approximately 135 feet above sea level at the eastern end to approximately 60 feet above sea level at the western end of the main portion of the project. Northern San Joaquin County is predominantly agricultural, with retail wineries, rural and semirural residential development outside of the City of Lodi, and small, concentrated areas of industrial and commercial business along transportation corridors. The majority of upland habitat observed throughout the project's study area is either hardscaped or otherwise developed/landscaped, agricultural land, or is disturbed habitat consisting of primarily ruderal or non-native species. Vegetation in the project area consists primarily of agriculture; landscaping associated with residences or businesses; riparian habitat associated with creeks and streams; annual grasslands in pastures along roadsides and in other undeveloped, disturbed areas; and ruderal habitat in highly disturbed areas, including along linear infrastructure and at the edges of hardscape development.

Around PG&E Bellota Substation, mid-April to early September is the windier part of the year, with average wind speeds of more than 6.4 mph, peaking in June with an average hourly wind speed of approximately 7.7 mph. From early September to mid-April, wind speed is calmer, with average hourly wind of approximately 5.3 mph in October. The wind is most often from the west from late February to late November. The wind is most often from the south from late November to late February. During typical hot afternoons in summer months when the air is extremely dry, relative humidity generally is less than 20%. The annual normal relative humidity is approximately 63%. From early June to late September, the average daily high temperature is greater than 86°F, with the hottest month typically being July, with an average high of 94°F and low of 62°F. From late November to mid-February, the average daily high temperature is less than 62°F, with the colder month typically being December at an average low of 40°F and high of 55°F (Weather Spark 2022b, NCEI 2022a). The topography in the area generally is flat with rolling hills increasing to the east. Elevation within the substation is approximately 170 feet above sea level. The vegetation surrounding the substation is agricultural.

Around PG&E Brighton Substation, mid-April to early September is the windier part of the year, with average wind speeds of more than 6.5 mph, peaking in July with an average hourly wind speed of approximately 7.5 mph. Early September to mid-April has an average hourly wind speed of approximately 5.5 mph. The direction of the wind is variable. The wind is most often from the south from early February to late March, from late June to early September, and from late October to early November. The wind is most often from the west from late March to late June and again from early September to late October. The wind is most often from the north from early November to early February. During typical hot afternoons in summer months when the air is drier, relative humidity will range between approximately 54% and 58%, increasing to a range of approximately 64% to 84% in the wetter months. The annual normal relative humidity is approximately 68%. From early June to late September, the average daily high temperature is greater than 85°F, with July typically being the hottest month with an average high of 92°F and low of 59°F. Late November to mid-February has an average daily high temperature less than 61°F. December typically is the coldest month, with an average low of 40°F and high of 55°F (Weather Spark 2022c, NCEI 2022b). The topography in the area generally is flat with rolling hills increasing to the east. Elevation at the substation is approximately 40 feet above sea level. Landscaping vegetation surrounds the substation perimeter wall, which is immediately adjacent to multilane roads, transit, and commercial uses.

Around PG&E Rio Oso Substation, mid-November to mid-April is the windier part of the year, with average wind speeds of more than 5.9 mph, peaking in February with an average hourly wind speed of approximately 6.4 mph. Mid-April to mid-November has an average hourly wind speed of approximately 5.4 mph. The direction of the wind is variable. The wind is most often from the south from early February to late March, from late June to early September, and from late October to early November. The wind is most often from the south from February through early December. The wind is most often from the east from early December through January. During typical hot afternoons in summer months when the air is

drier, relative humidity will range between approximately 54% and 58%, increasing to a range of approximately 64% to 84% in the wetter months. The annual normal relative humidity is approximately 68% (Weather Spark 2022d, NCEI 2022b). The topography in the area generally is flat with rolling hills increasing to the northeast. Elevation within the substation is approximately 65 feet above sea level. The vegetation surrounding the substation is agricultural.

Around PG&E Clayton Hill Repeater Station, mid-April to mid-September is the windier part of the year, with average wind speeds of more than 8.6 mph, peaking in July with an average hourly wind speed of 10.4 mph. Mid-September to mid-April has an average hourly wind speed of 6.7 mph. Wind is most often from the west between mid-February to mid-November. Wind is from the north during mid-November to mid-February (Weather Spark 2022e). The average relative humidity is 60% (NWS 2022a). The general topography in the area is rolling hills to the north of Mount Diablo. Elevation within the station fence line is approximately 1,880 feet above sea level. The station is located on a ridgeline with slopes to the north and south. The oak woodland slope to the north is approximately 20%. The grassland slope to the south is approximately 30%.

5.20.1.4 Values at Risk

In addition to intrinsic value, identification of values at risk in the project area is informed by location within or near Wildland Urban Interface (WUI) zones, biological resources, communities, and other population centers.

Wildland Urban Interface. The Wildland Urban Interface (WUI) is the zone of transition between unoccupied land and human development. It is the line, area, or zone where structures and other human development meet or intermingle with undeveloped wildland or vegetative fuels. Communities adjacent to and surrounded by wildland are at varying degrees of risk from wildfires (U.S. Fire Administration 2022). Three types of WUI are identified by CAL FIRE: Interface, Intermix, and Influence zones (CAL FIRE 2019a, 2019b). The three WUI definitions may include reference to a Housing Density Class:

1. Less than 1 house per 20 acres
2. 1 house per 20 acres to 1 house per 5 acres
3. More than 1 house per 5 acres to 1 house per acre
4. More than 1 house per acre

The Wildfire Interface Zone of WUI is dense housing adjacent to vegetation that can burn in a wildfire; it must meet these criteria:

- Housing Density Class 2, 3, or 4
- In moderate, high, or very high FHSZ
- Not dominated by wildland vegetation (i.e., lifeform not herbaceous, hardwood, conifer, or shrub)
- Spatially contiguous groups of 30-meter cells that are 10 acres and larger

The Wildfire Intermix Zone of WUI is housing development interspersed in an area dominated by wildland vegetation subject to wildfire; it must meet these criteria:

- Not in a Wildfire Interface Zone
- Housing Density Class 2
- Housing Density Class 3, 4 dominated by wildland vegetation
- In moderate, high, or very-high FHSZ
- Improved parcels only
- Spatially contiguous groups of 30-meter cells that are 25 acres and larger

The Wildfire Influence Zone is wildfire-susceptible vegetation; it must meet this criterion:

- Wildland vegetation up to 1.5 miles from Wildfire Interface or Intermix zones

The new PG&E 230 kV transmission line is within areas of Wildfire Influence Zone for structures E1, E2, E3, E6, E7, E9, and E12 and potential Staging Areas 6 and 7. Structure E13 just east of North Tully Road is within the Wildfire Intermix Zone. Within the City of Lodi, the new LEU Guild Substation, PG&E Thurman Switching Station, and adjacent potential Staging Area 3, as well as the interconnecting 60 kV and 230 kV lines, are within the Wildfire Intermix Zone when west of South Guild Avenue, north of East Thurman Road, and south of the railroad tracks south of East Lodi Avenue. The existing PG&E 60 kV lines to the north of LEU's Industrial Substation are not within a WUI zone. The warehouse building to the east of South Guild Avenue is identified as the Wildfire Intermix Zone but not the paved area to the immediate north of the building where project work will occur to relocate the existing LEU service line, remove the existing PG&E 60 kV line, and install the new PG&E 230 kV line. No other project components within northern San Joaquin County intersect with WUI zones (refer to Figure 5.20-1).

PG&E Rio Oso and Brighton substations are not located in a WUI zone. PG&E Bellota Substation is located within a Wildfire Influence Zone with no WUI zone to the immediate south of the station fence line. PG&E Clayton Hill Repeater Station is mainly outside of a WUI zone. The Wildfire Influence Zone to the southwest has a stairstep polygon edge that overlaps with the southwest corner of the paved PG&E station footprint.

Unincorporated San Joaquin County includes four communities identified as Communities at Risk for wildland fire because of their locations near areas susceptible to potential wildfires: Bellota, Clements, Linden, and Lockeford (San Joaquin County 2016). The project does not intersect these communities, which are identified by their location within WUIs. The new PG&E transmission line alignment is approximately 2.00 miles south of the community of Lockeford and approximately 4.50 miles south of the community of Clements. PG&E project work will occur within the existing fence line of PG&E Bellota Substation, which is approximately 2.50 miles south of the community of Bellota, and approximately 3.75 miles east of the community of Linden.

Communities near the main portion of the project are identified in Sections 5.11 and 5.14 and are shown on Figures 5.11-2 and 5.11-4. These communities include structures and other improvements (including PG&E infrastructure) that could be potentially at risk from wildfire. The western portion of the project is located within an industrial area of the City of Lodi. Within approximately 1,000 feet of the LEU portion of the project, industrial buildings are located to the north, west, south, and east. To the northeast of the LEU portion of the project is a cemetery with a manicured lawn. All new poles within the LEU substations will be all-steel poles. City of Lodi residential zoning and land use begins approximately 0.5 mile west of the project across SR 99.

Outside of the City of Lodi in San Joaquin County, land use includes residential and other structures in the predominantly agricultural zoning and agricultural designated land use. Sensitive receptors, which are another proxy for structures, are shown on Figure 5.3-1 and Figure 5.13-1. The vulnerability of these structures and improvements is typical for the region and is dependent on the age of the structures and improvements and their physical siting. There is no rare habitat adjacent to the PG&E or LEU portions of the project in northern San Joaquin County.

Existing land use and zoning adjacent to PG&E Brighton Substation in the City of Sacramento includes manufacturing, research and development, commercial, residential, and park/open space (City of Sacramento 2022). PG&E Bellota and Rio Oso substations are located in agriculture use areas with some rural residences, with residential and other community structures beginning approximately 3.75 miles west in Linden and 3 miles west in Rio Oso, respectively. Residential use in the City of Clayton begins approximately 1.5 mile to the west of PG&E Clayton Hill Repeater Station. The vulnerability of these structures and improvements is typical for these regions and is dependent on the age of the structures and improvements and their physical siting. PG&E remote-end substations, including PG&E Clayton Hill Repeater Station (Jones and Stokes 2006), are not adjacent to rare habitat.

5.20.1.5 Evacuation Routes

Evacuation routes adjacent to or within the project area are described in the context of County and city plans for the main project components within northern San Joaquin County. Evacuation from PG&E remote-end substations (Bellota, Brighton, and Rio Oso) would begin by exiting the station to the paved road adjacent to the station in Linden, Sacramento, or Rio Oso, respectively, and evacuation would continue from the station at the direction of emergency personnel. Evacuation by vehicle from PG&E Clayton Hill Repeater Station in Contra Costa County would likely follow the paved access road to Nortonville Road; however, evacuation routes could include fire roads in the vicinity if identified for use by emergency personnel. Contra Costa County does not identify specific evacuation routes in its emergency operation plan (Contra Costa County 2005, Contra Costa County 2018). Contra Costa County communicates evacuation information, including routes, using an alert system by zone through Zonehaven Aware at https://cwsalerts.com/know-your-zone/. PG&E Clayton Hill Repeater Station is within CCC-E232 (Contra Costa County 2022).

San Joaquin County Emergency Operations Plan and Evacuation Routes

The *San Joaquin County Emergency Operations Plan* is an all-hazards document describing the County's incident management structure, compliance with relevant legal statutes, other relevant guidelines, whole community engagement, continuity of government focus, and critical components of the incident management structure. The plan establishes a County incident management structure, establishes the overall operational concepts, and provides a flexible platform for planning and response to hazards, incidents, events, and emergencies (San Joaquin County OES 2022a).

The *San Joaquin County Emergency Operations Plan* identifies major transportation routes throughout the County that would be used by both County residents and tourists as possible evacuation routes in the event of an emergency. Included in these major transportation routes are SR 99, SR 12, and SR 88, which are located in the project vicinity and would serve as emergency routes for the project (San Joaquin County OES 2022a). The County describes preparation for potential evacuation from fire and provides resources for receiving alerts and incident information from the County and CAL FIRE (San Joaquin County OES 2022b). Evacuation maps and rally points focused on potential flooding are prepared for populated areas in the County. Project activities within and near the City of Lodi would be within the Lodi Beckman Road Zone. Victor Road (SR 12), SR 99, and East Kettleman Lane are identified as vehicle evacuation routes (SJC GIS 2011). These roadways have multiple points of access.

Secondary roadways that may be used by project personnel and the public include Beckman Road, East Pine Street, East Lodi Avenue, South Guild Avenue, East Sargent Road, Curry Avenue, East Harney Lane, Alpine Road, North Locust Tree Road, North Jack Tone Road, North Tully Road, Atkins Road, and Clements Road. Each of these roadways has multiple points of access. Additionally, the project area includes numerous small agricultural roads and project access roads through generally flat terrain that may be used in the event of an emergency.

City of Lodi Evacuation Routes

The City of Lodi provides street standards for all street types to ensure appropriate standards for emergency access and evacuation. Therefore, all streets have the potential to be used as evacuation routes when the standards are met. The *City of Lodi General Plan* gives the following example when discussing evacuation routes and safety standards:

"For example, the standards specify roadway widths of 30 feet (curb-to-curb) for minor residential streets and 52 feet for major collector streets." (City of Lodi 2010).

The City of Lodi's *Experience Lodi Emergency Evacuation Maps* information connects to the San Joaquin County emergency evacuation maps for potential flooding (City of Lodi 2022).

5.20.1.6 Utility Wildfire Mitigation Plans

PG&E Wildfire Mitigation Plan

PG&E has developed a *Wildfire Mitigation Plan Report* that is designed to reduce wildfire ignition potential, enhance wildfire situational awareness, and reduce impacts of public safety power shutoff (PSPS) events. An annual implementation report and an annual plan update are submitted to the CPUC. The July 2022 *Wildfire Mitigation Plan Report* continues many of the actions undertaken in the 2019, 2020, and 2021 plans and introduces and updates initiatives to advance wildfire mitigation (PG&E 2022).

PG&E's risk management program enables PG&E to: (1) identify those risks that could lead to catastrophic safety consequences; (2) implement the actions that have the highest and most cost-effective potential to reduce risk; and (3) transparently monitor and report results. Using this risk management approach, PG&E's WMP is spatially targeted for HFTD locations that are set by CPUC Fire Threat Maps. Approximately 99% of PG&E's wildfire risk is located in the HFTD Tier 3 and Tier 2 areas, even though only 32% of risk events occur inside the HFTD.

Sections 5.4 and 9.5 of the PG&E *Wildfire Mitigation Plan Report* detail planning and operational models and methodologies used to determine ignition probability, wildfire risk, and PSPS risk (PG&E 2022). In PG&E's *Wildfire Mitigation Plan Report*, transmission is defined as being 60 kV or greater. When PG&E components are placed into service, the PG&E facilities will be added to the relevant planning models. The current compilation of planning and operational models for transmission facilities include:

- Planning: 2022 Enterprise Risk Model for Wildfire Risk, a bow tie-based wildfire risk model for a distribution and transmission system
- Planning: Wildfire Transmission Risk Model, a wildfire risk-based model for an overhead transmission system. This model is also known as the Transmission Composite Model.
- Planning: Wildfire Consequence Model, a wildland fire simulation model to estimate propagation and consequences of ignitions
- Planning: Enhanced Vegetation Management Tree Weighted Prioritization Model, a wildfire risk-based model incorporating tree density for overhead distribution circuit segments for the purpose of enhanced vegetation management scoping and prioritization
- Operational: Fire Potential Index Model, a model that provides estimates of the probability of large or catastrophic fire growth; used to identify real-time and near-term forecasted risk based on various weather and fuel components
- Operational: Ignition Probability Weather Model, a model that provides estimates of the probability of an ignition given an outage on an hourly basis
- Operational/Planning: Transmission Operability Assessment Model, a model used to assess the physical condition of transmission facilities for operational and planning decisions
- Planning: Public Safety Power Shutoff Consequence Model, a model that projects the impacts and benefits of performing PSPS activities at the circuit or circuit segment level (formerly known as Circuit Protection Zones)

PG&E implements its plan through standards and requirements that are communicated internally to employees and to its suppliers, contractors, and third-party employees to follow when traveling to, performing work, or operating outdoors on any forest, brush, or grass-covered land. PG&E's Wildfire Prevention Contract Requirements are based on its Standard TD-1464S (PG&E 2021). The summary of PG&E's current wildfire prevention standards and requirements may be superseded in the future following revisions to published standards and requirements.

PG&E monitors and communicates fire risk at least daily using a set of utility fire potential index (FPI) ratings from its Fire Potential Index Model, which help determine the risk of fire and its likely behavior. Its

calculation and scale from R1 to R5-Plus considers fuel, moisture, humidity, wind speed, air temperature, and historical fire occurrence. These ratings are as follows:

- R1: Very little or no fire danger.
- R2: Moderate fire danger.
- R3: Fire danger is so high that care must be taken using fire-starting equipment. Local conditions may limit the use of machinery and equipment to certain hours of the day.
- R4: Fire danger is critical. Using equipment and open flames is limited to specific areas and times.
- R5: Fire danger is so critical that using some equipment and open flames is not allowed in certain areas.
- R5-Plus: The greatest level of fire danger where rapidly moving, catastrophic wildfires are possible. When fire danger is R5-Plus, there are high-risk weather triggers (e.g., strong winds).

Other than PG&E Clayton Hill Repeater Station, the project components are not located in an area identified by the FPI as a fire index area (FIA). The nearest FIA to the main project area is approximately 5.75 miles northeast of the eastern extent of the project where the new PG&E transmission line begins.

For work areas located farther than 5 miles from an FIA that have an elevated FPI rating (R4, R5, or R5-Plus), general fire mitigations apply. NWS Red-Flag Warnings and Fire Weather Watch events are mitigated as though work is within an FIA with an R5 rating. For R5 and R5-Plus ratings, additional mitigation includes a dedicated fire watch at the jobsite, a trailer-mounted water tank or alternative water delivery method at the jobsite, modifying the fuel sources surrounding the jobsite should be considered, and suspending all planned work during an R5-Plus fire rating. For all emergency work being performed during an R5-Plus fire rating, personnel must have a PG&E Safety and Infrastructure Protection Team on standby or a 300-gallon water tender available. Use of heavy equipment (blades, dozers, skid steers, excavators, back hoes), construction hot work, and electrical equipment work (including tasks related to conductors, or pole and overhead equipment from which a spark, fire, or flames may originate) are allowed with the R5 mitigations in place but not allowed during R5-Plus conditions. Additional details for specific conditions and standards and requirements for work at PG&E Clayton Hill Repeater Station can be found with the Wildfire Prevention Contract Requirements, which will be incorporated into a PG&E *Construction Fire Prevention Plan*.

LEU Wildfire Mitigation Plan

LEU has developed a WMP to describe LEU's programs, practices, and measures in place, which effectively reduce the probability that LEU's electric supply system could be the origin or contributing source for the ignition of a wildfire; and to operate the electric system safely when in high wildfire risk conditions. LEU's annual update version 3.0 was issued December 1, 2021 (LEU 2021, 2022).

5.20.2 Regulatory Setting

The following subsections contain an overview of regulations related to wildfires and associated hazards.

5.20.2.1 Federal

No federal regulations regarding wildfires apply to this project.

5.20.2.2 State

California Department of Forestry and Fire Protection

Pursuant to PRC Sections 4201 to 4204 and GC Sections 51175 to 51189, CAL FIRE created FHSZ maps for the state that identify areas for preventing or suppressing fires that are within SRAs or LRAs. These

maps identify areas of significant fire hazards based on fuels, terrain, weather, and other relevant factors. The FHSZs then define the application of various mitigation strategies to reduce risks associated with wildland fires. The financial responsibility for preventing and suppressing fires in SRAs has been determined to be primarily on the state (PRC Section 4201) and the financial responsibility of preventing and suppressing fires in LRAs is primarily on local agencies, including cities and counties (GC Sections 51175 to 51189). SRAs were originally mapped by CAL FIRE in 1985 and LRAs were mapped in 1996. The CAL FIRE maps also show FRAs and fire hazard designations within those federal areas.

Within SRAs, the Director of CAL FIRE has designated areas as moderate, high, and very high FHSZs (PRC Section 4202). Within LRAs, the Director of CAL FIRE was charged with recommending the locations of very high FHSZs (GC Section 51178). These recommendations were to be reviewed and adopted in ordinances by local agencies (GC Section 51179), although not all local agencies have complied. All designations are mapped on the CAL FIRE website.

California Senate Bill 901

Passed in 2018, SB 901 adopted new provisions of California Public Utilities Code Section 8386 requiring all electric utilities to prepare, submit, and implement annual WMPs. These plans describe the utilities' strategies to construct, operate, and maintain their electrical lines and equipment in a manner that will help minimize the risk of catastrophic wildfires associated with those electrical lines and equipment.

Rules for Overhead Electric Line Construction

General Order 95 from the CPUC regulates all aspects of design, construction, and operations and maintenance (O&M) of electrical power lines and fire safety hazards for utilities subject to its jurisdiction.

On February 5, 2014, the CPUC adopted its Decision Adopting Regulations to Reduce the Fire Hazards Associated with Overhead Electric Utility Facilities and Aerial Communications Facilities (Decision 14-02-015). In addition to updating various requirements of General Order 95 and ordering further study, the decision called for creation by the CPUC of a High Fire-Threat District Map identifying zones of high hazard, elevated risk, and extreme risk for destructive utility-associated wildfires.

In January 2018, the CPUC adopted its High Fire-Threat District Map, which designates three areas where there is an increased risk from wildfires: Tier 3 (extreme fire risk), Tier 2 (elevated fire risk), and Zone 1 (CAL FIRE Tree Mortality High Hazard Zone Tier 1, not included in Tier 3 or Tier 2). Tier 2 fire-threat areas are where there is an elevated risk (including likelihood and potential impacts on people and property) from utility-associated wildfires. Tier 3 fire-threat areas are where there is an extreme risk (including likelihood and potential impacts on people and property) from utility-associated wildfires (CPUC 2021). These CPUC designations do not replace CAL FIRE's FHSZs.

On October 25, 2018, the CPUC entered an Order Instituting Rulemaking to Implement Electric Utility Wildfire Mitigation Plans Pursuant to SB 901 (2018), R.18-10-007, facilitating SB 901's requirement that PG&E and other utilities submit WMPs. PG&E submitted its Amended 2019 Wildfire Safety Plan on February 6, 2019 (PG&E 2019), which "… describes the enhanced, accelerated, and new programs that PG&E is and will aggressively continue to implement to prevent wildfires in 2019 and beyond." On February 7, 2020, PG&E submitted its updated 2020 WMP. On February 5, 2021, PG&E submitted its updated 2021 WMP. On November 1, 2021, Change Orders for the 2021 WMP (Docket #2021-WMPs) were submitted to the CPUC. On February 25, 2022, PG&E submitted its updated 2022 *Wildfire Mitigation Plan Update* before submitting its 2022 *Wildfire Mitigation Plan Update Revised* on July 26, 2022 (PG&E 2022). The State of California Office of Energy Infrastructure Safety approved the revised plan on November 10, 2022.

Similarly, in 2019, LEU completed its inaugural WMP and third-party independent evaluation pursuant to SB 901. The Plan and Independent Evaluation were adopted by City Council on November 20, 2019. LEU has conducted annual updates of this plan. LEU's 2020 update was accepted by City Council on December 22, 2020; LEU's 2021 update was accepted by City Council on December 1, 2021 (LEU 2021, 2022).

California Public Resources Code, Section 8387 (Wildfire Mitigation)

Under subsection (a) of PRC Section 8387, each local publicly owned electric utility will construct, maintain, and operate its electrical lines and equipment in a manner that will minimize the risk of wildfire posed by those electrical lines and equipment. Under subsection (b)(1) of PRS Section 8387, the local publicly owned electric utility will prepare a WMP before January 1, 2020. After January 1, 2020, a local publicly owned electric utility will prepare a WMP annually and will submit the plan to the California Wildfire Safety Advisory Board on or before July 1 of that calendar year. The plan will be updated annually and submitted to the California Wildfire Safety Advisory Board by July 1 of each year. At least once every three years, the submission will be a comprehensive revision of the plan.

5.20.2.3 Local

Because the CPUC has exclusive jurisdiction over project siting, design, and construction, PG&E's portion of the project is not subject to local (city and county) discretionary regulations except for air districts and CUPAs with respect to air quality and hazardous waste regulations. However, local plans and policies are considered for informational purposes and to assist with the CEQA review process.

The City of Lodi is a local agency and must comply with its own local plans and policies.

Refer to Section 5.9, Hazards, Hazardous Materials, and Public Safety, of this PEA for an overview of local emergency response plans.

San Joaquin County General Plan 2035 Public Health and Safety Element

The *San Joaquin County General Plan* includes a Public Health and Safety Element with goals and policies to minimize the risk of wildland and urban fire hazards. It establishes the following goal:

"GOAL PHS-4.6: The County shall encourage well-organized and efficient coordination among fire agencies, CAL FIRE, and the County."

The San Joaquin County Natural Hazard Disclosure Information includes mapping of the moderate, high, and very high FHSZs, as well as mapping of the Wildland Fire Responsibility Areas, consistent with the areas designated by CAL FIRE's mapping. The Public Health and Safety Element uses the local hazard mitigation plan and existing data on wildland and urban fire hazards to guide new development and to help reduce damage from fire hazards.

City of Lodi General Plan Safety Element

The City of Lodi is not characterized by substantial areas of wildland fire. However, the *City of Lodi General Plan* includes a Safety Element with policies to minimize the risk of wildland and urban fire hazards. It establishes the following policy:

"S-G4: Minimize vulnerability of infrastructure and water supply and distribution systems."

5.20.3 Impact Questions

The project's potential effects on wildfire resources were evaluated using the significance criteria set forth in Appendix G of the CEQA Guidelines. The criteria and conclusions are summarized in Table 5.20-1 and discussed in more detail in Section 5.20.4.

Table 5.20-1. CEQA Checklist for Wildfire

If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	☐	☐	☒	☐
c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines, or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	☐	☐	☒	☐
d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	☐	☐	☐	☒

5.20.3.1 Additional CEQA Impact Questions

None.

5.20.4 Potential Impact Analysis

Project impacts related to wildfire were evaluated against the CEQA significance criteria and are discussed in the following sections. The impact analysis evaluates potential project impacts during the construction phase and the O&M phase. The impact discussion is organized to describe the effects of each participating utility's portion of the project on the environment.

5.20.4.1 Significance Criteria

According to Section 15002(g) of the CEQA Guidelines, "a significant effect on the environment is defined as a substantial adverse change in the physical conditions which exist in the area affected by the proposed project." As stated in Section 15064(b) of the CEQA Guidelines, the significance of an activity may vary with the setting. Per Appendix G of the CEQA Guidelines, the potential significance of project impacts related to wildfires was evaluated for each of the criteria listed in Table 5.20-1, as discussed in Section 5.20.4.3.

5.20.4.2 Applicant-Proposed Measures and Best Management Practices

PG&E and LEU will implement their respective APMs and BMPs as follows:

APM WFR-1: PG&E Construction Fire Prevention Plan. A project-specific *Construction Fire Prevention Plan* for construction of the project will be prepared prior to initiation of construction by PG&E. The PG&E plan

will be approved by the CPUC and the local fire agencies with jurisdiction over the areas where the project is located at least 90 days prior to the initiation of construction activities in areas designated as very high or high FHSZs. Plan reviewers also will include federal, state, or local agencies with jurisdiction over areas where the project is located. The final plan will be approved by the CPUC at least 30 days prior to the initiation of construction activities. The plan will be fully implemented throughout the construction period, and it will include the following at a minimum:

- The purpose and applicability of the plan
- Incorporation of the requirements in PG&E's current Utility Standard for *Preventing and Mitigating Fires While Performing PG&E Work*
- Responsibilities and duties for compliance
- Preparedness training and drills
- Procedures for fire reporting, response, and prevention that include:
    - Identification of daily site-specific risk conditions
    - The tools and equipment needed on vehicles and on hand at sites
    - Reiteration of fire prevention and safety considerations during tailboard meetings
    - Daily monitoring of the Red-Flag Warning System with appropriate restrictions on types and levels of permissible activity
- Coordination procedures with federal, state, and local fire officials
- Crew training, including the construction fire prevention practices described in APM WFR-2
- Method(s) for verifying that all plan protocols and requirements are being followed

A project Fire Marshal or similar qualified person will be responsible for training project personnel and enforcing all provisions of the *PG&E Construction Fire Prevention Plan,* as well as performing other duties related to fire detection, prevention, and suppression for the project. Construction activities will be monitored to ensure implementation and effectiveness of the plan.

BMP WFR-1: LEU Construction Fire Prevention Plan. A project-specific *Construction Fire Prevention Plan* for construction of the project will be prepared prior to initiation of construction by LEU. The plan will be provided to the City of Lodi Fire Department, which has jurisdiction over the area where LEU's project activities are located, none of which are within very high or high FHSZs. The plans will be provided to the department at least 90 days prior to the initiation of construction activities for review and approval. The plan will be fully implemented throughout the construction period, and it will include the following at a minimum:

- The purpose and applicability of the plan
- Incorporation of the requirements in LEU's current WMP
- Responsibilities and duties for compliance
- Preparedness training and drills
- Procedures for fire reporting, response, and prevention that include:
    - Identification of daily site-specific risk conditions
    - The tools and equipment needed on vehicles and on hand at sites
    - Reiteration of fire prevention and safety considerations during tailboard meetings
    - Daily monitoring of the Red-Flag Warning System with appropriate restrictions on types and levels of permissible activity

- Coordination procedures with federal, state, and local fire officials
- Crew training, including the construction fire prevention practices described in BMP WFR-2
- Method(s) for verifying that all plan protocols and requirements are being followed

A project Fire Marshal or similar qualified person will be responsible for training project personnel and enforcing all provisions of the *LEU Construction Fire Prevention Plan,* as well as performing other duties related to fire detection, prevention, and suppression for the project. Construction activities will be monitored to ensure implementation and effectiveness of the plan.

APM WFR-2: PG&E Fire Prevention Practices. PG&E will implement the following fire prevention practices at active construction sites and during maintenance activities:

- Existing PG&E personnel conducting maintenance on the project are trained on the PG&E Utility Standard TD-1464S for *Preventing and Mitigating Fires While Performing PG&E Work* and will follow the standard in regard to training, preparation, communication methods and means, observations of and alerts concerning weather conditions including NWS events, and PG&E's work restrictions and fire mitigation required for elevated PG&E utility FPI ratings (R4, R5, or R5-Plus).
- Construction personnel will be trained in fire-safe actions, including PG&E's current Utility Standard for Preventing and Mitigating Fires While Performing PG&E Work, Wildfire Prevention Contract Requirements, and the project's PG&E Construction Fire Prevention Plan concerning initial attack, firefighting, and fire reporting. Construction personnel will be trained and equipped to extinguish small fires to prevent them from growing into more serious threats.
- All construction personnel will carry a laminated card and be provided a hard hat sticker that list pertinent telephone numbers for reporting fires and define immediate steps to take if a fire starts. Information on laminated contact cards and hard hat stickers will be updated as needed and redistributed to all construction personnel prior to the day the information change goes into effect.
- PG&E will coordinate with the applicable local fire departments prior to construction activities to determine the appropriate amounts of fire equipment to be carried on vehicles and, should a fire occur, to coordinate fire suppression activities as part of the PG&E Construction Fire Prevention Plan review.
- Construction personnel will have fire suppression equipment on all construction vehicles and will be required to park vehicles away from dry vegetation. Water tanks and/or water trucks will be sited or available at active project sites for fire protection during construction.
- All construction crews and inspectors will be provided with radio and cellular telephone access that is operational in all work areas and access routes to allow for immediate reporting of fires. Communication pathways and equipment will be tested and confirmed operational each day prior to initiating construction activities at each work site. All fires will be reported to the fire agencies with jurisdiction in the area immediately upon discovery of the ignition.
- While performing stationary ground-level jobs or activities from which a spark, fire, or flame may originate (for example, welding, cutting, grinding), all flammable material (for example, grass, leaf litter, dead or dying tree) must be removed down to the mineral soil around the operation for a minimum of 10 feet.
- PG&E General Requirements for wildfire mitigation (R1 to R3) apply for PG&E work areas located farther than 5 miles from an FIA when the nearest FIA has an elevated FPI rating (R4, R5, or R5-Plus), except during NWS Red-Flag Warnings and Fire Weather Watch events when R5 mitigations would apply.
- At PG&E's Clayton Hill Repeater Station, which is within an FIA, during Red-Flag Warning and Fire Weather Watch events, as issued by the NWS, and elevated PG&E utility FPI rating (R4, R5, or R5-Plus), all construction activities will refer to the current PG&E Standard TD-1464S and related

requirements such as PG&E Wildfire Prevention Contract Requirements, Attachment 1 – Wildfire Mitigation Matrix, and Attachment 2 – Wildfire Risk Checklist Fire Mitigations. With increased potential fire risk of R4, additional water resources are required and a working fire watch is assigned to be able to continue work as long as the weather conditions are evaluated to ensure it remains safe to continue work.

- For R5 and R5-Plus ratings, mitigation beyond R1 to R4 levels includes a dedicated fire watch at the jobsite, a trailer-mounted water tank or alternative water delivery method at the jobsite, and modifying the fuel sources surrounding the jobsite. All planned work is suspended during an R5-Plus fire rating. During all emergency work being performed for an R5-Plus fire rating, personnel must have a PG&E Safety and Infrastructure Protection Team on standby or a 300-gallon water tender available. Use of heavy equipment (blades, dozers, skid steers, excavators, back hoes), construction hot work, and electrical equipment work (including tasks related to conductors, pole, and overhead equipment from which a spark, fire, or flames may originate) are allowed with the R5 mitigations in place but not allowed during R5-Plus conditions.

BMP WFR-2: LEU Construction Fire Prevention Practices. LEU will implement the following fire prevention practices at active construction sites and during maintenance activities:

- Existing LEU personnel conducting maintenance on the project are trained on the LEU WMP and will follow the plan in regard to training, preparation, communication methods and means, observations of and alerts concerning weather conditions including NWS events, and LEU's work restrictions and fire mitigation required for elevated fire potential.
- Construction personnel will be trained in fire-safe actions, including the LEU project Construction Fire Prevention Plan, initial attack firefighting, and fire reporting. Construction personnel will be trained and equipped to extinguish small fires to prevent them from growing into more serious threats.
- All construction personnel will carry a laminated card and be provided a hard hat sticker that list pertinent telephone numbers for reporting fires and defining immediate steps to take if a fire starts. Information on laminated contact cards and hard hat stickers will be updated as needed and redistributed to all construction personnel prior to the day the information change goes into effect.
- LEU will coordinate with the City of Lodi Fire Department prior to construction activities to determine the appropriate amounts of fire equipment to be carried on vehicles and, should a fire occur, to coordinate fire suppression activities as part of the LEU Construction Fire Prevention Plan review.
- Construction personnel will have fire suppression equipment on all construction vehicles and will be required to park vehicles away from dry vegetation. Water tanks and/or water trucks will be sited or available at active project sites for fire protection during construction.
- All construction crews and inspectors will be provided with radio and cellular telephone access that is operational in all work areas and access routes to allow for immediate reporting of fires. Communication pathways and equipment will be tested and confirmed operational each day prior to initiating construction activities at each work site. All fires will be reported to the fire agencies with jurisdiction in the area immediately upon discovery of the ignition.
- While performing stationary ground-level jobs or activities from which a spark, fire, or flame may originate (for example, welding, cutting, grinding), all flammable material (for example, grass, leaf litter, dead or dying tree) must be removed down to the mineral soil around the operation for a minimum of 10 feet.
- The risk for potential fire hazards associated with the construction of the new substation is low because the setting has no known potential wildfire risk. Given the surrounding settings of urban development, LEU does not expect any restrictions to be used for "high-risk days." LEU will continue to comply with its 2021 WMP, as updated yearly.

5.20.4.3 Potential Impacts

As described in Chapter 3, Project Description, the project will provide a new 230 kV transmission source in northern San Joaquin County, in central California. The project includes extending an existing PG&E 230 kV transmission line through PG&E Lockeford Substation to a new PG&E Thurman Switching Station in Lodi, California, by installing new tubular steel poles and conductors for approximately 11 miles. PG&E Lockeford Substation will be expanded on existing substation property to accommodate the new 230 kV facility. PG&E Thurman Switching Station will transfer the new 230 kV source to the new adjacent LEU 230/60 kV Guild Substation. LEU Guild Substation will transfer the 60 kV power to the existing adjacent LEU 60 kV Industrial Substation, which will be modified to receive the new LEU 60 kV lines (via the new 230 kV source) and to disconnect the existing PG&E 60 kV sources. When disconnected, the three existing PG&E 60 kV lines will be partially removed and reconfigured mainly within their existing alignments to continue operation between PG&E Lockeford and Lodi substations. LEU distribution and the third-party telecommunication underbuild on PG&E 60 kV line portions being removed will be relocated by the respective utility owner to within or adjacent to other existing alignments. An existing PG&E distribution line will be extended underground approximately 500 feet in franchise to provide a permanent secondary service line to PG&E Thurman Switching Station. PG&E project-related work to update communication between facilities and the protection scheme system also will occur within the existing fence lines of remote-end substations Brighton, Bellota, Lodi, and Rio Oso, and a communication facility, Clayton Hill Repeater Station.

a) If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project substantially impair an adopted emergency response plan or emergency evacuation plan? *No Impact.*

PG&E Potential Impact Discussion

The PG&E project components within northern San Joaquin County, and the three PG&E remote-end substations (Brighton, Bellota, and Rio Oso), are located entirely within CAL FIRE designated LRAs and not located within or near lands identified as very high FHSZs. PG&E Clayton Hill Repeater Station is located in an SRA, in a high FHSZ with the nearest very high FHSZ located 1 mile to the south.

Work at the Clayton Hill Repeater Station involves installing two new antennas on an existing communication tower in the existing station fence line in unincorporated Contra Costa County. Up to four construction vehicles will access the facility for about 30 days, which is a temporary, incremental increase in traffic. The access road to the facility is paved, has no public vehicle access, and is not identified as a vehicle evacuation route by an emergency plan. Project construction vehicles will travel on Kirker Pass Road and Nortonville Road to access the facility road, none of which are identified in emergency plans. Moreover, the construction vehicles will be a temporary, negligible increase to existing road use. The project activities at PG&E Clayton Hill Repeater Station will not substantially impair an adopted emergency response plan or emergency evacuation plan during construction. O&M activities would not increase from current PG&E Clayton Hill Repeater Station facilities practices after the new antennas are installed. Additionally, with implementation of PG&E's *Construction Fire Prevention Plan* under APM WFR-1 and fire prevention practices under APM WFR-2, the project would have no impact to the high FHSZ SRA at PG&E Clayton Hill Repeater Station.

The *San Joaquin County Emergency Operations Plan* establishes a County incident management structure, establishes the overall operational concepts, and provides a flexible platform for planning and response to hazards, incidents, events, and emergencies (San Joaquin County OES 2022a). The project would establish electrical infrastructure and would not interfere with incident management structure or operation plans.

The majority of construction-related vehicles on local roadways identified as evacuation routes typically would be for worker commute to an assigned work location or limited travel between work locations by inspectors or to deliver material or equipment as required by activities. During construction, there would be temporary and infrequent use of identified evacuation routes such as East Kettleman Lane, East Victor Road (SR12), SR 88, and SR 99, secondary roadways (for example, Beckman Road, East Lodi Avenue,

South Guild Avenue, East Sargent Road, East Pine Street, Curry Avenue, East Harney Lane, Alpine Road, North Locust Tree Road, North Jack Tone Road, North Tully Road, Atkins Road, and Clements Road), and small agricultural roads. The project would not conflict with an adopted emergency response plan or evacuation plan.

PG&E project work will require a rolling stop, or other similar traffic control, to install the new transmission line wires across SR 88, which is identified by the County as an expected evacuation route. Any lane closures will be temporary and short term and will be coordinated with the California Department of Transportation and local jurisdictions to reduce the potential temporary and short-term effects on emergency access. Otherwise, emergency response plans and emergency evacuation plans do not identify roads that would be impacted directly by project construction activities within a roadway. Should an evacuation event occur, construction activities would not interfere with efficient evacuation of the public and project personnel. No negative impact to emergency response plans and emergency evacuation plans would result from O&M of the project, which would occur within station facilities or adjacent to linear facilities where road closures are not planned. The project will not impair the implementation of or physically interfere with an adopted emergency response or evacuation plan; therefore, no impact will occur.

LEU Potential Impact Discussion

The LEU portion of the project is not located in or near SRAs and is not located on land classified as very high FHSZs.

The project would not conflict with an adopted emergency response plan or evacuation plan. The *San Joaquin County Emergency Operations Plan* establishes a County incident management structure, establishes the overall operational concepts, and provides a flexible platform for planning and response to hazards, incidents, events, and emergencies (San Joaquin County OES 2022a). The project would establish electrical infrastructure and would not interfere with incident management structure or operational concepts. The majority of construction-related vehicles on local roadways identified as evacuation routes typically would be for worker commute to an assigned work location at or near Guild or Industrial substations. A negligible increase in known and potential evacuation route traffic would occur during construction with the temporary and infrequent use of identified excavation routes such as East Kettleman Lane, East Victor Road (SR 12), and SR 99, secondary roadways (for example, Beckman Road, South Guild Avenue, East Lodi Avenue), and small agricultural roads.

Emergency access would not be impacted directly during construction since streets will remain open to emergency vehicles at all times throughout construction. Although lane closures may be required, at least one lane will remain open to provide access for emergency vehicles and evacuation. In addition, any lane closures will be temporary and short term, and these closures will be coordinated with the City of Lodi to reduce the potential temporary and short-term effects on emergency access. Emergency response plans and emergency evacuation plans do not identify roads that would be impacted directly by LEU project construction activities within a roadway. Should an evacuation event occur, construction activities would not interfere with efficient evacuation of the public and project personnel. No negative impact to emergency response plans and emergency evacuation plans would result from O&M of the project, which would occur within station facilities or adjacent to linear facilities where road closures are not planned. The project will not impair the implementation of or physically interfere with an adopted emergency response or evacuation plan; therefore, no impact will occur.

b) If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project 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 Impact*.

PG&E Potential Impact Discussion

The PG&E project components within northern San Joaquin County, and the three PG&E remote-end substations (Brighton, Bellota, and Rio Oso), are not located in or near SRAs and are not located on land classified as very high FHSZs. The PG&E project components in the main portion of the project and the three PG&E remote-end substations (Brighton, Bellota, and Rio Oso) are not in areas of slope, prevailing winds, or other known factors that would exacerbate wildfire risks. Additionally, none of the project components are designed for human occupancy.

The project is approximately 2.00 miles from the nearest San Joaquin County Communities at Risk communities, which are identified by their location within WUIs. Portions of the new PG&E 230 kV transmission line east of North Tully Road and where the line crosses the channelized Paddy Creek and Bear Creek are within areas of Wildfire Influence Zone and Wildfire Intermix Zone. Within the City of Lodi, PG&E Thurman Switching Station, and adjacent potential Staging Area 3, as well as the interconnecting 60 kV and 230 kV lines, are within the Wildfire Intermix Zone when west of South Guild Avenue, north of East Thurman Road, and south of the railroad tracks south of East Lodi Avenue. The existing PG&E 60 kV lines to the north of LEU Industrial Substation are not within a WUI zone. The warehouse building to the east of South Guild Avenue is identified as the Wildfire Intermix Zone but not the paved area to the immediate north of the building where project work will occur to relocate and remove the existing PG&E 60 kV line and install the new PG&E 230 kV line. No other project components within northern San Joaquin County intersect with WUI zones (refer to Figure 5.20-1). PG&E Rio Oso and Brighton substations are not located in a WUI zone. PG&E Bellota Substation is located within a Wildfire Influence Zone with no WUI zone to the immediate south of the station fence line. While the project intersects some areas of Wildfire Influence Zone or Wildfire Intermix Zone, this main PG&E portion of the project is not within an SRA or very high FHSZ. Additionally, if a wildfire did start in the area, it is unlikely that it would burn unnoticed for a long period of time based on visibility and proximity of fire resources.

PG&E Clayton Hill Repeater Station, an existing paved and fenced communication station with paved access, is within an SRA that is identified as a high FHSZ. The terrain surrounding the fenced, paved station is rolling hills with slopes that rise up to the station, which is on a peaked area. The prevailing wind typically is from the west and average wind speeds are more than 8.6 mph for approximately 5 months, with the windiest month having wind speeds of more than 10.4 mph. NWS describes wind speed between 8 and 12 mph as a "gentle breeze" (NWS 2022b). PG&E Clayton Hill Repeater Station is mainly outside of a WUI zone. A Wildfire Influence Zone to the southwest has a stairstep polygon edge that overlaps with the southwest corner of the PG&E repeater station footprint.

Project-related activities at PG&E Clayton Hill Repeater Station have a minimal potential for exacerbating wildfire risks. Station access is on a paved road to this paved and fenced telecommunication facility. Additionally, project-related activities will be limited in duration and will not be ground-disturbing or include activities that would produce a spark, fire, or flames.

During construction, PG&E will implement APM WFR-1 and APM WFR-2 requiring workers to be trained in fire prevention practices and carry emergency fire suppression equipment to reduce the wildland fire risk in the project area.

The project will not have occupants and, therefore, will not potentially expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire caused by slope, prevailing winds, or other factors.

LEU Potential Impact Discussion

The LEU portion of the project is not located within or near an SRA or within lands classified as very high FHSZs. The project is within an area of industrial use with a less than 1% slope. Within the City of Lodi, the new LEU Guild Substation and adjacent potential Staging Area 3 are within the Wildfire Intermix Zone. The project will be grading or blading these areas and removing the potential fuel associated with the existing ruderal grassland. During construction, LEU will implement BMP WFR-1 and BMP WFR-2 requiring workers

to be trained in fire prevention practices and carry emergency fire suppression equipment to reduce the wildland fire risk in the project area.

The project will not have occupants and, therefore, will not potentially expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire caused by slope, prevailing winds, or other factors.

c) If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines, or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment? *Less-than-Significant Impact.*

PG&E Potential Impact Discussion

The PG&E project components within northern San Joaquin County, and the three PG&E remote-end substations (Brighton, Bellota, and Rio Oso), are not located in or near SRAs or on land classified as very high FHSZs. The existing communication tower within PG&E Clayton Hill Repeater Station is within an SRA and on land classified as a high FHSZ. The PG&E portion of the project will require the installation and maintenance of electrical and communication infrastructure, including new transmission lines, one new switching station, one extended service line, one expanded substation, four modified substations, one replaced transmission structure, one modified communication tower, and four modified power lines. No permanent roads outside of stations, fuel breaks, emergency water sources, or other utilities that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment are required.

The new and modified electrical lines, substations, and switching station are similar in nature to the existing project components that will be modified or extended during construction and other existing PG&E lines in the area. The new and modified PG&E electrical infrastructure would be a negligible increase to potential for wildfire risk in the main portion of the project outside of an SRA or very high FHSZ. PG&E will incorporate its new and modified facilities into its WMP modeling (PG&E 2022).

Construction activities, including work areas, staging areas, and laydown areas, and temporary access associated with installation of the PG&E electrical and communication infrastructure could cause a temporary increase in fire risks from overland travel, the use of equipment that may create sparks, and construction equipment and vehicles, which would contain combustible materials such as fuels and oils and ignition sources. However, PG&E will comply with all applicable California Health and Safety Codes and ordinances regulating the handling, storage, and transportation of hazardous materials, which would help to minimize the potential for accidental conditions, including fire. Additionally, during construction, PG&E will implement APM WFR-1 and APM WFR-2, requiring workers to be trained in fire prevention practices and to carry emergency fire suppression equipment to reduce the wildland fire risk in the project area. PG&E's *Construction Fire Prevention Plan* requires that vehicles not be parked on dry vegetation and that a minimum 10-foot area be cleared of all flammable material for any stationary ground-level activities that has the potential to create a spark, fire, or flame. Additional wildfire mitigation actions such as a Working or Dedicated Fire Watch with at least 120 gallons of water, 200 feet of hose, and 40 pounds per square inch at the nozzle are required for elevated fire risk conditions.

Maintenance of electrical infrastructure will include activities to repair and replace infrastructure components to manage operational risk associated with wildfire. Maintenance programs will continue for existing facilities and be implemented for new facilities by PG&E using existing maintenance programs and workers to avoid service interruptions and outages. PG&E maintenance activities would implement the current PG&E WMP, as updated yearly and approved by the State of California Office of Energy Infrastructure Safety. The additional maintenance will be an infrequent and nominal increase to existing PG&E facility maintenance in the project area. Installation or maintenance of the electrical facilities associated with the PG&E portion of the project will not exacerbate fire risk or result in temporary or ongoing impacts to the environment.

PG&E project-related work at PG&E Clayton Hill Repeater Station within an SRA will be a low risk for fire because the work is not "hot work" and will occur within an existing fenced, paved facility. The new PG&E communication equipment (two new drum antennas and connecting communication lines within the station) are not a source of ignition during operation and will be operated within a paved facility. Access to the station during construction and operations and maintenance will occur on a paved access road and vehicles will park within the paved station. The modification to PG&E Clayton Hill Repeater Station within an SRA will not exacerbate fire risk or result in temporary or ongoing impacts to the environment.

LEU Potential Impact Discussion

The LEU portion of the project is not located within or near an SRA or within lands classified as very high FHSZs. The LEU project portion will require the installation and maintenance of electrical infrastructure; however, no 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 is required. During construction, LEU will implement BMP WFR-1 and BMP WFR-2, requiring workers to be trained in fire prevention practices and carry emergency fire suppression equipment to reduce the wildland fire risk in the project area.

Maintenance programs will continue for existing facilities and be implemented for new facilities by LEU using existing maintenance programs and workers to avoid service interruptions and outages. During utility maintenance, LEU activity will comply with its 2021 WMP, as updated yearly. The additional maintenance will be an incremental increase to existing LEU facility maintenance in the LEU portion of the project area. Installation or maintenance of the electrical facilities associated with the LEU portion of the project will not exacerbate fire risk or result in temporary or ongoing impacts to the environment.

The City of Lodi is not characterized by substantial areas of wildlands. The topography of the area is relatively homogenous and steep slopes that could contribute to wildland fires are not common. The area surrounding the project is urban and developed (City of Lodi 2010). Based on a review of local conditions and historical fires, LEU has determined that its electrical lines and equipment do not pose a significant risk of catastrophic wildfire (LEU 2021, 2022).

d) If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project 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? *No Impact.*

PG&E Potential Impact Discussion

The PG&E project components within northern San Joaquin County, and the three PG&E remote-end substations (Brighton, Bellota, and Rio Oso), are not located in or near SRAs and are not located on land classified as very high FHSZs. PG&E Clayton Hill Repeater Station is located within a high FHSZ and an SRA.

The project SWPPP would include measures to control stormwater runoff rates, which would minimize the potential for significant alteration of drainage patterns that would result in downslope or downstream flooding. Further, expansion of PG&E Lockeford Substation and construction of PG&E Thurman Switching Station include design considerations to improve drainage patterns onsite with a modified and new station retention basin and drainage managing runoff from the stations' rock base. New temporary access roads are expected to be overland access with minimal ground-disturbing activities. Any blading or temporary stabilization such as rocking would include design considerations to maintain or improve existing drainage patterns. Therefore, through drainage design and SWPPP implementation, the project would not substantially alter the existing drainage pattern of the site or area or increase the rate or amount of surface runoff in a manner that would result in downstream or downslope flooding. No ground-disturbing work or potential for construction-related polluted stormwater runoff will occur with the project activities at PG&E Clayton Hill Repeater Station.

There is a low probability for landslides in the project area in northern San Joaquin County because of the relatively flat topography (less than 2% slope) and distance from hills, mountains, or slopes. The PG&E project components, including PG&E's remote-end substations and repeater station, are not located within a landslide hazard area, as indicated by the California Landslide Susceptibility Map prepared by the California Geological Survey. The project is located in generally flat urban and agricultural areas that would not be susceptible to post-fire slope instability. Localized areas of relatively steep slopes and increased landslide hazards occur where the new PG&E transmission lines run along natural streams and irrigation canals. These localized areas may be susceptible to post-fire slope instability. However, these areas are not indicated to have a fire hazard severity rating, indicating that the vegetation in the area is less susceptible to fire or is sparser than in other areas, or that few structures (and thus inhabitants) susceptible to fire are present. Given this, there would be no impact from post-fire slope instability.

O&M activities would include utility maintenance, vegetation clearing, tree pruning, and other related O&M activities. Activities conducted during operation of the project would be consistent with existing O&M activities in the area and in compliance with existing state and federal laws, rules, and regulations. The project would have no impact on people and structures, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes.

LEU Potential Impact Discussion

The LEU portion of the project is not located within or near an SRA or within lands classified as very high FHSZs. The LEU project SWPPP would include measures to control stormwater runoff rates, which would minimize the potential for significant alteration of drainage patterns that would result in downslope or downstream flooding. Further, construction of LEU Guild Substation includes design considerations to address drainage patterns onsite with a retention basin managing runoff from the station's rock base. Therefore, through drainage design and SWPPP implementation, the LEU portion of the project would not substantially alter the existing drainage pattern of the site or area or increase the rate or amount of surface runoff in a manner that would result in downstream or downslope flooding.

There is a low probability for landslides in the project area because of the relatively flat topography (0 to 2% slope) and distance from hills, mountains, or slopes. The LEU project components are not located within a landslide hazard area, as indicated by the California Landslide Susceptibility Map prepared by the California Geological Survey. The project is located in a generally flat industrial area that would not be susceptible to post-fire slope instability. Given this, there would be no impact from post-fire slope instability.

O&M activities of the LEU project components would include substation maintenance, vegetation clearing, and other related O&M activities. LEU activities conducted during operation of the project would be consistent with existing O&M activities in the area and in compliance with existing state and federal laws, rules, and regulations. The project would have no impact on people and structures, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes.

5.21 Mandatory Findings of Significance

Section 15065 of the CEQA Guidelines requires that a lead agency find that a project may have a significant effect on the environment where there is substantial evidence, in light of the whole record, that any of several conditions may occur. These conditions are included in Appendix G to the CEQA Guidelines and are listed in Table 5.21-1, which also lists the impact conclusions for each criterion. Additional discussion is provided following the table.

Table 5.21-1. CEQA Checklist for Mandatory Findings of Significance

Criterion	Impact Assessment
Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	Less-than-Significant Impact
Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)	Less-than-Significant Impact
Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	Less-than-Significant Impact

5.21.1 Impact Assessment: Potential to Substantially Degrade the Quality of the Environment

5.21.1.1 Biological Resources

As discussed in Section 5.4, the proposed project would not result in any significant impacts to biological resources for the PG&E and LEU portions of the project. Only two species of special-status plants – succulent owl's-clover (*Castilleja campestris var. succulenta*) and Sanford's arrowhead (*Sagittaria sanfordii*) – were determined to have the potential to occur in and adjacent to the proposed project's BSA based on the presence of potentially suitable habitat and known occurrences in the vicinity. However, rare plants were not observed within areas of suitable habitat during appropriately timed botanical surveys, and the mesic habitats that they are associated with will not be impacted during project construction. Construction activities are generally located on already-disturbed areas, such as farmland and farm roads.

Suitable habitat for seven special-status wildlife species was identified in the proposed project's BSA. These species include Valley elderberry longhorn beetle, tricolored blackbird, burrowing owl, Swainson's hawk, white-tailed kite, bank swallow, and yellow warbler. Suitable foraging habitat for the avian species is present in the vicinity of all the work locations and there is suitable nesting habitat for the tricolored blackbird, Swainson's hawk, bank swallow, and yellow warbler in the vicinity of the project footprint. Project APMs and BMPs, such as avoiding and protecting nesting birds, would further reduce potential less-than-significant impacts to special-status wildlife species. In addition, the work areas are small relative to the surrounding expanse of adjacent suitable foraging habitat areas and the temporary loss of foraging habitat is not expected to adversely affect these or other bird species. Two large elderberry shrubs are in or near the project footprint, one next to the proposed guard structure and pull site between PG&E proposed structures W1 and W2 and the other within the fence line of PG&E Lockeford Substation, surrounded by a small patch of grassland on the eastern side of the substation's general construction yard and outside of the project footprint. These shrubs, along with any identified during the focused survey to be conducted prior to construction to identify all elderberry shrubs within the project footprint, will be

marked and avoided, as feasible, during construction to avoid or minimize potential impacts to Valley elderberry longhorn beetle.

Riparian vegetation exists within the BSA; however, it is not present within the proposed project footprint. There are work activities in proximity to riparian habitats, including free spans over several creeks; however, with implementation of APMs and BMPs such as identifying and marking sensitive biological resource areas, installing exclusion fencing, and biological monitoring during construction, the potential for indirect impacts to riparian corridors and other sensitive natural communities will not occur.

Although seasonal wetlands, natural watercourses, constructed watercourses, and drainage ditches are present in the BSA, none are within the proposed project footprint, and none will be impacted. The new transmission lines will span both Bear Creek (a perennial stream) and Paddy Creek (an intermittent stream), although neither will be impacted.

Project activities may result in the trimming or removal of native oak trees along access roads or other areas. Trimming of oaks also may be necessary and would be conducted by a certified arborist to avoid impacting tree health or to make the decision to remove the tree if trimming is not feasible.

There also is potential for avian interactions with PG&E power lines and structures, including collisions and electrocutions. PG&E would minimize the potential for electrocution or accidental line collision by constructing electrical lines in accordance with avian-safe construction standards. Conductors and ground wires would be spaced sufficiently apart so that raptors would not be electrocuted and all transmission, power, and station facilities for the proposed project will be designed to be avian safe, as appropriate and feasible, following the intent of *Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006* (APLIC 2006, 2012). Through project design, potential impacts would be less than significant.

Therefore, the project does not have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, or substantially reduce the number or restrict the range of a rare or endangered plant or animal.

5.21.1.2 Cultural Resources

As discussed in Sections 5.5 Cultural Resources, the proposed project would not result in any significant impacts to cultural or tribal resources. Five previously recorded cultural resources intersect the API, including the two historic-era railroad segments, a row of oak trees, a segment of SR 12, and four telegraph poles. For one railroad segment, no railroad-related features or other archaeological material were observed. The other resources will be entirely avoided during construction and would not be impacted by the project. Seven previously unrecorded architectural resources within the architectural API were evaluated as appearing eligible for listing in the CRHR and are considered historical resources. These resources will not be significantly impacted by the project because of existing visual intrusions, no physical impacts, and distance from the existing resources. The project changes will not significantly impact historical resources.

Surface surveys and records searches identified five archaeological sites within the API. There is a low potential to encounter surface precontact resources based on the survey. The potential is the highest adjacent to the creeks in the center of the API. An analysis of sensitivity for buried precontact-era sites determined that the majority of the API has a low to lowest potential. There is a high potential for buried precontact resources in the central portion of the API, near SR 88 and Bear Creek. Archival research found moderate potential for historic-era surface and subsurface deposits. With the implementation of APMs and BMPs to develop and implement a worker environmental awareness program prior to construction, to monitor ground-disturbing activities in high buried sensitivity areas, and to initiate procedures in the event of inadvertent cultural resource discoveries, undiscovered potential tribal cultural resources, or unanticipated discovery of human remains, impacts to resources would be considered less than significant. Project operation and maintenance will not be ground disturbing and will occur within city streets,

facilities, or electrical line ROWs and, as such, will not cause a substantial adverse change in the significance of an archaeological resource as defined in Section 15064.5; no impact will occur.

Neither the PG&E nor LEU project components would impact any known graves. Project impacts on human remains are not anticipated.

Therefore, the project would not eliminate important examples of the major periods of California history or prehistory.

5.21.2 Impact Assessment: Potential for Impacts that are Cumulative Considerable

Chapter 7 identifies potential cumulative projects in the vicinity of the proposed project. Chapter 7 also provides an analysis of potential cumulative impacts for: aesthetics; agriculture and forestry resources; air quality; biological resources; cultural resources; energy; geology, soils, and paleontological resources; greenhouse gases; hazards, hazardous materials and public safety; hydrology and water quality; noise; transportation; tribal cultural resources; utilities and service systems; and wildfire. For land use, minerals, population and housing, public services, and recreation, either the project has no impacts or the impacts are so minor they would not contribute to cumulative impacts in the area.

As discussed in Chapter 7, the proposed project does not have impacts that are individually limited but cumulatively considerable.

5.21.3 Impact Assessment: Potential for Substantial Adverse Effects on Human Beings

5.21.3.1 Air Quality

As discussed in section 5.3, the proposed project would not result in significant impacts to air quality. Construction activities from PG&E and LEU project components would cause temporary air pollutant emissions. The emissions would be below SJVAPCD CEQA thresholds for all pollutants analyzed.

Construction emissions from the project are estimated to exceed 2 tons per year in 2026 and 2027 for NO_x and PM_{10}. Therefore, construction of the project will be subject to SJVAPCD Indirect Source Review Rule 9510 requirements. The project will comply with Rule 9510 requirements to reduce the NO_x and PM_{10} construction emissions by 20% and 45%, respectively, as required by Rule 9510. Emissions would be reduced through either onsite emission reduction, offsite emission offset, or a combination of the two.

Localized PG&E and LEU construction impacts will be short-term in nature, lasting only during the duration of construction. The onsite construction emissions will be less than 100 pounds per day, the screening threshold for SJVAPCD for localized impacts, for each of the criteria pollutants from the construction sites. Most of the project area is within rural agricultural areas and open spaces with few sensitive receptors, and exposure would be periodic and temporary at any specific receptor. APMs and BMPs, such as dust control measures during construction, will further reduce air pollutants.

The project is not expected to result in significant Valley Fever-related impacts because construction will occur mostly in areas where soils have been regularly disturbed by agricultural activities and urban development. Construction fugitive dust control measures will further reduce potential impacts.

The results of the screening health risk assessment for construction activities associated with two locations where sensitive receptors are proximate to construction activities occurring at the location for more than 2 consecutive months indicate that excess cancer risks are less than the significance threshold of 20 in 1 million. The chronic hazard indices are less than the significance threshold of 1.0.

Total emissions from operations and maintenance activities at PG&E and LEU facilities would be below the SJVAPCD CEQA thresholds for project operation.

Therefore, the proposed project would not cause substantial adverse effects on human beings, either directly or indirectly, as a result of air quality impacts.

5.21.3.2 Hazards

As discussed in section 5.9, the proposed project would not result in significant impacts associated with hazards, hazardous materials, or public safety.

There are no existing or proposed schools located within 0.25 mile of the proposed project facilities, and therefore project components would not emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school.

No project components would be located on a site that is included on a list of hazardous materials sites compiled pursuant to GC Section 65962.5, and no active Superfund or state response sites are known to exist within 0.25 mile of the project area (EDR 2022).

No project components would be located within any airport land use plan or within 2 miles of a public airport or public use airport. No safety hazards that would affect people residing or working in the project area would result from the project.

The proposed project would not conflict with an adopted emergency response plan or evacuation plan. Emergency access would not be directly impacted during construction of PG&E project components since streets will remain open to emergency vehicles at all times throughout construction.

Construction of project facilities would require the use of motorized heavy equipment, including trucks, cranes, backhoes, and air compressors. Although this equipment requires the use of hazardous materials, such as gasoline, diesel, oil, hydraulic fluid, antifreeze, transmission fluid, lubricating grease, and other fluids, these materials will be transported to the work sites according to DOT standards and used in designated construction staging areas or other suitable locations identified prior to the onset of construction. APMs and BMPs require construction crews to be trained in safe handling of hazardous materials prior to the initiation of construction, which will further reduce the small risk of minor exposures to the environment, the public, or site workers to potentially hazardous materials during construction. The project is not expected to use or store large quantities of hazardous materials during construction. Hazardous materials will be transported, used, and disposed of in accordance with appropriate procedures, the project will not create a significant hazard to the public or environment. In accordance with APMs and BMPs, potentially contaminated soil that has not been precharacterized will be stockpiled separately to be tested, managed, and transported for disposal as appropriate. If suspected hazardous substances or waste are unexpectedly encountered during trenching activities, work will be stopped until the material is properly characterized and appropriate measures are taken to protect human health and the environment. The project will not create a significant hazard to the public or environment.

Monthly maintenance activities occurring at PG&E and LEU substation facilities may include use of hazardous materials, including oils, paints, and solvents used for routine maintenance. These activities would be done in compliance with updated hazardous materials business plans.

Other potential hazards associated with the project electrical facilities include the presence of high voltage, open-air conductors, transmission line, power lines, and distribution lines. Proposed upgrades to the existing facilities will update and conform with the Institute of Electrical and Electronic Engineers' safety standards. Additionally, all workers will be trained in appropriate safety procedures.

6 Comparison of Alternatives

Section 15126.6 of the CEQA Guidelines requires that 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, be described in an Environmental Impact Report (EIR). The EIR also must evaluate the comparative merits of the alternatives. The Guidelines also require an evaluation of the No Project Alternative. Because the CPUC plans to do an EIR for the state environmental document, this Proponent's Environmental Assessment (PEA) section has been prepared consistent with CEQA requirements to support the CPUC action.

Chapter 4 of this PEA describes three possible alternatives to the project that are potentially feasible, meet the project purpose, and meet most of the project objectives: the Central Route Alternative, the Northern Route Alternative, and the Lockeford-Lodi Area 230 kV Development (Eight Mile Substation) Alternative. These three alternatives were chosen to support decision-making and public participation. This chapter compares the potential impacts of these three alternatives and the No Project Alternative to the project.

6.1 Alternatives Comparison

As discussed in Sections 5.1 to 5.21, the project would not result in significant impacts to the environment. Therefore, this section compares alternatives to the project-based impacts of concern to the community, to distinguish among the alternatives. It is assumed that alternatives would include implementation of all applicable APMs and BMPs discussed in Sections 5.1 to 5.20.

Unless otherwise discussed, construction impacts for the alternatives are assumed to be similar to the project and would not distinguish among alternatives. Staging areas are assumed to be similar in size and would be located on available vacant land not in use at the time of construction. Laydown areas are assumed to be similar in area. Applicable construction-related APMs and BMPs would be implemented for all alternatives.

6.1.1 Aesthetics

This section summarizes the aesthetic impacts that would be likely to occur as a result of project implementation. It also provides a brief description of the environmental setting and potential impacts of the three alternatives. Because aesthetic impacts of construction would be temporary and similar for the project and all alternatives, construction impacts associated with aesthetics are not discussed here.

6.1.1.1 Proposed Project

As discussed in Section 5.1, the project would not result in any significant impacts to aesthetics and no mitigation is required. The CEQA Checklist criteria and conclusions for the project are as follows. A summary of the impact analysis from Section 5.1 also is provided in Table 6.1-1.

Table 6.1-1. CEQA Checklist Criteria for Aesthetics

Criterion	Impact Assessment
Would the project have a substantial adverse effect on a scenic vista?	No Impact
Would the project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	No Impact

Criterion	Impact Assessment
Would the project, 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?	Less-than-Significant Impact
Would the project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	Less-than-Significant Impact

There are no scenic vistas in the project viewshed, other than the summit of Mount Diablo, a scenic vista point, and project modifications would not be noticeable at this distance. The project would not obstruct views to the Coast Range and Sierra Nevada Range or to nearby rivers. There are no designated or eligible state scenic highways within the project viewshed. Portions of the new PG&E 230 kV transmission line would be visible from San Joaquin County scenic routes in the project area, including Clements Road and North Jack Tone Road, in the context of multiple existing transmission lines that closely parallel the project route. Based on typical highway speeds, and because of the presence of other utility lines and distances of the 230 kV transmission line from the roadways, the project would not have a significant effect on views from SR 12 and SR 88. Permanent visual change resulting from modifications to the existing PG&E Lockeford Substation and new PG&E Thurman Switching Station sites would be noticeable but largely incremental and would not substantially alter or degrade the existing visual character of the landscape in these areas.

New PG&E transmission structures would be noticeable to varying degrees, particularly west of PG&E Lockeford Substation, where close-range, largely screened views of new project structures would be visible to a relatively small number of residential viewers. Twelve residences would be within 250 feet of the 10.6-mile transmission line corridor. In one location, a proposed PG&E transmission structure would be located less than 250 feet from a residence on Alpine Road and could appear prominent in unobstructed close-range views. No wineries are located within 250 feet of the new PG&E 230 kV transmission line.

Throughout the project area, the visual modifications to the landscape resulting from PG&E project construction would be experienced by motorists, residents, and visitors to area wineries and would be seen within the context of a working landscape with considerable modification related to agricultural activity, and where irrigation infrastructure along with agricultural processing, storage, and transport facilities are established visible landscape features. Where the 230 kV lines are visible, they would result in incremental change that would not alter overall character or quality of the existing landscape substantially.

6.1.1.2 Central Route Alternative

Environmental Setting

The environmental setting for aesthetics for the Central Route Alternative is similar to the proposed project setting. The corridor for the western segment of the new 230 kV line would be approximately 1 mile north of the project corridor. The vegetation in the vicinity of the Central Route 230 kV transmission line includes vineyards, orchards, forage cropland, and other agricultural crops, as well as grassland and riparian corridors. Scattered stands of mature trees, both native and introduced, are located along many of the area roadways and surrounding most residences, which generally consist of isolated rural houses with associated farm buildings.

The eastern segment of the new 230 kV transmission line would be the same as the proposed project, with the same location and environmental setting. Substation components of this alternative are the same as the proposed project and are, therefore, in the same locations with the same environmental setting as the proposed project.

As with the proposed project, there are no scenic vistas in the Central Route Alternative viewshed, other than the summit of Mount Diablo, a scenic vista point. Local scenic roadways in the vicinity of this alternative include North Jack Tone Road, Clements (Liberty) Road, and SR 88.

Potential Impacts

No significant impacts to aesthetics would be likely to occur as a result of the Central Route Alterative. There are no scenic vistas in the alternative viewshed, other than the summit of Mount Diablo, a scenic vista point, and modifications resulting from the alternative would not be noticeable at this distance. The alternative would not obstruct views to the Coast Range and Sierra Nevada Range or to nearby rivers. There are no designated or eligible state scenic highways within the alternative viewshed. Based on typical highway speeds, and because of the presence of other utility lines and distances of the 230 kV transmission line from the roadways, the alternative would not have a significant effect on views from SR 12 and SR 88. Portions of the new 230 kV transmission line would be visible from San Joaquin County scenic routes, including Clements Road and North Jack Tone Road, in the context of multiple existing transmission lines that closely parallel this alternative's route. The Central Route Alternative would parallel existing transmissions lines for a slightly greater length than the proposed project does. The Central Route Alternative would cross North Jack Tone Road in the same location as the proposed project.

It is expected that, similar to the project, new transmission structures would be noticeable to varying degrees. Eighteen residences would be within 250 feet of the 10.04-mile transmission line corridor. No wineries are located within 250 feet of the new PG&E 230 kV transmission line.

Permanent visual change resulting from modifications to the existing PG&E Lockeford Substation and new PG&E Thurman Switching Station sites would be the same as for the proposed project; modifications would be noticeable but largely incremental and would not substantially alter or degrade the existing visual character of the landscape in these areas.

6.1.1.3 Northern Route Alternative

Environmental Setting

The environmental setting for aesthetics for the Northern Route Alternative is similar to the proposed project setting. The corridor for the new 230 kV line would be approximately 1 mile north of the proposed project corridor, except for the segment approximately between PG&E Lockeford Substation and one-quarter mile west of Linn Road, which will be the same as the proposed project. The vegetation in the vicinity of the Northern Route Alternative 230 kV transmission line includes vineyards, orchards, forage cropland, and other agricultural crops, as well as grassland and riparian corridors. Scattered stands of mature trees, both native and introduced, are located along many of the area roadways and surrounding most residences, which generally consist of isolated rural houses with associated farm buildings.

As with the proposed project, there are no scenic vistas in the Northern Route Alternative viewshed, other than the summit of Mount Diablo, a scenic vista point. Local scenic roadways in the vicinity of this alternative include North Jack Tone Road, Clements (Liberty) Road, and SR 88.

Potential Impacts

No significant impacts to aesthetics would be likely to occur as a result of the Northern Route Alterative. There are no scenic vistas in the alternative viewshed, other than the summit of Mount Diablo, a scenic vista point, and modifications resulting from the alternative would not be noticeable at this distance. The alternative would not obstruct views to the Coast Range and Sierra Nevada Range or to nearby rivers. There are no designated or eligible state scenic highways within the alternative viewshed. Based on typical highway speeds, and because of the presence of other utility lines and distances of the 230 kV transmission line from the roadways, the alternative would not have a significant effect on views from SR 12 and SR 88. Portions of the new 230 kV transmission line would be visible from San Joaquin County scenic routes, including North Jack Tone Road, in the context of multiple existing transmission lines that

closely parallel this alternative's route. The Northern Route Alternative would parallel existing transmissions lines for approximately the same length as the proposed project. The Northern Route Alternative would cross North Jack Tone Road in the same location as the proposed project.

It is expected that, similar to the project, new transmission structures would be noticeable to varying degrees. Twenty-one residences would be within 250 feet of the 10.39-mile transmission line corridor. No wineries are located within 250 feet of the new PG&E 230 kV transmission line.

Permanent visual change resulting from modifications to the existing PG&E Lockeford Substation and new PG&E Thurman Switching Station sites would be the same as for the proposed project; modifications would be noticeable but largely incremental and would not substantially alter or degrade the existing visual character of the landscape in these areas.

6.1.1.4 Lockeford-Lodi Area 230 kV Development (Eight Mile Substation) Alternative

Environmental Setting

The environmental setting for aesthetics for the Lockeford-Lodi Area 230 kV Development (Eight Mile Substation) Alternative is similar to the proposed project setting. The corridor for the new 230 kV line between PG&E Lockeford Substation and LEU Industrial Substation would be approximately 1 mile north of the project corridor and overlap much of the corridors for the Central Route and Northern Route Alternatives. The vegetation in the vicinity of this segment of the 230 kV transmission line includes vineyards, orchards, forage cropland, and other agricultural crops, as well as grassland and riparian corridors. The rest of this alternative's new 230 kV transmission line corridor would run south of LEU Industrial Substation and then west to the PG&E Eight Mile Substation. In this area, in addition to agricultural uses, the environmental setting includes a large regional park, the Micke Grove Regional Park and Golf Course, Elkhorn Golf Club, Oak Grove Regional Park, and The Reserve at Spanos Park golf course.

Scattered stands of mature trees, both native and introduced, are located along many of the area roadways and surrounding most residences, which include both isolated rural houses with associated farm buildings and denser residential development in the cities of Lodi and Stockton.

As with the project, there are no scenic vistas in the Lockeford-Lodi Area 230 kV Development Alternative viewshed, other than the summit of Mount Diablo, a scenic vista point. Local- and state-designated scenic roadways in the vicinity of this alternative include Interstate 5, SR 88, and Eight Mile Road.

Potential Impacts

No significant impacts to aesthetics would be likely to occur as a result of the Lockeford-Lodi Area 230 kV Development (Eight Mile Substation) Alterative. There are no scenic vistas in the alternative viewshed, other than the summit of Mount Diablo, a scenic vista point, and modifications resulting from the alternative would not be noticeable at this distance. The alternative would not obstruct views to the Coast Range and Sierra Nevada Range, or to nearby rivers.

The western component of the 230 kV line would cross Interstate 5 and connect to PG&E Eight Mile Substation adjacent to Eight Mile Road and would be visible from these designated scenic roadways. Based on typical highway speeds, and because of the presence of other utility lines near Interstate 5, the crossing of Interstate 5 with a new transmission line would not be a substantial change to the view. Similarly, modifications to PG&E Eight Mile Substation, including the connection of the new 230 kV transmission line, would be consistent with the industrial nature and the scale of the existing substation.

Based on typical highway speeds, the presence of other utility lines, and distances of the 230 kV transmission line from the roadways, the eastern component of this alternative would not have a significant effect on views from SR 12 and SR 88.

It is expected that, similar to the project, new transmission structures would be noticeable to varying degrees from existing residences, including along the western segment of the new 230 kV transmission line between LEU Industrial Substation and PG&E Eight Mile Substation along Eight Mile Road. Eighty-five residences would be within 250 feet of the 19.85-mile transmission line corridor. Because the new transmission lines with this alternative would be approximately twice as long as the project's transmission lines, it would have greater overall visibility. No wineries are located within 250 feet of the new PG&E 230 kV transmission line.

Permanent visual change resulting from modifications to the existing PG&E Lockeford Substation and LEU Industrial Substation would be the similar to the proposed project; modifications would be noticeable but largely incremental and would not substantially alter or degrade the existing visual character of the landscape in this area. Modifications to PG&E Eight Mile Substation would expand the existing facility by approximately 1.5 acres. This change would be largely incremental and would not substantially alter or degrade the existing visual character of the landscape in this area.

6.1.2 Agriculture and Forestry Resources

This section summarizes the impacts to agriculture and forestry resources that would be likely to occur as a result of project implementation. It also provides a brief description of the environmental setting and potential permanent impacts of the three alternatives. New transmission pole locations have not been identified for alternatives; therefore, permanent impacts to agricultural resources were estimated for alternatives based on the following assumptions:

- Types of crops and classifications of farmland within a half-mile radius of proposed new 230 kV transmission lines were calculated using existing GIS data for each alternative.
- Each new 230 kV transmission pole would have a permanent footprint of 0.0113 acre (approximate average for each proposed project pole). The per-pole acreage was multiplied by the total number of new poles for each alternative to estimate the footprint of permanent impacts.
- Types of crops and classifications of farmland in areas where vegetation would be permanently removed are assumed to be proportional to what is in the half-mile radius, and this proportion was applied to the estimated permanent impacts for each alternative.

Temporary construction impacts to agricultural resources resulting from the alternatives are assumed to be similar to the proposed project and the same APMs and BMPs would be implemented; therefore, construction impacts are not discussed here.

6.1.2.1 Proposed Project

As discussed in Section 5.2, the project would not result in any significant impacts to agriculture or forestry resources and no mitigation is required. The CEQA Checklist criteria and conclusions for the project are shown in Table 6.1-2. A summary of the impact analysis from Section 5.2 also follows.

Table 6.1-2. CEQA Checklist Criteria for Agriculture and Forestry Resources

Criterion	Impact Assessment
Would the project 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 land?	Less-than-Significant Impact
Would the project conflict with existing zoning for agricultural use, or a Williamson Act contract?	Less-than-Significant Impact

Criterion	Impact Assessment
Would the project conflict with existing zoning for, or cause rezoning of, forest land (as defined by Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?	No Impact
Would the project result in the loss of forest land or conversion of forest land to nonforest uses?	No Impact
Would the project involve other changes in the existing environment, which, due to their location or nature, could result in the conversion of farmland to nonagricultural use or conversion of forest land to nonforest use?	No Impact

Approximately 0.03 acre of walnut crops and approximately 0.01 acre of almond crops are estimated to be permanently removed as a result of the project. The primary crop that would be temporarily or permanently removed by the proposed PG&E project components is grapes. Approximately 1.14 acres of grapes are anticipated to be permanently removed.

The construction of the new PG&E transmission lines (approximately 57 tubular steel pole structures in Important Farmland) would permanently convert approximately 0.44 acres of Prime Farmland, approximately 0.16 acre of Unique Farmland, and approximately 0.14 acre of Farmland of Statewide Importance to nonagricultural uses associated with electrical infrastructure (refer to Table 5.2-1 in Section 5.2). The modification of the existing PG&E Lockeford Substation would permanently convert approximately 0.49 acre of Prime Farmland and approximately 0.18 acre of Farmland of Statewide Importance to accommodate the expanded footprint on the north side of the existing facilities fence line. A total of approximately 1.41 acres of Important Farmland would be permanently impacted and permanently converted to nonagricultural use.

During project construction, approximately 43.16 acres of lands under Williamson Act contracts will be taken out of production to accommodate PG&E construction activities, delivery and staging of construction materials, installing poles and lines, and construction crew access. Electric utility facility construction and maintenance activities are considered compatible uses of contracted Williamson Act lands under GC Section 51238. Potential project construction and maintenance activities are temporary and will have minimal impacts on Williamson Act land.

6.1.2.2 Central Route Alternative

Environmental Setting

The environmental setting for agriculture and forestry resources for the Central Route Alternative is similar to the proposed project setting. The footprint of this alternative does not contain any forest land, the same as the proposed project. The corridor for the western segment of the new 230 kV line would be approximately 1 mile north of the project corridor through existing vineyards, orchards, forage cropland, and other agricultural crops.

The eastern segment of the new 230 kV transmission line would be the same as the proposed project, with the same location and environmental setting. Substation components of this alternative are the same as the proposed project and are, therefore, in the same locations with the same environmental setting as the proposed project.

Potential Impacts

Approximately 0.07 acre of walnut crops and 0.005 acre of almond crops are estimated to be permanently removed as a result of the Central Route Alternative. Approximately 0.34 acre of grapes are estimated to be permanently removed.

The construction of the new PG&E transmission line poles is estimated to permanently convert approximately 0.37 acre of Prime Farmland, approximately 0.23 acre of Unique Farmland, and approximately 0.08 acre of Farmland of Statewide Importance to nonagricultural uses associated with electrical infrastructure. The modification of the existing PG&E Lockeford Substation would permanently convert approximately 0.49 acre of Prime Farmland and approximately 0.18 acre of Farmland of Statewide Importance to accommodate the expanded footprint on the north side of the existing facilities fence line. A total of approximately 1.35 acres of Important Farmland is estimated to be permanently converted to nonagricultural use.

Similar to the project, construction activities of the Central Route Alternative are expected to temporarily impact lands under Williamson Act contracts.

6.1.2.3 Northern Route Alternative

Environmental Setting

The environmental setting for agriculture and forestry resources for the Northern Route Alternative is similar to the project setting. The footprint of this alternative does not contain any forest land, the same as the proposed project. The corridor for the new 230 kV line would be approximately 1 mile north of the project corridor, except for the segment approximately between PG&E Lockeford Substation and one-quarter mile west of Linn Road, where the setting would be the same as the proposed project. The farmland in the vicinity of the Northern Route Alternative 230 kV transmission line includes vineyards, orchards, forage cropland, and other agricultural crops.

Substation components of this alternative are the same as the proposed project and are, therefore, in the same locations with the same environmental setting as the proposed project.

Potential Impacts

Approximately 0.1 acre of walnut crops and 0.01 acre of almond crops are estimated to be permanently removed as a result of the Northern Route Alternative. Approximately 0.31 acre of grapes are estimated to be permanently removed.

The construction the new PG&E transmission lines poles is estimated to permanently convert approximately 0.38 acre of Prime Farmland, approximately 0.22 acre of Unique Farmland, and approximately 0.08 acre of Farmland of Statewide Importance to nonagricultural uses associated with electrical infrastructure. The modification of the existing PG&E Lockeford Substation would permanently convert approximately 0.49 acre of Prime Farmland and approximately 0.18 acre of Farmland of Statewide Importance to accommodate the expanded footprint on the north side of the existing facilities fence line. A total of approximately 1.35 acres of Important Farmland is estimated to be permanently converted to nonagricultural use.

Similar to the project, construction activities of the Northern Route Alternative are expected to temporarily impact lands under Williamson Act contracts.

6.1.2.4 Lockeford-Lodi Area 230 kV Development (Eight Mile Substation) Alternative

Environmental Setting

The environmental setting for agriculture and forestry resources for the Lockeford-Lodi Area 230 kV Development (Eight Mile Substation) Alternative is similar to the project setting. The footprint of this alternative does not contain any forest land, same as the project. The corridor for the segment of the new 230 kV line between PG&E Lockeford Substation and LEU Industrial Substation would be approximately 1 mile north of the project corridor through existing vineyards, orchards, forage cropland, and other agricultural crops and would overlap much of the corridors for the Central Route and Northern Route Alternatives.

The rest of this alternative's new 230 kV transmission line corridor would run south of LEU Industrial Substation and then west to PG&E Eight Mile Substation. This segment of the new transmission line also runs through existing vineyards, orchards, forage cropland, and other agricultural crops.

Potential Impacts

Approximately 0.11 acre of walnut crops and 0.06 acre of almond crops are estimated to be permanently removed as a result of the Lockeford-Lodi Area 230 kV Development (Eight Mile Substation) Alternative. Approximately 0.48 acre of grapes are estimated to be permanently removed.

The construction of the new PG&E transmission line poles is estimated to permanently convert approximately 0.81 acre of Prime Farmland, approximately 0.18 acre of Unique Farmland, and approximately 0.29 acre of Farmland of Statewide Importance to nonagricultural uses associated with electrical infrastructure. A total of approximately 1.9 acres of Important Farmland is estimated to be permanently converted to nonagricultural use due to new poles. The expansion of the PG&E Eight Mile Substation would be required for this alternative. Depending on the design of the expansion, this alternative could result in the additional permanent conversion of up to approximately 1.5 acres of Important Farmland to non-agricultural use.

Similar to the project, construction activities of the Lockeford-Lodi Area 230 kV Development (Eight Mile Substation) Alternative are expected to temporarily impact lands under Williamson Act contracts.

6.1.3 Biological Resources

This section summarizes the impacts to biological resources that would be likely to occur as a result of project implementation. It also provides a brief description of the environmental setting and potential construction (temporary) and permanent impacts of the three alternatives. No field surveys were performed for the alternatives; potential impacts were identified using data gathered from project field surveys and from existing documentation and data. Although new transmission pole locations have not been identified for alternatives, it is assumed that new poles could be sited to avoid waterways, wetlands, or rare plants identified in surveys.

6.1.3.1 Proposed Project

As discussed in Section 5.4, the proposed project would not result in any significant impacts to biological resources and no mitigation is required. The CEQA Checklist and CPUC criteria and conclusions for the project are shown in Table 6.1-3. A summary of the impact analysis from Section 5.4 also is provided.

Table 6.1-3. CEQA Checklist Criteria and CPUC Criteria for Biological Resources

Criterion	Impact Assessment
Would the project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or the U.S. Fish and Wildlife Service?	Less-than-Significant Impact
Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	No Impact
Would the project have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including marsh, vernal pool, coastal, and others) through direct removal, filling, hydrological interruption, or other means?	Less-than-Significant Impact

Criterion	Impact Assessment
Would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	Less-than-Significant Impact
Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	Less-than-Significant Impact
Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	No Impact
Would the project create a substantial collision or electrocution risk for birds or bats?	Less-than-Significant Impact

Only two species of special-status plants – succulent owl's-clover (*Castilleja campestris var. succulenta*) and Sanford's arrowhead (*Sagittaria sanfordii*) – were determined to have the potential to occur in and adjacent to the proposed project's BSA based on the presence of potentially suitable habitat and known occurrences in the vicinity. However, rare plants were not observed within areas of suitable habitat during appropriately timed botanical surveys, and the mesic habitats that they are associated with will not be impacted during project construction.

Suitable habitat for seven special-status wildlife species was identified in the proposed project's BSA. These species include Valley elderberry longhorn beetle, tricolored blackbird, burrowing owl, Swainson's hawk, white-tailed kite, bank swallow, and yellow warbler. Project APMs and BMPs, such as avoiding and protecting nesting birds, would prevent significant impacts to special-status wildlife species. Two large elderberry shrubs are in or near the project footprint, within or adjacent to the confines of PG&E Lockeford Substation, and would be marked and avoided, as feasible, during construction to avoid or minimize potential impacts to Valley elderberry longhorn beetle.

Riparian vegetation exists within the BSA; however, it is not present within the proposed project footprint. There are work activities in proximity to riparian habitats, including free spans over several creeks; however, with implementation of APMs and BMPs, the potential for indirect impacts to riparian corridors and other sensitive natural communities will not occur.

Although seasonal wetlands, natural watercourses, constructed watercourses, and drainage ditches are present in the BSA, none are within the proposed project footprint, and none will be impacted. The new transmission lines will span both Bear Creek (a perennial stream) and Paddy Creek (an intermittent stream), although neither will be impacted.

Trimming or removal of oaks may be necessary for construction access and would be conducted by a certified arborist to avoid impacting tree health or to make the decision to remove the tree if trimming is not feasible.

There also is potential for avian interactions with PG&E power lines and structures, including collisions and electrocutions. PG&E would minimize the potential for electrocution or accidental line collision by constructing electrical lines in accordance with avian-safe construction standards. Conductors and ground wires would be spaced sufficiently apart so that raptors would not be electrocuted and all transmission, power, and station facilities for the proposed project will be designed to be avian safe, as appropriate and feasible, following the intent of *Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006* (APLIC 2006, 2012).

6.1.3.2 Central Route Alternative

Environmental Setting

The environmental setting for biological resources for the Central Route Alternative is similar to the proposed project setting. The corridor for the western segment of the new 230 kV line would be approximately 1 mile north of the proposed project corridor, through similar topography and habitats as the proposed project.

The eastern segment of the new 230 kV transmission line would be in the same location as the proposed project, with the same location and environmental setting. Substation components of this alternative are the same as the proposed project and are, therefore, in the same locations with the same environmental setting as the proposed project.

Similar to the proposed project, the upland areas along and near the Central Route Alternative are primarily hardscaped (pavement and sidewalks), otherwise developed/landscaped, agricultural land, or previously disturbed land and include primarily ruderal or non-native species. The Central Route Alternative location was included in the area of the CNDDB and CNPS database searches. Given the similar habitats, it is expected that the same special-status species would potentially be present for the Central Route Alternative as for the proposed project. Seasonal wetlands, Bear Creek and Paddy Creek, constructed watercourses, and drainage ditches also are present along or near the Central Route Alternative.

Potential Impacts

Impacts to biological resources from the Central Route Alternative would be expected to be similar to the proposed project and be less than significant. New transmission line poles are assumed to be sited to avoid rare plants, riparian habitat, seasonal wetlands, Bear Creek and Paddy Creek, constructed watercourses, and drainage ditches. Trimming or removal of oaks may be necessary for construction access and would be conducted by a certified arborist to avoid impacting tree health or to make the decision to remove the tree if trimming is not feasible. The same APMs and BMPs as the proposed project, such as avoiding and protecting nesting birds, would be implemented to avoid significant impacts to special-status wildlife species. PG&E would minimize the potential for electrocution or accidental line collision by constructing electrical lines in accordance with avian-safe construction standards.

6.1.3.3 Northern Route Alternative

Environmental Setting

The environmental setting for biological resources for the Northern Route Alternative is similar to the proposed project setting. The corridor for the western segment of the new 230 kV line would be approximately 1 mile north of the project corridor through similar topography and habitats as the proposed project.

The eastern segment of the new 230 kV transmission line would be in the same location as the proposed project between PG&E Lockeford Substation and approximately one-quarter mile west of Linn Road, with the same location and environmental setting. The remainder of the eastern segment of the Northern Route Alternative is approximately 1 mile north of the proposed project through similar topography and habitats as the proposed project. Substation components of this alternative are the same as the proposed project and are, therefore, in the same locations with the same environmental setting as the proposed project.

Similar to the proposed project, the upland areas along and near the Northern Route Alternative are primarily hardscaped (pavement and sidewalks), otherwise developed/landscaped, agricultural land, or previously disturbed land and include primarily ruderal or non-native species. The Northern Route Alternative location was included in the area of the CNDDB and CNPS database searches. Given the similar

habitats, it is expected that the same special-status species would potentially be present for the Northern Route Alternative as for the project. Seasonal wetlands, Bear Creek and Paddy Creek, constructed watercourses, and drainage ditches also are present along or near the Northern Route Alternative.

Potential Impacts

Impacts to biological resources from the Northern Route Alternative would be expected to be similar to the proposed project and be less than significant. New transmission line poles are assumed to be sited to avoid rare plants, riparian habitat, seasonal wetlands, Bear Creek and Paddy Creek, constructed watercourses, and drainage ditches. Trimming or removal of oaks may be necessary for construction access and would be conducted by a certified arborist to avoid impacting tree health or to make the decision to remove the tree if trimming is not feasible. The western segment of the new 230 kV transmission line would enter PG&E Lockeford Substation on the north side, similar to the proposed project, where the elderberry shrubs are located. As with the proposed project, these shrubs would be marked and avoided. The same APMs and BMPs as the proposed project, such as avoiding and protecting nesting birds, would be implemented to avoid significant impacts to special-status wildlife species. PG&E would minimize the potential for electrocution or accidental line collision by constructing electrical lines in accordance with avian-safe construction standards.

6.1.3.4 Lockeford-Lodi Area 230 kV Development (Eight Mile Substation) Alternative

Environmental Setting

The environmental setting for biological resources for the Lockeford-Lodi Area 230 kV Development (Eight Mile Substation) Alternative is similar to the proposed project setting. The corridor for the new 230 kV transmission line between PG&E Lockeford Substation and LEU Industrial Substation would be similar to alignments of the Central Route Alternative and the Northern Route Alternative, which are approximately 0.5 mile north of the western segment of the proposed project's new 230 kV transmission line. Although the segment of the new 230 kV transmission line between LEU Industrial Substation and PG&E Eight Mile Substation for this alternative extends farther south and east than the proposed project, it is located in similar topography and land uses as the proposed project.

This alternative includes components at PG&E Lockeford Substation and LEU Industrial Substation, which are also part of the proposed project footprint and have the same locations with the same environmental setting as the proposed project. The alternative also includes modifications and expansion at the existing PG&E Eight Mile Substation, which is located on a developed parcel adjacent to farmland, similar to the other substations.

Similar to the proposed project, the upland areas along and near the Lockeford-Lodi Area 230 kV Development (Eight Mile Substation) Alternative are primarily hardscaped (pavement and sidewalks), otherwise developed/landscaped, agricultural land, or previously disturbed land and include primarily ruderal or non-native species. The Lockeford-Lodi Area 230 kV Development (Eight Mile Substation) Alternative location was included in the area of the CNDDB and CNPS database searches. Given the similar habitats, it is expected that the same special-status species would potentially be present for this alternative as for the proposed project. Seasonal wetlands, Bear Creek, constructed watercourses, and drainage ditches also are present along or near the alternative.

Potential Impacts

Impacts to biological resources from the Lockeford-Lodi Area 230 kV Development (Eight Mile Substation) Alternative would be expected to be similar to the proposed project and be less than significant. New transmission line poles are assumed to be sited to avoid rare plants, riparian habitat, seasonal wetlands, Bear Creek, constructed watercourses, and drainage ditches. Similar construction activities as the proposed project, though with a smaller footprint, would occur at PG&E Lockeford Substation. Expansion of PG&E Eight Mile Substation could occur on land in agricultural use adjacent to

the substation. The same APMs and BMPs as the proposed project, such as avoiding and protecting nesting birds, would be implemented to avoid significant impacts to special status wildlife species. PG&E would minimize the potential for electrocution or accidental line collision by constructing electrical lines in accordance with avian-safe construction standards.

6.1.1 Land Use

This section summarizes the impacts to land use that would be likely to occur as a result of project implementation. It also provides a brief description of the environmental setting and potential permanent impacts of the three alternatives. Potential impacts of alternatives were identified using existing documentation and data.

6.1.3.5 Proposed Project

As discussed in Section 5.11, the proposed project would not result in any significant impacts to land use and no mitigation is required. The CEQA Checklist criteria and conclusions for the proposed project are shown in Table 6.1-4. A summary of the impact analysis from Section 5.11 also is provided in the following sections.

Table 6.1-4. CEQA Checklist Criteria for Land Use

Criterion	Impact Assessment
Would the project physically divide an established community?	No Impact
Would the project 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?	No Impact
Would the project conflict with any applicable habitat conservation plan or natural community conservation plan?	No Impact

No project features or other built components would be implemented that would otherwise introduce a new barrier that physically divides an established community. The project components would not introduce conflicts with the existing *San Joaquin County General Plan* (San Joaquin County 2016) or *City of Lodi General Plan* (City of Lodi 2010).

California GC Section 51238 states that "… the erection, construction, alteration, or maintenance of gas, electric, water, communication, or agricultural laborer housing facilities are hereby determined to be compatible uses within any agricultural preserve." Because of the compatible uses of electric lines and substations, no conflict with existing zoning for agricultural use would occur.

Within the City of Lodi, project facilities are located on land that is currently zoned for Industrial and Public/Quasi-Public uses. According to Section 17.24.030 of the *City of Lodi Municipal Code*, utility facilities are permitted within the industrial land use area with a use permit. According to Section 17.26.060 of the *City of Lodi Municipal Code*, utility facilities are permitted by right within the Public/Quasi-Public district (MuniCode 2021). The proposed project is not located within 2 miles of private airports or airstrips.

San Joaquin County has the SJMSCP, which identifies utility installation and maintenance activities as a permitted activity and compensates for conversions of open space for utility installations and maintenance activities (SJCOG 2000).

6.1.3.6 Central Route Alternative

Environmental Setting

The environmental setting for land use for the Central Route Alternative is similar to the proposed project setting. The new 230 kV transmission line for this alternative would be located in an area designated as General Agriculture land use per the *San Joaquin County General Plan*, other than crossings of Bear Creek and Paddy Creek, which are designated as Open Space/Resource Conservation. The transmission line would be located in General Agriculture zoning per the *San Joaquin County Municipal Code* (MuniCode 2022). Facilities within the City of Lodi boundary would be located on lands designated and zoned for Industrial land use and Public/Quasi-Public use per the *City of Lodi General Plan* and the *City of Lodi Municipal Code*.

Potential Impacts

Impacts to land use from the Central Route Alternative would be expected to be similar to the proposed project and be less than significant or have no impact. The alternative would not divide an established community or introduce conflicts with the existing *San Joaquin County General Plan* or *City of Lodi General Plan*. The alternative is not located within 2 miles of private airports or airstrips. The facilities are allowed uses by the general plans, zoning codes, and SJMSCP, as discussed previously for the proposed project.

6.1.3.7 Northern Route Alternative

Environmental Setting

The environmental setting for land use for the Northern Route Alternative is similar to the proposed project setting. The new 230 kV transmission line for this alternative would be located in an area designated as General Agriculture land use per the *San Joaquin County General Plan*, other than crossings of Bear Creek and Paddy Creek, which are designated as Open Space/Resource Conservation. The transmission line would be located in General Agriculture zoning per the *San Joaquin County Municipal Code*. Facilities within the City of Lodi boundary would be located on lands designated and zoned for Industrial land use and Public/Quasi-Public use per the *City of Lodi General Plan* and the *City of Lodi Municipal Code*.

Potential Impacts

Impacts to land use from the Northern Route Alternative would be expected to be similar to the proposed project and be less than significant or have no impact. The alternative would not divide an established community or introduce conflicts with the existing *San Joaquin County General Plan* or *City of Lodi General Plan*. The alternative is not located within 2 miles of private airports or airstrips. The facilities are allowed uses by the general plans, zoning codes, and SJMSCP, as discussed previously for the proposed project.

6.1.3.8 Lockeford-Lodi Area 230 kV Development (Eight Mile Substation) Alternative

Environmental Setting

The environmental setting for land use for the Lockeford-Lodi Area 230 kV Development (Eight Mile Substation) Alternative is similar to the proposed project setting. The new 230 kV transmission line between PG&E Lockeford Substation and LEU Industrial Substation for this alternative would be located in an area designated as General Agriculture land use per the *San Joaquin County General Plan*. The new 230 kV transmission line between LEU Industrial Substation and PG&E Eight Mile Substation primarily would be located in an area designated as General Agriculture land use, except for two Bear Creek crossings, which are designated as Open Space/Resource Conservation, and the western end of this

segment, which runs through an Agriculture-Urban Reserve designation. The transmission lines and the expansion area for PG&E Eight Mile Substation would be located in General Agriculture zoning per the *San Joaquin County Municipal Code*, except for a small portion south of the City of Lodi zoned as Limited Agriculture. Facilities within the City of Lodi boundary would be located on lands designated and zoned for Industrial land use and Public/Quasi-Public use per the *City of Lodi General Plan* and the *City of Lodi Municipal Code*.

Potential Impacts

Most impacts to land use from the Lockeford-Lodi Area 230 kV Development (Eight Mile Substation) Alternative would be expected to be similar to the proposed project and be less than significant or have no impact. The alternative would not divide an established community or introduce conflicts with the existing *San Joaquin County General Plan* or *City of Lodi General Plan*. The facilities are allowed uses by the general plans, zoning codes, and SJMSCP, as discussed previously for the project. The alternative, however, would be located within 2 miles of Lodi Airpark and Kingdon Airpark.

6.1.4 Noise

This section summarizes the impacts associated with noise that would be likely to occur as a result of project implementation. It also provides a brief description of the environmental setting and potential impacts of the three alternatives. No noise modeling was performed for the alternatives; potential impacts were identified using existing documentation and data. Temporary noise impacts from construction activities for the alternatives are assumed to be similar to the proposed project and the same APMs and BMPs would be implemented; therefore, construction impacts are not discussed here.

6.1.4.1 Proposed Project

As discussed in Section 5.13, the proposed project would not result in any significant noise-related impacts and no mitigation is required. The CEQA Checklist criteria and conclusions for the proposed project are shown in Table 6.1-5. A summary of the impact analysis from Section 5.13 also is provided in the following sections.

Table 6.1-5. CEQA Checklist Criteria for Noise

Criterion	Impact Assessment
Would the project generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	Less-than-Significant Impact
Would the project generate excessive groundborne vibration or groundborne noise levels?	Less-than-Significant Impact
For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	No Impact

Although the proposed project is exempt from local land use and zoning regulations, nevertheless it will be consistent with the local noise ordinance. San Joaquin County exempts noise from construction activities that take place between 6:00 a.m. and 9:00 p.m. At each structure location, construction activities will be short term (typically several days) and temporary, and are planned to take place between 7:00 a.m. and 7:00 p.m. It is also possible that construction beyond these hours may be necessary to reach a safe stopping point. If construction outside of these hours is necessary to accommodate planned electrical outages (clearances) scheduled at night, PG&E will implement APMs that require advance notice to property owners near construction activities. Because the County noise ordinance recognizes exceptions to these hours for emergency work and other exigencies, and any such work near a sensitive receptor will

be brief, the project will be consistent with the noise policies contained in these ordinances, even in the unlikely event that work outside the prescribed hours is required.

Helicopter use is proposed primarily for the conductor stringing operation. Helicopters generally will be staged and fueled at Lodi Airpark, Lodi Airport, or Kingdon Airpark. Temporary landing zones will be established at intervals of approximately 6 miles along the transmission line route; these landing zones will be collocated with pull and tension sites, staging areas, or structure work areas. In each temporary landing zone or staging area, there will be a designated area for helicopter takeoff and landing. The noise assessment concludes that a limited number of residences could experience temporary, but potentially substantial, annoyance caused by intermittent helicopter activity. To minimize the potential concerns from noise emitted by helicopter construction activity, APM NOI-6 establishes that helicopter landing zones be located at least 500 feet from occupied residences where feasible.

Corona noise associated with moisture on the new electrical wires is anticipated to be minimal. These calculated levels are below the level of San Joaquin County performance standards of 70 A-weighted decibels (dBA) maximum sound level, as well as the EPA outdoor activities noise guideline of 55 dBA and are similar to the range of audible noise levels measured in general rain conditions (41 to 63 dBA) (EPA 1974; Miller 1978). Under fair weather conditions, EPA estimates audible noise levels would be approximately 20 dBA lower (if corona were present). These noise levels are below the sound level for existing noise levels identified at PG&E Lockeford Substation and PG&E Thurman Switching Station. Audible noise levels will decrease with distance away from the PG&E 230 kV transmission line. No increases in noise from the existing PG&E Lockeford Substation equipment is expected from the proposed modifications to the bus work.

The modifications at LEU Industrial Substation are not expected to change the operational noise emitted from the substation. For modifications at LEU Guild Substation, the sound level at the boundary of Lodi Memorial Park and Cemetery is predicted to be 38 dBA, which is less than the applicable code requirement. Residences are located farther away, and the substation sound level would be less and also be consistent with the applicable code.

6.1.4.2 Central Route Alternative

Environmental Setting

The environmental setting for noise for the Central Route Alternative is similar to the proposed project setting. As with the proposed project, this alternative is located in an agricultural setting intermixed with residences, commercial, industrial, and open space areas. The segment of the Central Route Alternative new 230 kV transmission line between the Brighton-Bellota 230 kV Line and approximately 1.25 miles west of PG&E Lockeford Substation is in the same location as the proposed project and would be within 1,000 feet of the same sensitive users (residences) as the proposed project. The remainder of the new 230 kV transmission line, west to LEU Industrial Substation, also would be within 1,000 feet of scattered rural residences. Substation modifications are the same as the proposed project and, therefore, in the same locations.

Potential Impacts

Impacts related to noise from the Central Route Alternative would be expected to be similar to the proposed project. Construction activities would be similar and consistent with the local noise ordinance. Corona noise associated with moisture on the new electrical wires and noise from new or modified equipment at the substations would be expected to be similar to the proposed project.

6.1.4.3 Northern Route Alternative

Environmental Setting

The environmental setting for noise for the Northern Route Alternative is similar to the proposed project setting. As with the proposed project, this alternative is located in an agricultural setting intermixed with residences, commercial, industrial, and open space areas. The segment of the Northern Route Alternative new 230 kV transmission line between the Brighton-Bellota 230 kV Line and approximately 1 mile west of PG&E Lockeford Substation, and the westernmost approximately 1-mile segment, are in the same locations as the proposed project and would be within 1,000 feet of the same sensitive users (residences) as the proposed project. The remainder of the new 230 kV transmission line also would be within 1,000 feet of scattered rural residences. Substation modifications are the same as the proposed project and, therefore, in the same locations.

Potential Impacts

Impacts related to noise from the Northern Route Alternative would be expected to be similar to the proposed project. Construction activities would be similar and consistent with the local noise ordinance. Corona noise associated with moisture on the new electrical wires and noise from new or modified equipment at the substations would be expected to be similar to the proposed project.

6.1.4.4 Lockeford-Lodi Area 230 kV Development (Eight Mile Substation) Alternative

Environmental Setting

The environmental setting for noise for the Lockeford-Lodi Area 230 kV Development (Eight Mile Substation) Alternative is similar to the proposed project setting. As with the proposed project, this alternative is located in an agricultural setting intermixed with residences, commercial, industrial, and open space areas. The Lockeford-Lodi Area 230 kV Development (Eight Mile Substation) Alternative new 230 kV transmission line between LEU Industrial Substation and PG&E Lockeford Substation is approximately 0.5 mile north of the proposed project and would be within 1,000 feet of a similar number of users (residences) as the proposed project. PG&E Lockeford Substation and LEU Industrial Substation modifications are similar to the proposed project and are in the same locations. PG&E Eight Mile Substation is within approximately 1,000 feet of Interstate 5, commercial and agricultural uses, and a small number of residences.

Potential Impacts

Impacts related to noise from the Lockeford-Lodi Area 230 kV Development (Eight Mile Substation) Alternative would be expected to be similar to the proposed project. Construction activities would be similar and consistent with the local noise ordinance. Corona noise associated with moisture on the new electrical wires and noise from new or modified equipment at the substations would be expected to be similar to the proposed project.

6.2 Alternatives Ranking

Table 6.2-1 summarizes the comparison of the alternatives with the proposed project. As shown in Table 6.2-1, the No Project Alternative would be the environmentally superior alternative. CEQA Guidelines Section 15126.6(e) states that “if the environmentally superior alternative is the ‘no project’ alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives.”

The proposed project would be the environmentally superior alternative among the other alternatives. All project impacts would be less than significant. The Central Alternative and Northern Alternative would also have less-than-significant impacts and most impacts would be comparable to the project, given the

similar lengths of the new transmission lines. For example, the quantified estimates for agricultural impacts and the potential biological impacts are similar. However, these two alternatives would have more noticeable aesthetic impacts due to the location of the lines. They would increase by at least 50% the number of residences within 250 feet of the new PG&E 230 kV transmission lines compared to the project. Additionally, both alternatives would be within 250 feet of a winery. They are nearer, and hence more visible, to the designated scenic portion of SR 88 than the project.

Given the much longer new transmission line with the Lockeford-Lodi Area 230 kV Development Alternative, it would have noticeably greater impacts than the proposed project. For example, this alternative would result in the permanent conversion of approximately 25% more Important Farmland than the proposed project. Seven times as many residences would be within 250 feet of the new PG&E transmission lines compared to the proposed project. It also would cross a state designated scenic highway. It is also within 2 miles of two airports.

Community and public information informed the identification of the proposed project. Community and public stakeholders expressed concern with the impacts to agricultural land use and distance from the alignments to local thoroughfares, residences, and retail wineries during community and public outreach, including the July 2019 open houses. The proposed project has the least number of residences within 250 feet, no wineries within 250 feet, and is not immediately adjacent to major thoroughfares valued by the community while increasing alignment with field edges.

Table 6.2-1. Alternatives Comparison Summary and Ranking

Ranked Alternatives[a]	Aesthetics	Agriculture and Forestry Resources	Biological Resources	Land Use	Noise
1. No Project	No effect on views, visual character, or scenic vistas.	No impacts to agriculture and forestry resources	No impacts to biological resources.	No direct impacts to land use.	No impacts associated with noise.
2. Proposed Project	No significant impacts and no mitigation required. Approximately 12 residences within 250 feet of new approximately 10.6-mile 230 kV transmission line corridor. No wineries within 250 feet of new 230 kV transmission line. One crossing of a local scenic roadway (North Jack Tone Road). One crossing of SR 88 approximately 4 miles south of a local scenic designation.	Approximate permanent impacts from PG&E Lockeford Substation components: • Conversion of approximately 0.49 acre of land designated as Prime Farmland and approximately 0.18 acre of land designated as Farmland of Statewide Importance, not currently used for agriculture Approximate permanent impacts from other project components (new transmission poles): • Permanent removal of approximately 0.03 acre of walnuts, approximately 0.01 acre of almonds, and approximately 1.14 acres of grapes • Conversion of approximately 0.44 acres designated as Prime Farmland, approximately 0.16 acre designated as Unique Farmland, and approximately 0.14 acre designated as Farmland of Statewide Importance to nonagricultural uses	Components within/adjacent to PG&E Lockeford Substation: • Two large elderberry shrubs are in the project footprint and will be marked and avoided, as feasible, during construction, which will prevent or minimize potential impact Other project components: • Rare plants were not observed within areas of suitable habitat during appropriately timed botanical surveys, and the mesic habitats that they are associated with will not be impacted during project construction. • Project APMs and BMPs avoid significant impacts to special-status wildlife species. • One crossing each of Bear Creek and Paddy Creek (no direct or indirect construction impacts). • No wetlands in project footprint. • Conductors and ground wires would be spaced sufficiently apart so that raptors would not be electrocuted and all transmission, power, and station facilities for the project will be designed to be avian-safe, as appropriate and feasible.	Project components would not introduce a new barrier that physically divides an established community. Project components would not introduce conflicts with the existing *San Joaquin County General Plan* or *City of Lodi General Plan*. The project is not located within 2 miles of private airports or airstrips. The project would not conflict with the SJMSCP or any applicable Habitat Conservation Plan.	The project will be consistent with the local noise ordinance during construction. A limited number of residences could experience temporary, but potentially substantial, annoyance caused by intermittent helicopter activity. APMs and BMPs would minimize potential concerns from noise emitted by helicopter construction activity. Corona noise is calculated to be below County and EPA performance standards. Noise from operation of substation equipment will not exceed established standards.
3. Central Route	No significant impacts and no mitigation required. Approximately 18 residences within 250 feet of new approximately 10.04-mile 230 kV transmission line corridor. One winery is within 250 feet of new 230 kV transmission line. One crossing of a local scenic roadway (North Jack Tone Road) at the same location as the project. One crossing of SR 88 approximately 3.5 miles south of a local scenic designation.	Approximate permanent impacts from PG&E Lockeford Substation components: • Conversion of approximately 0.49 acre of land designated as Prime Farmland and approximately 0.18 acre of land designated as Farmland of Statewide Importance, not currently used for agriculture Approximate permanent impacts from other project components (new transmission poles): • Permanent removal of approximately 0.07 acre of walnuts, approximately 0.005 acre of almonds, and approximately 0.34 acre of grapes • Conversion of approximately 0.37 acre designated as Prime Farmland, approximately 0.23 acre designated as Unique Farmland, and approximately 0.08 acre designated as Farmland of Statewide Importance to nonagricultural uses	Components within/adjacent to PG&E Lockeford Substation: • Two large elderberry shrubs are in the project footprint and will be marked and avoided, as feasible, during construction, which will prevent or minimize potential impact Other project components: • It is assumed new transmission pole locations would be selected to avoid rare plants, wetlands, and riparian areas. • Applicable APMs and BMPs avoid significant impacts to special-status wildlife species. • One crossing each of Bear Creek and Paddy Creek (no direct or indirect construction impacts assumed). • Conductors and ground wires would be spaced sufficiently apart so that raptors would not be electrocuted and all transmission, power, and station facilities for the project will be designed to be avian-safe, as appropriate and feasible.	Project components would not introduce a new barrier that physically divides an established community. Project components would not introduce conflicts with the existing *San Joaquin County General Plan* or *City of Lodi General Plan*. The project is not located within 2 miles of private airports or airstrips. The project would not conflict with the SJMSCP or any applicable Habitat Conservation Plan.	Impacts expected to be similar to the proposed project.

Ranked Alternatives[a]	Aesthetics	Agriculture and Forestry Resources	Biological Resources	Land Use	Noise
4. Northern Route	No significant impacts and no mitigation required. Approximately 21 residences within 250 feet of new approximately 10.39-mile 230 kV transmission line corridor. One winery is within 250 feet of new 230 kV transmission line. One crossing of a local scenic roadway (North Jack Tone Road) at the same location as the project. One crossing of SR 88 approximately 3.5 miles south of a local scenic designation.	Approximate permanent impacts from PG&E Lockeford Substation components: • Conversion of approximately 0.49 acre of land designated as Prime Farmland and approximately 0.18 acre of land designated as Farmland of Statewide Importance, not currently used for agriculture Approximate permanent impacts from other project components (new transmission poles): • Permanent removal of approximately 0.1 acre of walnuts, approximately 0.01 acre of almonds, and approximately 0.31 acre of grapes • Conversion of approximately 0.38 acre designated as Prime Farmland, approximately 0.22 acre designated as Unique Farmland, and approximately 0.08 acre designated as Farmland of Statewide Importance to nonagricultural uses	Components within/adjacent to PG&E Lockeford Substation: • Two large elderberry shrubs are in the project footprint and will be marked and avoided, as feasible, during construction, which will prevent or minimize potential impact Other project components: • It is assumed new transmission pole locations would be selected to avoid rare plants, wetlands, and riparian areas. • Applicable APMs and BMPs avoid significant impacts to special-status wildlife species. • One crossing each of Bear Creek and Paddy Creek (no direct or indirect construction impacts assumed). • Conductors and ground wires would be spaced sufficiently apart so that raptors would not be electrocuted and all transmission, power, and station facilities for the project will be designed to be avian-safe, as appropriate and feasible.	Project components would not introduce a new barrier that physically divides an established community. Project components would not introduce conflicts with the existing *San Joaquin County General Plan* or *City of Lodi General Plan*. The project is not located within 2 miles of private airports or airstrips. The project would not conflict with the SJMSCP or any applicable Habitat Conservation Plan.	Impacts expected to be similar to the proposed project.
5. Lockeford-Lodi Area 230 kV Development (Eight Mile Substation)	No significant impacts and no mitigation required. Approximately 85 residences within 250 feet of new approximately 19.85-mile 230 kV transmission line corridor. No wineries within 250 feet of new 230 kV transmission line. One crossing of a state and a local scenic highway (Interstate 5) and adjacent to local scenic roadway (Eight Mile Road) for connection and modification to PG&E Eight Mile Substation.	Approximate permanent impacts from PG&E Eight Mile Substation modifications: • Permanent conversion of up to approximately 1.5 acres designated as Important Farmland to non-agricultural uses. Approximate permanent impacts from project components (new transmission poles): • Permanent removal of approximately 0.11 acre of walnuts, approximately 0.06 acre of almonds, and approximately 0.48 acre of grapes • Conversion of approximately 0.81 acre designated as Prime Farmland, approximately 0.18 acre designated as Unique Farmland, and approximately 0.29 acre designated as Farmland of Statewide Importance to nonagricultural uses	Components within/adjacent to PG&E Lockeford Substation: • Two large elderberry shrubs are in the project footprint and will be marked and avoided, as feasible, during construction, which will prevent or minimize potential impact Other project components: • It is assumed new transmission pole locations would be selected to avoid rare plants, wetlands, and riparian areas. • Applicable APMs and BMPs avoid significant impacts to special-status wildlife species. • Several crossings of Bear Creek (no direct or indirect construction impacts assumed). • Conductors and ground wires would be spaced sufficiently apart so that raptors would not be electrocuted and all transmission, power, and station facilities for the project will be designed to be avian-safe, as appropriate and feasible.	Project components would not introduce a new barrier that physically divides an established community. Project components would not introduce conflicts with the existing *San Joaquin County General Plan* or *City of Lodi General Plan*. The project is located within 2 miles of Lodi Airpark and Kingdon Airport. The project would not conflict with the SJMSCP or any applicable Habitat Conservation Plan.	Impacts expected to be similar to the proposed project.

[a] Listed in order from least impacts to greatest impacts.

7 Cumulative and Other CEQA Considerations

This section discusses potential cumulative impacts related to the Northern San Joaquin 230 kV Transmission Project. Cumulative impacts, as defined in Section 15355 of the CEQA Guidelines, refer to two or more individual impacts that, when considered together, are considerable or that compound or increase other environmental impacts. A cumulative impact is the change in the environment that results from the incremental impact of a project when added to other closely related past, present, or reasonably foreseeable future projects. Cumulative impacts can result from individually minor but collectively significant impacts occurring over time.

An analysis of potential cumulative impacts for each relevant resource topic is provided in Section 7.1, immediately following Table 7.1-1, which lists projects within approximately 2 miles of the project area. The projects listed in Table 7.1-1, developed from available information on websites and with input and review by the involved agencies, were included if they had potential environmental impacts, geographic scope and location, and/or timing and duration of implementation similar to those of the Northern San Joaquin 230 kV Transmission Project. The analysis considered the potential cumulative impacts that could result when impacts of the proposed project are considered in combination with impacts of other past, present, and reasonably foreseeable future projects. Some reasonably foreseeable future projects listed in Table 7.1-1 might not be approved or could be modified prior to approval; however, for the purpose of this analysis, approval and construction of identified projects was assumed.

7.1 Cumulative Impacts

Projects included in the cumulative impact assessment were identified by using a list approach (CEQA Guidelines Section 15130(b)(1)(A)), including all pending development projects within an approximately 2-mile radius of the project area. This area includes portions of unincorporated San Joaquin County and the City of Lodi. Table 7.1-1 summarizes these pending development projects.

7.1.1 List of Cumulative Projects

Table 7.1-1 lists cumulative projects in the vicinity of proposed project components that may overlap with the project's construction timeline. The cumulative projects are also shown on Figure 7.1-1. Information was gleaned from the City of Lodi, San Joaquin County Community Development, SJCOG, Caltrans, and other sources such as the Governor's Office of Planning and Research CEQA Net website. For some projects in Table 7.1-1, construction schedule information was not available. For the purposes of the cumulative impact analysis, it was assumed the construction schedule would overlap with the proposed project construction. Two highway projects are included, although they are not in the vicinity of the proposed project, because the highways serve the project area.

According to the City of Lodi, there are no anticipated future City or LEU projects or development within 2 miles of LEU Industrial Substation within the Lodi city limits (Shahriar 2022). One future project within Lodi city limits, sponsored by the SJCOG, was identified and is included in Table 7.1-1 (Church Street Road Diet). The California high-speed rail is currently under Phase 1 construction in the Central Valley; Phase 2 will extend the system to Sacramento and San Diego (California High-Speed Rail Authority 2021). The Merced-to-Sacramento draft route map published in July 2018 appears to route the alignment to the east of the City of Lodi, potentially across the project alignment. However, the proposed rail project is still in early planning stages, a specific location for the rail route has not been identified, and funding has not yet been secured. For these reasons, the high-speed rail project has not been included in the list of cumulative projects.

Table 7.1-1. Cumulative Projects in the Project Vicinity

Map No.	Project Name	Description/Location	Location (in Proximity to the Project)	Project Status and Construction Duration	Source of Project Information
1	Handel Lateral Project (Demonstration Recharge, Extraction, and Aquifer Management (DREAM) Project)	Installation of approximately 2 miles of underground irrigation pipeline, a new pump station, and a control structure, which would provide expanded water delivery services to agricultural lands within a surrounding 700- to 1,000-acre area.	The northern extraction well is located approximately 1.62 miles south of the 230 kV transmission line, southeast of the City of Lodi.	Unknown	Website: Projects – North San Joaquin Water Conservation District (nsjgroundwater.org)
2	Union Pacific Railroad Milepost 70.56 Bridge Replacement, Fresno Subdivision	Project by the CVFPB to replace the existing 14-span, 439-foot-long single track railroad bridge spanning the Mokelumne River.	Approximately 1 mile northeast of PG&E Lodi Substation	Unknown; Notice of Exemption posted Nov. 23, 2022	OPR CEQA Net website: Permit No. 4997-1: Milepost 70.56 Bridge Replacement, Fresno Subdivision (ca.gov)
3	PA-2100295 & PA-2200090—- Use Permit and General Plan Map Amendment for the expansion of an existing agricultural processing facility	The project comprises two components: expand an existing agricultural processing facility by constructing a 96,959-square-foot, two-story agricultural processing building; and change the land use designation of a 17.3-acre parcel from I/T (Truck Terminal) to A/G (General Agriculture). The project is located at 6550 SR 12/East Victor Road, with an entrance at E Pine St and Curry Ave east of the City of Lodi.	Approximately 0.5 mile north-northeast of new 230 kV line, PG&E Thurman Switching Station, and LEU Guild Substation	Unknown; environmental review completed Nov. 2022	San Joaquin County Community Development website: Community Development | San Joaquin County (sjgov.org)
4	PG&E Bellota-Warnerville 230 kV Reconductor	Reinforcement of approximately 23 miles of the Central Valley's 230 kV transmission system from Bellota Substation to Warnerville Substation.	Will connect to the eastern end point of the new NSJ 230 kV transmission line.	Estimated construction from 2021 to 2024	PG&E

Map No.	Project Name	Description/Location	Location (in Proximity to the Project)	Project Status and Construction Duration	Source of Project Information
5	New winery and event center	Application for Use Permit at 16201 N Tretheway Road	Approximately 1 mile northwest of new 230 kV transmission line	Unknown. Revised Mitigated Neg. Declaration completed March 2022	San Joaquin County website Community Development | San Joaquin County (sjgov.org)
6	New Subdivision	Major subdivision application to subdivide 14.57-acre lot into 7 parcels at 9296 East SR 12	Approximately 1.5 miles north of new 230 kV transmission line, near the community of Victor	Unknown. Major Subdivision with site plan submitted to County Commission on Dec. 15, 2022, for approval.	San Joaquin County website Community Development | San Joaquin County (sjgov.org)
7	New Storage Building	Site Application for new 20,000-square-foot storage building on East SR 12 near North Knoll Road	Approximately 2 miles north of new 230 kV transmission line, in the community of Victor	Unknown. Environmental review completed in Feb. 2020. Application may have been withdrawn.	San Joaquin County website Community Development | San Joaquin County (sjgov.org)
8	SR 99/120 Interchange Connector Reconstruction	Addition of lanes to SR 99 and SR 120 interchange in City of Manteca	Approx. 20 miles south of project	Construction of first phase expected to start Spring 2023 and end in 2024	San Joaquin Council of Governments website on active projects: Active Projects | San Joaquin Council of Governments, CA (sjcog.org)

Map No.	Project Name	Description/Location	Location (in Proximity to the Project)	Project Status and Construction Duration	Source of Project Information
9	Church Street Road Diet	Installation of Class II bike lanes, pedestrian facilities, intersection crossings, and reduction of roadway from four lanes to two lanes on Church Street between Lodi Ave and Lockeford Street in Lodi	Approximately 0.5 mile southwest of PG&E Lodi Substation and 0.75 mile west of new PG&E Thurman Switching Station and LEU Guild Substation	Unknown.	San Joaquin Council of Governments website on active projects: Active Projects | San Joaquin Council of Governments, CA (sjcog.org)
10	Interstate 205 (I-205) Managed Lanes	Caltrans proposes to install managed lanes on approximately 12 miles of I-205 in Tracy	Approximately 25 miles south-southwest of project	Unknown. Environmental document expected to be completed in Fall 2023	Caltrans website: Interstate 205 Managed Lanes Project | Caltrans
11	SR 12 (Victor Road) Widening	Widen from 2 to 4 lanes approximately between SR 99 and the eastern boundary of Lodi General Plan	Approximately 0.25 mile east of PG&E Lodi Substation and 0.5 mile north of new PG&E Thurman Switching Station and LEU Guild Substation	Construction scheduled to start in 2032	San Joaquin Council of Governments websites: 2017-MKR-Strategic-Plan---Appendices (sjcog.org) and 2017-MKR-Strategic-Plan---Appendices (sjcog.org)

Table 7.1-2 defines the geographic scope of analysis for each resource topic and why the scope is appropriate for each resource.

Table 7.1-2. Geographic Scope of Analysis for Cumulative Scenario

Resource Topic[a]	Geographic Scope
Aesthetics	Foreground viewshed of the proposed project (within 0.5 mile of project). Visual details generally would be most apparent to a viewer when they are observed in the foreground viewshed. Although project components would potentially be visible from a distance of up to 5 miles from the project corridor, the intervening structures and vegetation (landscape and orchard trees) and atmospheric pollutants constrain distant views.
Agriculture and Forestry Resources	The San Joaquin County. The County's General Plan identifies goals and policies for managing land use, including agricultural land use, within the County.
Air Quality	SJVAPCD air basin. The SJVAPCD manages air quality for the basin, and some pollutant emissions could affect air quality throughout the basin.
Biological Resources	BSA for the proposed project. The BSA includes biological resources that may be impacted by the project. The project is not likely to impact biological resources outside the BSA and therefore would not contribute to potential cumulative impacts.
Cultural Resources	API for the proposed project. The API includes any potential cultural resources that could be affected by the project. The project would not impact potential cultural resources outside the API and, therefore, would not contribute to potential cumulative impacts.
Energy	State of California, which is the appropriate scale for evaluating wasteful energy use.
Geology, Soils, and Paleontological Resources	Project footprint. Impacts are site-specific and generally do not extend beyond the project limits.
Greenhouse Gases	State of California. The state has established reduction goals for greenhouse gases, and greenhouse gas emissions do not remain localized.
Hazards, Hazardous Materials, and Public Safety	Within 0.25 mile of the project, the approximate distance effects of releases of hazardous materials could occur. This distance is used in CEQA significance criteria (for example, would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school).
Hydrology and Water Quality	Bear Creek watershed in northern San Joaquin County, which encompasses the hydrologic resources potentially affected by the proposed project.
Noise	Within 2,000 feet of the project. Noise attenuates rapidly with distance; this is a conservative scope to accommodate the rural nature of much of the project setting.
Transportation	Northern San Joaquin County, which encompasses most of the construction and operation traffic.
Tribal Cultural Resources	API for the proposed project.
Utilities and Service Systems	Northern San Joaquin County, the area in which the primary utility and service systems serving the project are managed.
Wildfire	Northern San Joaquin County.

Notes:

[a] For the resource topics Land Use, Minerals, Population and Housing, Public Services, and Recreation, either the project has no impacts or the impacts are so minor they would not contribute to cumulative impacts. These resource areas are not discussed further in this section.

7.1.2 Cumulative Impact Analysis

The purpose of the project is to address reliability and capacity issues on the existing PG&E 230 kV and 60 kV systems serving the area between PG&E Lockeford and PG&E Lodi substations in northern San Joaquin County. The proposed project is needed because the existing PG&E 230/60 kV system is experiencing voltage issues and thermal overloads. The northern San Joaquin area is forecasted to continue to grow its power load requirements, which will worsen these voltage and thermal overload issues.

Implementation of APMs and BMPs will further minimize less-than-significant short-term impacts related to aesthetics; agriculture and forestry resources; air quality; biological resources; cultural resources; energy; geology, soils, and paleontological resources; greenhouse gases; hazards, hazardous materials and public safety; hydrology and water quality; noise; transportation; tribal cultural resources; utilities and service systems; and wildfire. As shown in Chapter 5, for land use, minerals, population and housing, public services, and recreation, either the project has no impacts or the impacts are so minor they would not contribute to cumulative impacts in the area; these resource topics are not discussed further in this section. In addition, for most of the resource areas, temporary impacts are localized and unlikely to be cumulative. The following sections provide a discussion regarding each relevant resource area.

7.1.2.1 Aesthetics

PG&E Potential Cumulative Impacts

The PG&E-proposed 230 kV transmission line, modifications to existing PG&E 60 kV lines, modifications to PG&E Lockeford Substation, and new PG&E Thurman Switching Station will not substantially degrade the existing visual character or quality of the landscape setting. The project will not be located near any recognized scenic vistas or designated or eligible State Scenic Highways.

To the extent that the proposed project would be visible during construction along with one or more of the cumulative projects, adverse cumulative impacts may occur from the construction equipment, vehicles, materials, staging areas, and personnel. These construction impacts, however, would be temporary and would not create significant cumulative effects. Additionally, PG&E would implement APM AES-1 to ensure aesthetics impacts during construction are reduced, including directing lighting sources onsite and away from potentially sensitive receptors. Public views available to nearby residents and some agricultural workers of construction activities along the PG&E 230 kV transmission alignment would be more limited.

Glare from new PG&E 230 kV TSP structures and conductors would be less than significant, and further reduced with implementation of APM AES-2 requiring the use of non-specular conductors and a dulled galvanized finish on the new PG&E project poles, reducing potential glare of transmission components. Equipment at PG&E Lockeford Substation and the new PG&E Thurman Switching Station would be a nonreflective neutral gray color and galvanized steel structures would weather to a dull, nonreflective patina and would minimize the potential effect of glare. New fence material would be similar to the chain link fencing at the existing substations and would weather to a dull, nonreflective patina. Potential impacts from glare for the PG&E project components would be less than significant.

The projects in Table 7.1-1 that are within 0.5 mile of the proposed project are: PG&E Bellota-Warnerville 230 kV Reconductor; Church Street Road Diet; and SR 12 (Victor Road) Widening. These projects would result in modifications to existing infrastructure that are at the same scale and type as the existing infrastructure. The project, with these projects in the vicinity, will not make a considerable contribution to the modification of the viewshed.

The remaining projects in Table 7.1-1 are a sufficient distance from the project (approximately 0.5 mile or greater) that the less-than-significant impacts associated with project structures are not likely to contribute to a cumulative impact to aesthetics. Because of the linear nature of the transmission line portion of the project, only a small portion of the project transmission line will be visible from any single

viewing location in common with the other projects in the vicinity. PG&E would implement APM AES-3a and APM AES-3b for transmission pole Structure W13, which would relocate the structure or provide new landscape screening to reduce the potential project visibility with respect to the residential view. Based on these combined factors, no substantial contribution to any potential cumulative impact will occur.

LEU Potential Cumulative Impacts

The LEU Industrial and Guild substations and 12 kV feeder line will not substantially degrade the existing visual character or quality of the landscape setting. The project will not be located near any recognized scenic vistas or designated or eligible State Scenic Highways.

Temporary construction impacts would include the temporary presence of workers, temporary structures, construction equipment, and vehicles associated with the installation of substation components. Although construction activities at the LEU substations and 12 kV feeder line would be visible to motorists at nearby public roadways, BMP AES-1 calls for construction staging, material storage, and work areas to be located away from public view wherever possible and the use of temporary screening fencing if applicable.

Given its context, the new LEU facility (LEU Guild Substation) would represent an incremental visual effect in an industrial setting that includes adjacent built features of similar material, scale, and appearance. The LEU project components would be seen by a limited number of viewers, who generally would be familiar with the surrounding industrial environment; the overall visual sensitivity at this location is considered low to moderate based on its location, industrial use, and zoning. As a result of conditions outlined previously, the LEU components project would not substantially degrade the existing visual character of the landscape at this location and the impacts would be less than significant. Additionally, equipment at the new LEU Guild Substation would be a nonreflective neutral gray color and galvanized steel structures would weather to a dull, nonreflective patina that would minimize the potential effect of glare. New fence material would be similar to the chain link fencing at the existing substations and would weather to a dull, nonreflective patina. Potential impacts from glare for the LEU project components would be less than significant.

Therefore, the project, with other projects in the vicinity, will not make a considerable contribution to the modification of the viewshed. As discussed for the PG&E cumulative impacts, projects in Table 7.1-1 in the vicinity of the LEU project components would result in modifications to existing infrastructure that are at the same scale and type as the existing infrastructure. The remaining projects in Table 7.1-1 are a sufficient distance from the project (approximately 0.5 mile or greater) that the less-than-significant impacts associated with project structures are not likely to contribute to a cumulative impact to aesthetics. Based on these combined factors, no substantial contribution to any potential cumulative impact will occur.

7.1.2.2 Agriculture and Forestry Resources

PG&E Potential Cumulative Impacts

The PG&E portion of the project will temporarily impact 43.67 acres of Important Farmland, which would be returned to preconstruction condition unless otherwise requested by the landowners. Permanent impacts resulting from the construction of the new PG&E transmission lines (approximately 57 TSP structures on Important Farmland) and the modification of the existing PG&E Lockeford Substation would permanently convert approximately 0.93 acre of Prime Farmland, 0.16 acre of Unique Farmland, and 0.32 acre of Farmland of Statewide Importance to nonagricultural uses associated with electrical infrastructure. A total of approximately 1.41 acres of Important Farmland would be permanently impacted and permanently converted to nonagricultural use. The TSP structures will not prevent ongoing use of the properties under the Williamson Act for agricultural use. This is considered a minor amount of permanent loss in the context of available farmland in the region and is less than the significance threshold of 10 acres as noted in California GC Section 51222, so the impact will be less than significant.

The project may cause a temporary disruption to existing agricultural operations, both during construction and routine transmission line maintenance activities. PG&E's portion of the project would permanently impact approximately 0.03 acre of walnut orchard, approximately 0.01 acre of almond orchard, and approximately 1.14 acres of grape vines. PG&E's implementation of APM AGR-1 would provide the agricultural owner with fair market compensation for crops removed, crops unable to be harvested or replanted, lost planting cycles, and damaged infrastructure, and restoration of impacted agricultural land during PG&E construction activities.

Permanent loss of approximately 1.41 acres of FMMP-categorized farmland from construction of the project will not result in a substantial contribution to any potential cumulative effects on agricultural resources from development of the other projects in the vicinity. The projects in Table 7.1-1 generally are on already-disturbed land not currently in agricultural use or are located within spheres of planned development. The only cumulative project that would convert agricultural land to non-agricultural uses is the new winery and event center, which would convert a small part of an existing vineyard to parking.

During project construction, the project would impact approximately 43.16 acres of land under Williamson Act contract. These lands will be taken out of production to accommodate PG&E construction activities, delivery and staging of construction materials, installing poles and lines, and construction crew access. Electric utility facility construction and maintenance activities are considered compatible uses of contracted Williamson Act lands under GC Section 51238. Given this consistency, and because potential project construction and maintenance activities are temporary and will have minimal impacts on Williamson Act land, the impact will be less than significant. Construction of the project will not result in a substantial contribution to any potential cumulative effects on Williamson Act lands from development of the other projects in the vicinity.

LEU Potential Cumulative Impacts

The LEU portion of the project would not temporarily impact or result in permanent conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to nonagricultural uses associated with LEU's electrical infrastructure. The LEU portion of the project will not occur on lands zoned for agriculture and agricultural land under Williamson Act contracts Therefore, the LEU portion of the project would not result in cumulative impacts to agricultural resources.

7.1.2.3 Air Quality

PG&E Potential Cumulative Impacts

The air emissions from construction of the PG&E portion of the project will result in a temporary increase in criteria air pollutants; however, these emissions will be temporary and will not result in a cumulatively considerable net increase in emissions. Air quality emissions will occur within the SJVAPCD. The project, with other projects in the vicinity, would be managed by the SJVAPCD for construction air quality emissions. The SJVAPCD has published thresholds of significance (SJVAPCD 2015a) and considered cumulative effects when they exceed these thresholds; the short-term project emissions will fall below these thresholds. PG&E's implementation of APM AIR-1 during project construction would further reduce or minimize the construction emissions from the project. The SJVAPCD has established recommended guidelines for management of emissions during construction of projects within the region (SJVAPCD 2015b). The project will comply with Rule 9510 requirements to reduce NO_x and PM_{10} construction emissions by 20% and 45%, respectively. In addition, the PG&E portion of the project would not result in a cumulatively considerable net increase of any pollutants for which the region is in nonattainment under NAAQS and CAAQS, so there would be a less-than-significant impact.

The APMs in this document follow those SJVAPCD guidelines, thereby further minimizing the project's contribution to regional air quality. Similarly, the projects in Table 7.1-1 also are required to comply with SJVAPCD requirements and pollution thresholds. Therefore, the project will not contribute to a significant cumulative impact to air quality.

LEU Potential Cumulative Impacts

The air emissions from construction of the LEU portion of the project will result in a temporary increase in criteria air pollutants; however, these emissions will be temporary and will not result in a cumulatively considerable net increase in emissions. Air quality emissions will occur within the SJVAPCD. The project, with other projects in the vicinity, would be managed by the SJVAPCD for construction air quality emissions. The SJVAPCD has published thresholds of significance and considered cumulative effects when they exceed these thresholds; the short-term project emissions will fall below these thresholds. LEU's implementation of BMP AIR-1 during project construction would further reduce or minimize the construction emissions from the project. Additionally, the SJVAPCD has established recommended guidelines for management of emissions during construction of projects within the region. The project will comply with Rule 9510 requirements to reduce the NO_x and PM_{10} construction emissions by 20% and 45%, respectively. In addition, the LEU portion of the project would not result in a cumulatively considerable net increase of any pollutants for which the region is in nonattainment under NAAQS and CAAQS, so there would be a less-than-significant impact.

The BMPs in this document follow those SJVAPCD guidelines, thereby further minimizing the project's contribution to regional air quality. Similarly, the projects in Table 7.1-1 also are required to comply with SJVAPCD requirements and pollution thresholds. Therefore, the project will not contribute to a significant cumulative impact to air quality.

7.1.2.4 Biological Resources

PG&E Potential Cumulative Impacts

The PG&E portion of the project would have a less-than-significant impact to any candidate, sensitive, or special-status species populations. The incorporation of APMs and PG&E's SJVHCP AMMs further minimizes the potential for impact. Construction work associated with the project could directly or indirectly (through habitat modification) affect special-status wildlife and nesting birds but will not have a substantial direct or indirect adverse effect on these species. The majority of the project's habitat impacts would be temporary and would be restored to pre-existing conditions following project activities. The only permanent impacts would be associated with foundations for the tubular steel poles, the station facilities, and the 60 kV pole replaced during reconfiguration of existing 60 kV lines.

The majority of potential impacts associated with the PG&E portion of the project would occur within annual grasslands, agricultural land, and existing disturbed or developed areas, and no impacts to riparian habitat or other sensitive natural communities would occur. Furthermore, the project will have no impact on state or federally protected wetlands.

The project will not substantially interfere with the movement of any native resident or migratory fish or wildlife species. However, in the unlikely event that individuals from these species make overland movements during construction activities, fenced work areas, per APM BIO-4, would not impede their movements between the nearest breeding habitat and upland habitat given the amount of surrounding habitat and the limited size of the project footprint at each structure location. APM BIO-2 also will be implemented to minimize any potential impacts to nesting birds. Additional APMs would be implemented to reduce impacts to trees and to reduce potential for electrocution or accidental line collisions by bird species.

The biological impacts of PG&E's portion of the project combined with other area projects will not be cumulatively considerable. The projects listed in Table 7.1-1 could have construction schedules that overlap with the proposed project; however, because these projects are in previously disturbed or developed areas, only minor impacts are expected to occur to associated biological resources. To minimize potential impacts on special-status species and other sensitive biological resources, the project will implement APM BIO-1 through APM BIO-10 and SJVHCP AMM 1 through AMM 11. As a result, the project will not contribute to a cumulative impact.

LEU Potential Cumulative Impacts

The LEU portion of the project would have a less-than-significant impact to candidate, sensitive, or special-status species populations, and the incorporation of BMPs further minimizes the potential for impact. Construction work associated with the project could directly or indirectly (through habitat modification) affect special-status wildlife and nesting birds but will not have a substantial direct or indirect adverse effect on these species. Modification of LEU Industrial Substation and relocation of the LEU 12 kV lines will occur in paved or gravel areas. The only permanent impacts would be associated with the LEU Guild Substation facility, which is located in highly disturbed, ruderal grassland that is surrounded by industrial development.

The majority of potential impacts associated with the LEU portion of the project would occur within annual grasslands and existing disturbed or developed areas, and no impacts to riparian habitat or other sensitive natural communities would occur. Furthermore, the project will have no impact on state or federally protected wetlands.

The LEU portion of the project will not interfere with the movement of any native resident or migratory fish or wildlife species. LEU would implement BMP BIO-2 to minimize any potential impacts to nesting birds.

The biological impacts of LEU's portion of the project combined with other area projects will not be cumulatively considerable. The projects listed in Table 7.1-1 could have construction schedules that overlap with the proposed project; however, because these projects are in previously disturbed or developed areas, only minor impacts are expected to occur to associated biological resources. To minimize potential impacts on special-status species and other sensitive biological resources, the project will implement BMP BIO-1 through BMP BIO-10. As a result, the project will not contribute to a cumulative impact.

7.1.2.5 Cultural Resources

PG&E Potential Cumulative Impacts

The PG&E portion of the project would not result in any significant impacts to cultural resources. Previously recorded cultural resources that intersect the API will be avoided during construction and would not be impacted by the project. Previously unrecorded historical resources within the architectural API will not be significantly impacted by the PG&E's portion of the project because of existing visual intrusions, no physical impacts, and distance from the existing resources.

Recorded archaeological sites within the API will be avoided. With the implementation of APMs, impacts to unknown surface or subsurface archaeological resources would be less than significant. Project operation and maintenance will not be ground disturbing and will occur within city streets, facilities, or electrical line ROWs and no impacts to archaeological resources would occur.

The cultural resource impacts of PG&E's portion of the project combined with other area projects will not be cumulatively considerable. The projects listed in Table 7.1-1 are located outside the proposed project API. In addition, these projects would be expected to perform their own cultural resource surveys and to implement appropriate avoidance and minimization measures, and therefore resulting in only minimal impacts to cultural resources. To minimize the potential impacts of the PG&E portion of the project on cultural resources, the project will implement APM CUL-1 through APM CUL-4. As a result, the project will not contribute to a cumulative impact.

LEU Potential Cumulative Impacts

The LEU portion of the project has no newly identified architectural resources and would not result in any impacts to historic resources. A nearby historic resource would be entirely avoided.

The LEU portion of the project does not have any recorded archaeological sites within its API. With the implementation of BMPs, impacts to unknown surface or subsurface archaeological resources would be less than significant. Project operation and maintenance will not be ground disturbing and will occur within facilities or electrical line ROWs and no impacts to archaeological resources would occur.

The cultural resource impacts of LEU's portion of the project combined with other area projects will not be cumulatively considerable. The projects listed in Table 7.1-1 are located outside the proposed project API. In addition, these projects would be expected to perform their own cultural resource surveys and to implement appropriate avoidance and minimization measures, and therefore resulting in only minimal impacts to cultural resources. To minimize the potential impacts of the PG&E portion of the project on cultural resources, the project will implement BMP CUL-1, BMP CUL-3, and BMP CUL-4. As a result, the project will not contribute to a cumulative impact.

7.1.2.6 Energy

PG&E Potential Cumulative Impacts

The proposed project would not result in wasteful, inefficient, or unnecessary use of energy. PG&E project construction and operation and maintenance activities will consume a minimal amount of fuel (approximately 0.0002% of the statewide gasoline consumption, approximately 0.0065% of statewide diesel consumption, and approximately 0.00032% of statewide jet fuel consumption). PG&E's implementation of APM GHG-1, which minimizes unnecessary construction vehicle idling time, will further reduce energy consumption. Energy consumption during operations of PG&E project components is limited to periodic maintenance vehicle and equipment usage, typical of electrical facilities. Therefore, impacts on energy resources from the project will be less than significant.

Cumulative projects that include long-term energy demand, such as development projects, would be subject to the California Green Building Standards Code, which provides energy efficiency standards for commercial and residential buildings. The California Green Building Standards Code would implement increasingly stringent energy efficiency standards that would require the proposed project and the cumulative projects to minimize the wasteful and inefficient use of energy. In addition, cumulative projects would be required to meet or exceed the Title 24 building standards, further reducing the inefficient use of energy. Future development also would be required to meet even more stringent requirements, including the objectives set in the AB 32 Scoping Plan (CARB 2017). Furthermore, various federal and state regulations, including the Low Carbon Fuel Standard, Pavley Clean Car Standards, and Low Emission Vehicle Program, would serve to reduce the transportation fuel demand of cumulative projects.

In consideration of cumulative energy use, the proposed project would not contribute to a substantial demand on energy resources or services such that new regional energy facilities would be required to be constructed as a result of the incremental increase in energy demand resulting from the proposed project. Therefore, the proposed project would have a less-than-cumulatively-considerable impact with respect to the wasteful or inefficient use of energy. As such, the proposed project would not result in a cumulatively considerable contribution to a potential cumulative impact.

LEU Potential Cumulative Impacts

The proposed project would not result in wasteful, inefficient, or unnecessary use of energy. LEU project construction and operation and maintenance activities will consume a minimal amount of fuel (approximately 0.00002% of the statewide gasoline consumption and approximately 0.0023% of statewide diesel consumption). LEU's implementation of BMP GHG-1, which minimizes unnecessary construction vehicle idling time, will further reduce energy consumption. Energy consumption during operations of LEU project components is limited to periodic maintenance vehicle and equipment usage, typical of electrical facilities. Therefore, impacts on energy resources from the project will be less than significant.

Cumulative projects that include long-term energy demand, such as development projects, would be subject to the California Green Building Standards Code, which provides energy efficiency standards for commercial and residential buildings. The California Green Building Standards Code would implement increasingly stringent energy efficiency standards that would require the proposed project and the cumulative projects to minimize the wasteful and inefficient use of energy. In addition, cumulative projects would be required to meet or exceed the Title 24 building standards, further reducing the inefficient use of energy. Future development also would be required to meet even more stringent requirements, including the objectives set in the AB 32 Scoping Plan (CARB 2017). Furthermore, various federal and state regulations, including the Low Carbon Fuel Standard, Pavley Clean Car Standards, and Low Emission Vehicle Program, would serve to reduce the transportation fuel demand of cumulative projects.

In consideration of cumulative energy use, the proposed project would not contribute to a substantial demand on energy resources or services such that new regional energy facilities would be required to be constructed as a result of the incremental increase in energy demand resulting from the proposed project. Therefore, the proposed project would have a less-than-cumulatively-considerable impact with respect to the wasteful or inefficient use of energy. As such, the proposed project would not result in a cumulatively considerable contribution to a potential cumulative impact.

7.1.2.7 Geology, Soils, and Paleontological Resources

PG&E Potential Cumulative Impacts

The PG&E project components are not within proximity to any active faults, with the nearest active fault approximately 40 miles southwest of the project. No known liquefaction hazard areas were identified in the vicinity of the PG&E project components and geotechnical investigations at the PG&E Lockeford Substation and PG&E Thurman Switching Station did not identify potential for liquefaction. Although the conditions for liquefaction are unlikely along the PG&E transmission line, PG&E would implement APM GEO-1, which will minimize liquefaction hazards that could be exacerbated by strong seismic ground shaking. PG&E project components are located on either level ground or slopes of less than 2% and no mapped landslide hazard areas exist within or adjacent to the PG&E project components. Thus, the impacts from strong shaking and seismic-induced ground failure and liquefaction are less than significant.

Furthermore, project impacts associated with erosion and loss of topsoil during construction of PG&E project components would be minimized because of the limited areas that will be graded and disturbed, the temporary nature of construction, the relatively flat work areas, and the use of standard best practices and dust control measures to minimize fugitive dust emissions and stormwater runoff. PG&E would implement APM GEO-1 and APM HYD-1, which require development and implementation of an SWPPP. Implementation of APM GEO-1 also would apply appropriate design measures as identified in the geotechnical reports based on soil type, reducing impacts from potential unstable geologic units or soil and reducing risks associated with potential expansive soils to a less-than-significant level.

Cumulative projects in Table 7.1-1 would be expected to perform geotechnical investigations and also would be expected to employ appropriate engineering and construction measures. Impacts from those projects generally would be site specific. The cumulative projects do not overlap with the proposed project footprint and would not affect potential project impacts associated with geology or soils. Consequently, the potential combined impacts of the proposed project and other identified projects would not result in a cumulatively considerable impact. The impacts of the proposed project are not individually significant and would not contribute significantly to any potential hazard when considered individually as well as with other related projects that have been identified for development in the area.

The paleontological sensitivity of the soils underlying the proposed project range from “low” to “moderate.” Identification of paleontological resources, even within soils with a relatively greater potential to support the presence of fossils, is relatively infrequent throughout the area surrounding the project site. While it is possible that paleontological resources could be impacted during ground-disturbing activities associated with the proposed activities at PG&E Thurman Switching Station and PG&E Lockeford

Substation and the 230 kV transmission line, the ground-disturbance depths and methods of construction are unlikely to impact or otherwise yield evidence of buried paleontological resources. PG&E's implementation of APM PAL-1 through APM PAL-4, which require a qualified Paleontological Principal Investigator, worker environmental awareness training, and paleontological resource monitoring for select construction activities, would reduce any impacts to paleontological resources resulting from construction of the PG&E project components to less than significant. Cumulative projects in Table 7.1-1 in the vicinity of the PG&E project with excavation activities presumably would implement similar measure in the event that resources are encountered. No substantial contribution to any potential cumulative effects on unknown paleontological resources would occur from development of the other related projects.

LEU Potential Cumulative Impacts

LEU's project components are not within proximity to any active faults, with the nearest active fault approximately 40 miles southwest of the project. No known liquefaction hazard areas were identified in the vicinity of LEU's project components, and geotechnical investigations at the LEU Industrial and Guild substations did not identify potential for liquefaction. LEU would implement BMP GEO-1, which will minimize liquefaction hazards that could be exacerbated by strong seismic ground shaking. LEU project components are located on either level ground or slopes of less than 2%, and no mapped landslide hazard areas exist within or adjacent to the LEU project components. Thus, the impacts from strong shaking and seismic-induced ground failure and liquefaction are less than significant.

Furthermore, project impacts associated with erosion and loss of topsoil during construction of LEU project components would be minimized because of the limited areas that will be graded and disturbed, the temporary nature of the construction, the relatively flat work areas, and the use of standard best practices and dust control measures to minimize fugitive dust emissions and stormwater runoff. LEU would implement BMP GEO-1 and BMP HYD-1, which require development and implementation of an SWPPP. Implementation of BMP GEO-1 also would apply appropriate design measures as identified in the geotechnical reports based on soil type, reducing impacts from potential unstable geologic units or soil and reducing risks associated with potential expansive soils to a less-than-significant level. The cumulative projects in Table 7.1-1 would be expected to employ appropriate engineering and construction measures. Impacts from those projects generally would be site specific. The cumulative projects do not overlap with the proposed project footprint and would not affect potential project impacts associated with geology and soils. Consequently, the potential combined impacts of the proposed project and other identified projects would not result in a cumulatively considerable impact. The impacts of the proposed project are not individually significant and would not contribute significantly to any potential hazard when considered individually as well as with other related projects that have been identified for development in the area.

The paleontological sensitivity of the soils underlying the LEU project components are "moderate." Identification of paleontological resources, even within soils with a relatively greater potential to support the presence of fossils, is relatively infrequent throughout the area surrounding the project site. While it is possible that paleontological resources could be impacted during ground-disturbing activities associated with the proposed activities at LEU Guild and Industrial substations and on the LEU 12 kV feeder line, the ground-disturbance depths and methods of construction are unlikely to impact or otherwise yield evidence of buried paleontological resources. LEU's implementation of BMP PAL-1 through BMP PAL-3, which require a qualified Paleontological Principal Investigator, worker environmental awareness training, and paleontological resource monitoring for select construction activities, would reduce any impacts to paleontological resources resulting from construction of the LEU project components to less than significant. Cumulative projects in Table 7.1-1 in the vicinity of the PG&E project with excavation activities presumably would implement similar measures in the event that resources are encountered. No substantial contribution to any potential cumulative effects on unknown paleontological resources would occur from development of the other related projects.

7.1.2.8 Greenhouse Gas Emissions

PG&E Potential Cumulative Impacts

GHG emissions from global climate change are a cumulative impact; a project participates in this potential impact through its contribution combined with the cumulative increase of all other sources of GHG emissions. Short-term amortized GHG emissions associated with proposed project construction would result in annualized generation of 103.69 MT CO_2e with implementation of APM AIR-1 and APM AIR-2. The total operational GHG emissions would be 90.37 MT CO_2e per year. The combined total GHG emissions (operations and amortized construction) would be 194.06 MT CO_2e per year, with implementation of APM GHG-1, which is lower than the significance threshold of 10,000 MT CO_2e per year. The 10,000 MT CO_2e per year threshold was derived from emissions data from the four largest air districts in California and is based on the Executive Order S-3-05 GHG emissions reductions goal of 80% below 1990 levels by 2050. As a result, the proposed project would not contribute significantly to the emissions associated with the construction of other projects planned in the area that could be underway at the same time, and thus the impact would not be cumulatively considerable.

LEU Potential Cumulative Impacts

GHG emissions from global climate change is a cumulative impact; a project participates in this potential impact through its contribution combined with the cumulative increase of all other sources of GHG emissions. Short-term amortized GHG emissions associated with proposed project construction would result in annualized generation of 37.40 MT CO_2e with implementation of BMP AIR-1 and BMP AIR-2. The total operational GHG emissions would be 484.49 MT CO_2e per year. The combined total GHG emissions (operations and amortized construction) would be 521.89 MT CO_2e per year, with implementation of BMP GHG-1, which is lower than the significance threshold of 10,000 MT CO_2e per year. As a result, the proposed project would not contribute significantly to the emissions associated with the construction of other projects planned in the area that could be underway at the same time, and thus it would not be cumulatively considerable.

7.1.2.9 Hazards, Hazardous Materials, and Public Safety

PG&E Potential Cumulative Impacts

All potential construction impacts related to hazards, hazardous materials, and accidents involving hazardous materials are considered less than significant with implementation of APM HAZ-2, APM HAZ-3, and APM HAZ-4. During construction activities, there is an increased potential for accidental release of hazardous materials from operation of vehicles or motorized pieces of equipment. Because hazardous materials will be transported, used, and disposed of in accordance with appropriate procedures, the project will not create a significant hazard to the public or environment. Any impacts will be less than significant, and PG&E's existing worker safety training programs described in APM HAZ-2, APM HAZ-3, and APM HAZ-4 will further reduce less-than-significant impacts. To reduce shock hazards and avoid electrocution of workers or the public, PG&E would comply with the provisions found in Cal/OSHA Title 8 of the CCR, particularly the electrical health and safety regulations found in Chapter 4, Subchapter 5 in the Electrical Safety Orders, Sections 2700–2989, which are relevant to high-voltage work. During construction, PG&E also will implement APM WFR-1 and APM WFR-2, requiring workers to be trained in fire prevention practices and carry emergency fire suppression equipment to reduce the wildland fire risk in the project area.

In accordance with APM HAZ-5, potentially contaminated soil that has not been precharacterized will be stockpiled separately to be tested, managed, and transported for disposal as appropriate. If suspected hazardous substances or waste are unexpectedly encountered during trenching activities (using indicators such as sheen, odor, and soil discoloration), work will be stopped until the material is properly characterized and appropriate measures are taken to protect human health and the environment.

Impacts from monthly maintenance and operational activities occurring at PG&E Lockeford Substation and PG&E Thurman Switching Station would be less than significant with implementation a site-specific SPCC Plan and an HMBP as required.

Cumulative projects listed in Table 7.1-1 in also have the potential to disturb potentially contaminated soils or result in accidental releases of hazardous materials. These projects would be expected to characterize soils and sediments and follow applicable regulations for characterization, handling, and disposing of soils or work within areas of potentially contaminated sediments. Only one cumulative project, PG&E Bellota-Warnerville 230 kV Reconductor, is within 0.25 mile of the project.

The impacts of the proposed project related to hazards or hazardous materials are not individually significant with implementation of APM HAZ-1 through APM HAZ-4. Furthermore, cumulative effects of this and other related excavation projects would not be significant, because each project must similarly follow the applicable federal and state rules and regulations required to ensure that no substantial impacts occur.

LEU Potential Cumulative Impacts

All potential construction impacts related to hazards, hazardous materials, and accidents involving hazardous materials are considered less than significant with implementation of BMP HAZ-2, BMP HAZ-3, and BMP HAZ-4. During construction activities, there is an increased potential for accidental release of hazardous materials from operation of vehicles or motorized pieces of equipment. Because hazardous materials will be transported, used, and disposed of in accordance with appropriate procedures, the project will not create a significant hazard to the public or environment. Any impacts will be less than significant, and LEU's existing worker safety training programs described in BMP HAZ-2, BMP HAZ-3, and BMP HAZ-4 will further reduce less-than-significant impacts. To reduce shock hazards and avoid electrocution of workers or the public, LEU would comply with the provisions found in Cal/OSHA Title 8 of the CCR, particularly the electrical health and safety regulations found in Chapter 4, Subchapter 5 in the Electrical Safety Orders, Sections 2700-2989, which are relevant to high-voltage work. During construction, LEU will implement BMP WFR-1 and BMP WFR-2, requiring workers to be trained in fire prevention practices and carry emergency fire suppression equipment to reduce the wildland fire risk in the project area.

In accordance with BMP HAZ-5, potentially contaminated soil that has not been precharacterized will be stockpiled separately to be tested, managed, and transported for disposal as appropriate. If suspected hazardous substances or waste are unexpectedly encountered during trenching activities (using indicators such as sheen, odor, and soil discoloration), work will be stopped until the material is properly characterized and appropriate measures are taken to protect human health and the environment.

Impacts from monthly maintenance and operational activities occurring at LEU Industrial and LEU Guild substations would be less than significant with implementation a site-specific SPCC Plan and an HMBP as required.

Cumulative projects listed in Table 7.1-1 in also have the potential to disturb potentially contaminated soils or result in accidental releases of hazardous materials. These projects would be expected to characterize soils and sediments and follow applicable regulations for characterization, handling, and disposing of soils or work within areas of potentially contaminated. However, none of the cumulative projects in Table 7.1-1 is within 0.25 mile of the LEU project component.

The impacts of the proposed project related to hazards or hazardous materials are not individually significant with implementation of BMP-HAZ-1 through BMP HAZ-4. Furthermore, cumulative effects of this and other related excavation projects would not be significant, because each project must similarly follow the applicable federal and state rules and regulations required to ensure that no substantial impacts occur.

7.1.2.10 Hydrology and Water Quality

PG&E Potential Cumulative Impacts

Project construction activities at PG&E Lockeford Substation, PG&E Thurman Switching Station, the PG&E 230 kV transmission line and staging areas have the potential to affect water quality temporarily, but impacts would be less than significant. Implementation of APM HYD-1 through APM HYD-4 would further reduce less-than-significant impacts to hydrology and water quality. The cumulative projects listed in Table 7.1-1 that could have an effect on water quality would be those construction projects in areas draining to the Bear Creek. These projects would be subject to the same federal, state, and local regulations regarding drainage plans and flooding potential as the proposed project and typically would be required to draft and implement an SWPPP with specific provisions that address erosion and sedimentation control during construction and operation. These impacts would be localized and controlled at the source and would not be considerable in relation to other cumulative projects; therefore, the proposed project would not contribute substantially to any potential cumulative impacts on hydrology and water quality.

LEU Potential Cumulative Impacts

Project construction activities at the proposed LEU Guild Substation and LEU Industrial Substation and the 12 kV feeder line areas and staging areas have the potential to affect water quality temporarily, but impacts would be less than significant. Implementation of BMP HYD-1 through BMP HYD-4 would further reduce less-than-significant impacts to hydrology and water quality. The cumulative projects listed in Table 7.1-1 that could have an effect on water quality would be those construction projects in areas draining to the Bear Creek. These projects would be subject to the same federal, state, and local regulations regarding drainage plans and flooding potential as the proposed project and typically would be required to draft and implement an SWPPP with specific provisions that address erosion and sedimentation control during construction and operation. These impacts would be localized and controlled at the source and would not be considerable in relation to other cumulative projects; therefore, the proposed project would not contribute substantially to any potential cumulative impacts on hydrology and water quality.

7.1.2.11 Noise

PG&E Potential Cumulative Impacts

Project construction of PG&E project components would be consistent with local noise ordinances and would not result in exposure of persons to or generation of noise levels in excess of local noise ordinances or applicable standards. At each PG&E 230 kV transmission line structure location, construction activities will be short term (typically several days), temporary, and are limited to daytime hours compatible with local noise ordinances. San Joaquin County exempts noise from construction activities that take place between 6:00 a.m. and 9:00 p.m. and project construction activities are planned to occur between 7:00 a.m. and 7:00 p.m. Unplanned nighttime work would be infrequent, occur in limited locations, and would be short term. If construction occurs at night, PG&E will implement APM NOI-1 and APM NOI-5, which require advance notice to property owners near construction activities. The cumulative projects listed in Table 7.1-1 may have overlapping construction periods but would be subject to the same noise ordinances, and all but one project are more than 2,000 feet from the proposed PG&E project. Construction of the project will result in a less-than-significant impact and would not contribute substantially to any potential cumulative noise impacts.

Corona noise associated with moisture on the new electrical wires is anticipated to be minimal and below the San Joaquin County performance standards of 70 A-weighted decibels (dBA) maximum sound level and below the outdoor activities noise guideline of 55 dBA. Long-term audible noise at PG&E Lockeford Substation and PG&E Thurman Switching Station is not expected to increase from existing substation equipment for the proposed modifications. For maintenance activities involving noise-generating

equipment or vehicles, noise-reduction measures will be employed to reduce temporary noise impacts as described in APM NOI-1 through APM NOI-7. Therefore, during operation and maintenance of PG&E project components, the impacts will be less than significant. As noted previously, all but one of the cumulative projects in Table 7.1-1 are more than 2,000 feet from the proposed PG&E project. That project, the PG&E Bellota-Warnerville 230 kV Reconductor, would be expected to meet the same noise standards and implement the same noise-reduction measures as the proposed project.

The PG&E project components would not result in exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels. Construction-related groundborne vibration and noise will occur during daytime hours and will be short term in duration. Equipment associated with normal operation and maintenance of the proposed project will not produce any groundborne noise or vibration. Therefore, the proposed project will result in a less-than-significant impact.

LEU Potential Cumulative Impacts

Construction of LEU's portion of the project will be consistent with the City of Lodi noise ordinance and would not result in exposure of persons to or generation of noise levels in excess of local noise ordinances or applicable standards. Construction activities are planned to take place during daytime hours compatible with the local noise ordinance. Unplanned nighttime work would be infrequent and would be short term. If construction occurs at night, LEU will implement BMP NOI-1 and BMP NOI-5, which require advance notice to property owners near construction activities. The cumulative projects listed in Table 7.1-1 may have overlapping construction periods but would be subject to the same noise ordinance and all are more than 2,000 feet from the proposed LEU project components. Construction of the project will result in a less-than-significant impact and would not contribute substantially to any potential cumulative noise impacts.

Long-term noise associated with the stationary electrical equipment operating at LEU Guild Substation is expected to have sound levels at the boundary of Lodi Memorial Park and Cemetery of 38 dBA, which is less than the applicable code requirement. The proposed substation is located within an industrial area and is not anticipated to exceed local noise standards for residential uses. Operational noise at LEU Industrial Substation is not expected to change. Therefore, during operation and maintenance of LEU project components, the impacts will be less than significant.

The LEU project components would not result in exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels. Construction-related groundborne vibration and noise will occur during daytime hours and will be short term in duration. Equipment associated with normal operation and maintenance of the proposed project will not produce any groundborne noise or vibration. Therefore, the proposed project will result in a less-than-significant impact.

7.1.2.12 Transportation

PG&E Potential Cumulative Impacts

Project construction will not conflict with any policies, plans, or programs that support alternative transportation. Most construction activities will occur within PG&E's new (acquired as part of the proposed project) or existing property, franchise, or ROW. The anticipated temporary and short-term construction-related traffic impacts will be to truck routes and project area access routes. Temporary road closures may be required at various locations to ensure public safety. Any lane closures will be temporary and short term, and PG&E closures will be coordinated with Caltrans or local jurisdictions to reduce the impacts to potential temporary and short-term emergency access. In addition to traffic control and other safety measures, PG&E would provide, as part of the Traffic Management Plan, notification to property owners and businesses in advance of work. In addition, where the installation of guard structures is required, APM TRA-1, which requires that traffic controls and other traffic safety measures be in place to maintain proper traffic flow, will further reduce any impacts. Implementation of APM TRA-2 will restore all removed or damaged curbs, gutters, sidewalks, and paved surfaces, as necessary.

The construction vehicle trips and associated VMT would be temporary, minimizing the potential long-term impact of the proposed project in terms of greenhouse gas emissions. When construction is completed, construction-related traffic will cease and VMT levels will return to pre-existing conditions with minimal and infrequent trips generated, as described in Section 5.17.4.3. The project will not conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b).

Proposed bikeways are located within 1,000 feet of the PG&E project components along South Guild Avenue, East Lodi Avenue, East Victor Road (SR 12), and East Lockeford Street; however, because construction activities are temporary in nature, potentially hazardous conditions will be less than significant. Furthermore, the project impact on walking and bicycling accessibility will be less than significant.

Cumulative projects listed in Table 7.1-1 that may be under construction at the same time have the potential for a cumulative impact on traffic and transportation in the area; however, with proper coordination and development of traffic control plans with permitting entities, no significant cumulative construction impacts to traffic or transportation are expected to occur.

The operation of the proposed project would generate minimal traffic only, as required for routine patrolling and maintenance. Therefore, the proposed project would not contribute to long-term cumulative impacts to traffic.

LEU Potential Cumulative Impacts

Most construction activities will occur within LEU's existing property or ROW. Work within public ROW will be limited to construction activities in, along, or crossing roadways and sidewalks within the City of Lodi. Any necessary encroachment permits will be obtained from the affected agencies or entities. Temporary lane closures also will be required at various locations for public safety. Any lane closures will be temporary and short term, and these closures will be coordinated with local jurisdictions to reduce the impacts to potential temporary and short-term emergency access. In addition, BMP TRA-1, which requires that traffic controls and other traffic safety measures be in place to maintain proper traffic flow, will further reduce any impacts. Implementation of BMP TRA-2 will restore all removed or damaged curbs, gutters, sidewalks, and paved surfaces, as necessary.

Proposed bikeways are located within 1,000 feet of the LEU project components along East Lodi Avenue and South Guild Avenue; however, because construction activities are temporary in nature, potentially hazardous conditions will be less than significant. Furthermore, the project impact on walking and bicycling accessibility will be less than significant.

Cumulative projects listed in Table 7.1-1 that may be under construction at the same time have the potential for a cumulative impact on traffic and transportation in the area; however, with proper coordination and development of traffic control plans with permitting entities, no significant cumulative construction impacts to traffic or transportation are expected to occur.

The operation of the proposed project would generate minimal traffic only, as required for routine patrolling and maintenance. Therefore, the proposed project would not contribute to long-term cumulative impacts to traffic.

7.1.2.13 Tribal Cultural Resources

PG&E Potential Cumulative Impacts

The project's potential cumulative effects on tribal cultural resources as it pertains to the PG&E portion of the project will be evaluated by the CPUC during the AB 52 process.

LEU Potential Cumulative Impacts

The project's potential cumulative effects on tribal cultural resources as it pertains to the LEU portion of the project will be evaluated by the CPUC during the AB 52 process.

7.1.2.14 Utilities and Service Systems

PG&E Potential Cumulative Impacts

The PG&E portion of the project will not require or result in the relocation or construction of new or expanded water, wastewater treatment, stormwater drainage, or natural gas facilities that could cause significant environmental effects. However, the project includes planned modification of existing electric power facilities that will relocate or expand existing and construct new electric transmission, power, distribution, and telecommunication facilities. Those activities will maintain or improve some utilities and will result in less-than-significant impacts to utilities and service systems during construction and relocation activities. The PG&E 230 kV transmission line structures are located to avoid known well locations. It is not anticipated that wells will need to be relocated as part of the proposed project. Furthermore, cumulative effects of this and projects listed in Table 7.1-1 would not be significant and no substantial impacts would occur.

LEU Potential Cumulative Impacts

The LEU portion of the project will not require or result in the relocation or construction of new or expanded water, wastewater treatment, stormwater drainage, natural gas, or telecommunications facilities that could cause significant environmental effects. However, the project includes planned modification of existing electric power facilities that will relocate or expand existing and construct new electric transmission, power, distribution, and telecommunication facilities. Those activities will maintain or improve some utilities and will result in a less-than-significant impact during construction and relocation. Because the project will have less-than-significant impacts on utilities and service systems, no BMPs are proposed. Furthermore, cumulative effects of this and projects listed in Table 7.1-1 would not be significant and no substantial impacts would occur.

7.1.2.15 Wildfire

PG&E Potential Cumulative Impacts

The PG&E portion of the project will not have occupants and, therefore, will not potentially expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire caused by slope, prevailing winds, or other factors. The PG&E project components in the main portion of the project and the three PG&E remote-end substations (Brighton, Bellota, and Rio Oso) are not located in or near state responsibility areas or lands classified as very high FHSZs and are not in areas of slope, prevailing winds, or other known factors that would exacerbate wildfire risks. None of the project components are designed for human occupancy. PG&E Clayton Hill Repeater Station, an existing paved and fenced communication station with paved access, is within an SRA that is identified as a high FHSZ. Station access is on a paved road to this paved and fenced telecommunication facility. Additionally, project-related activities will be limited in duration and will not be ground-disturbing or include activities that would produce a spark, fire, or flames. Therefore, Project-related activities at PG&E Clayton Hill Repeater Station have a minimal potential for exacerbating wildfire risks. To further minimize wildfire risk during construction activities, PG&E will implement APM WFR-1 and APM WFR-2, requiring workers to be trained in fire prevention practices and carry emergency fire suppression equipment to reduce the wildland fire risk in the project area.

The project installation or maintenance of associated PG&E infrastructure would not exacerbate fire risk or result in temporary or ongoing impacts to the environment. The new and modified electrical lines, substations, and switching station are similar in nature to the existing project components that will be

modified or extended during construction and other existing PG&E lines in the area. The new and modified PG&E electrical infrastructure would be a negligible increase to potential for wildfire risk in the main portion of the project outside of an SRA or very high FHSZ. Although other projects in the vicinity have the potential to increase potential wildfire risks, they must comply with all relevant wildfire policies. Cumulative effects of this and other related projects would not be significant and no substantial impacts would occur.

LEU Potential Cumulative Impacts

The LEU portion of the project is not located within or near an SRA or within lands classified as very high FHSZs. During construction, LEU will implement BMP WFR-1 and BMP WFR-2 requiring workers to be trained in fire prevention practices and carry emergency fire suppression equipment to reduce the wildland fire risk in the project area. The project will not have occupants and, therefore, will not potentially expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire caused by slope, prevailing winds, or other factors.

The LEU project portion will require the installation and maintenance of electrical infrastructure; however, no 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 is required. During construction, LEU will implement BMP WFR-1 and BMP WFR-2, requiring workers to be trained in fire prevention practices and carry emergency fire suppression equipment to reduce the wildland fire risk in the project area. Installation or maintenance of the electrical facilities associated with the LEU portion of the project will not exacerbate fire risk or result in temporary or ongoing impacts to the environment. Although other projects in the vicinity have the potential to increase potential wildfire risks, they must comply with all relevant wildfire policies. Cumulative effects of this and other related projects would not be significant and no substantial impacts would occur.

7.2 Growth-Inducing Impacts

The following criteria, derived from CEQA Guidelines Section 15126.2(d), are used to evaluate whether the project will result in potential individual or cumulative growth-inducing impacts:

- Any economic or population growth in the surrounding environment that will directly or indirectly result from the proposed project
- Any increase in population that could further tax existing community service facilities (schools, hospitals, fire, police), which will directly or indirectly result from the proposed project
- Any obstacles to population growth that the proposed project would remove
- Any other activities, directly or indirectly encouraged or facilitated by the proposed project, that would cause population growth that could significantly affect the environment, either individually or cumulatively

The project will not, either directly or indirectly, foster economic or population growth. While the proposed project will improve the overall system capability to adequately serve the existing and forecasted load demand, it is not intended to supply power related to potential growth for a particular development and will not lead to growth in areas not previously approved for growth by local agencies. Improved system reliability will not generate new development and the project does not propose new housing, businesses, or other land use changes that will induce economic or population growth in the area. Therefore, no project-related or cumulative growth-inducing impacts are expected.

Project operation will not provide new employment. Operation and maintenance of the new or modified project components will be performed by existing PG&E or LEU workers and will not change from the existing procedures. Construction workers will consist primarily of either existing PG&E, LEU, or contracted workers in the local area or workers who commute from the neighboring cities. Because the construction duration will be relatively short (approximately 34 months, with gaps when no construction will occur), it is

not expected that the construction workers from outside the area will permanently relocate to the area. Because construction will be temporary and operation and maintenance will not create new jobs, any changes to economic and population growth will be less than significant.

The project will not place a higher demand on existing community services. Water needed during project construction and operation will be transported to the site. Wastewater will not result from project operation. As discussed in Section 5.14, Population and Housing, and Section 5.15, Public Services, existing community services are sufficient to serve the project for both the short and long term, and no new housing will be required for construction. Operation and maintenance will be provided by existing crews.

The project will not remove any obstacles to growth in the area. As noted previously, the project will not extend power distribution or other infrastructure into areas not already served. A primary purpose of the proposed project is to address reliability and accommodate forecasted capacity increases. Although the project will strengthen the existing power infrastructure and increase the capacity of the electrical system to deliver renewable energy, the development of power infrastructure is a response to California's renewable energy resources mandate. San Joaquin County planning documents already permit and anticipate a certain level of growth in the area of the project, and this project will not affect that level of growth.

8 List of Preparers

Many PG&E, City of Lodi, and Northern California Power Association employees and representatives contributed to preparation of, or reviewed and commented on drafts of, the Proponent's Environmental Assessment. In addition, the consultants listed in the following table provided support to PG&E in preparing this document.

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4 Description of Alternatives	Andrea Gardner, ACIP, PMP	Senior Environmental Planner, Jacobs • M.A. Urban Planning and Environmental Policy, University of California, Los Angeles • B.S. Mathematics, Stanford University
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5.2 Agriculture and Forestry	Valisa Nez, J.D.	Project Manager, Jacobs • J.D., Law, University of Arizona • M.S., Environmental Earth Science, Dartmouth College • B.A., Earth Science, Dartmouth College
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5.20 Wildfire	Colleen Taylor	Principal Project Manager/Portfolio Manager, Jacobs • M.S. Environmental Management, University of San Francisco • B.S. Environmental Science, University of San Francisco
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