FINAL

Initial Study/Mitigated Negative Declaration

Southern California Edison

Eldorado-Lugo-Mohave Series Capacitor Project

Application A.1805007

California Public Utilities Commission

November 2019

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Appendices

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List of Acronyms

AADT	Average annual daily traffic
AC	Alternating current
ACEC	Area of Critical Environmental Concern
ACHP	Advisory Council on Historic Preservation
ACSR	aluminum conductor steel-reinforced
ADSS	All-dielectric self-supporting
ADT	Average daily trips
AGL	Above ground level
ALUP	Airport Land Use Compatibility Plan
ANSI	American National Standards Institute
APE	Area of Potential Effect
APM	Applicant-Proposed Measure
APS	Arizona Public Service
AQMD	Air quality management district
ARB	Air Resources Board
ARMR	Archaeological Resources Management Report
ARPA	Archaeological Resources Protection Act
BAQP	Bureau of Air Quality Planning
BAT	Best available technology economically achievable
BCCE	Boulder City Conservation Easement
BCFD	Boulder City Fire Department
BCT	Best conventional pollutant control technology
BGEPA	Bald and Golden Eagle Protection Act
BLM	Bureau of Land Management
BMPs	Best management practices
BMRR	Bureau of Mining Regulation and Reclamation
BO	Biological Opinion
BOR	Bureau of Reclamation
BP	Before present
BRSA	Biological Resources Survey Area
BRTR	Biological Resources Technical Report
BWPC	Bureau of Water Pollution Control
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
CAISO	California Independent System Operator
CAPCOA	California Air Pollution Control Officers Association
CBC	California Building Code
CCPW	Clark County Public Works
CCR	California Code of Regulations
CCSD	Clark County School District
CCWRD	Clark County Water Reclamation District
CDCA	California Desert Conservation Area
CDFW	California Department of Fish and Wildlife
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CFR	Code of Federal Regulations

CGC	California Government Code
CGS	California Geological Survey
CHP	California Highway Patrol
CHRIS	California Historical Resources Information System
CIWMB	California Integrated Waste Management Board
CJUTCM	California Joint Utility Traffic Control Manual
CMA	Conservation and Management Action
CMP	Corridor Management Plan
CNDDB	California Natural Diversity Database
CNEL	Community Noise Equivalent Level
CNPS	California Native Plant Society
CPCN	Certificate of Public Convenience and Necessity
CPRC	California Public Resources Code
CPUC	California Public Utilities Commission
CRHR	California Register of Historical Resources
CRIT	Colorado River Indian Tribes
CRMP	Cultural Resources Monitoring Plan
CRPR	California Rare Plant Rank
CRS	Cultural Resources Specialist
CUPA	Certified Unified Program Agencies
CVC	California Vehicle Code
CWA	Clean Water Act
DAQ	Department of Air Quality
DC	Direct current
DGR	Deep Ground Rods
DHS	Department of Health Services
DOC	Department of Conservation
DOD	Department of Defense
DOGGR	Division of Oil, Gas, and Geothermal Resources
DOI	Department of the Interior
DPM	Diesel particulate matter
DPR	Department of Parks and Recreation
DRECP	Desert Renewable Energy Conservation Plan
DTSC	Department of Toxic Substance Control
DWR	Department of Water Resources
EAP	Energy Action Plan
ECSZ	Eastern California Shear Zone
EDR	Environmental Data Resources, Inc.
EHC	Environmental Health Criteria
EIR	Environmental Impact Report
EMF	Electric and magnetic fields
ENA	Electrical Needs Area
EO	Executive Order
EOP	Emergency Operations Plan
EPA	Environmental Protection Agency
ERMA	Extensive Recreation Management Area
ESA	Endangered Species Act
FAA	Federal Aviation Agency
FE	Federally endangered
FEMA	Federal Emergency Management Agency

FERC	Federal Energy Regulatory Commission
FHSZ	Fire Hazard Severity Zones
FICC	Federal Interagency Communications Center
FIRM	Flood Insurance Rate Maps
FLPMA	Federal Land Policy and Management Act
FMMP	Farmland Mapping and Monitoring Program
FP	Federally Protected
FT	Federally Threatened
FUDS	Formerly Used Defense Site
G.O.	General Order
GCM	Gradient Control Mat
GHG	Greenhouse gas
GLO	Government Land Office
GWP	Ground wire peak
GWT	GridLiance West Transco
HCM	Highway Capacity Manual
HDD	Horizontal Directional Drilling
HFC	Hydrofluorocarbon
HFD	Hesperia Fire Department
HLZ	Helicopter landing zone
HMMP	Hazardous Materials Management Plan
HPTP	Historic Properties Treatment Plan
HRRP	Habitat Restoration and Revegetation Plan
HSC	Health and Safety Code
HSWA	Hazardous and Solid Waste Act
HVAC	Heating, ventilating, air conditioning
HWCL	Hazardous Waste Control Law
IARC	International Agency for Research on Cancer
IEEE	Institute of Electrical and Electronic Engineers
IEPR	Integrated Energy Policy Report
IM	Instruction Manual
IRP	Integrated Resource Plan
IS	Initial Study
IWMB	Integrated Waste Management Board
IWMP	Integrated Weed Management Plan
KOP	Key Observation Point
LACM	Natural History Museum of Los Angeles County
LADWP	Los Angeles Department of Water and Power
LOS	Level of Service
LSAA	Lake and Streambed Alteration Agreement
LST	Lattice steel tower
LUPA	Land Use Plan Amendment
LUST	Leaking Underground Storage Tank
LVMPD	Las Vegas Metropolitan Police Department
LVNHM	Las Vegas Natural History Museum
LVRAS	Lugo-Victorville Remedial Action Scheme
MAST	Mountain Area Safety Taskforce
MBTA	Migratory Bird Treaty Act
MCAGCC	Marine Corps Air Ground Combat Center
MDAQMD	Mojave Desert Air Quality Management District

MEC	Munitions and Explosives of concern
MEER	Mechanical Electrical Equipment Room
MLD	Most likely descendant
MMCRP	Mitigation Monitoring Compliance and Monitoring Program
MMRP	Mitigation Monitoring and Reporting Plan
MM	Mitigation Measure
MND	Mitigated Negative Declaration
MPR	Minor Project Refinement
MRF	Materials Recovery Facility
MRZ	Mineral Resource Zone
MSHCP	Multiple Species Habitat Conservation Plan
MT	Metric tons
MVA	Megavolt-ampere
MW	Megawatt
MWD	Metropolitan Water District of Southern California
NAAQS	National Ambient Air Quality Standards
NAC	Nevada Administrative Code
NAGPRA	Native American Graves Protection and Repatriation Act
NAHC	Native American Heritage Commission
NBC	Nevada Building Code
NBMG	Nevada Bureau of Mines and Geology
NBMP	Nesting Bird Management Plan
NCCP	Natural Community Conservation Plan
NCP	National Contingency Plan
NDEP	Nevada Division of Environmental Protection
NDF	Nevada Division of Forestry
NDOT	Nevada Department of Transportation
NDOW	Nevada Department of Wildlife
NEHRP	National Earthquake Hazards Reduction Program
NEHRPA	National Earthquake Hazards Reduction Program Act
NEPA	National Environmental Policy Act
NESC	National Electrical Safety Code
NHP	Nevada Highway Patrol
NHPA	National Historic Preservation Act
NIST	National Institute of Standards and Technology
NIWMP	Noxious and Invasive Weed Management Plan
NNHP	Nevada Natural Heritage Program
NP	Nevada protected
NPDES	National Pollutant Discharge Elimination System
NPL	National Priorities List
NPPA	Native Plant Protection Act
NPS	National Park Service
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NRS	Nevada Revised Statutes
NSF	National Science Foundation
NSM	Nevada State Museum
NSR	New Source Review
NTP	Notice to proceed
NVCRIS	Nevada Cultural Resources Information System

OEHHA	Office of Environmental Health Hazard Assessment
OEM	Office of Emergency Management
OHGW	Overhead ground wire
OHP	Office of Historic Preservation
OHV	Off-highway Vehicle
OMR	Office of Mine Reclamation
OPGW	Optical ground wire
OSHA	Occupational Safety and Health Administration
PBR	Precision Bombing Range
PCB	Polychlorinated biphenyl
PEA	Proponent's Environmental Assessment
PERP	Portable Equipment Registration Program
PFC	Perfluorocarbon
PFM	Petition for Modification
PFYC	Potential Fossil Yield Classification
PGA	Peak site acceleration
PI	Principal Investigator
PM10	Particulate matter (less than 10 microns in diameter)
PM2.5	Fine particulate matter (less than 2.5 microns in diameter)
POU	Publicly owned utility
PPE	Personal protective equipment
PPV	Peak particle velocity
PRC	Public Resources Code
PRGTL	Pacific to Rio Grande Trails Landscape
PRMMP	Paleontological Resource Mitigation and Monitoring Plan
PRPA	Paleontological Resources Preservation Act
PSHA	Probabilistic Seismic Hazard Assessment
PTC	Permit to Construct
PUCN	Nevada Public Utilities Commission
RCNM	Roadway Construction Noise Model
RCRA	Recovery Act of 1976
RECE	Renewable Energy and Conservation Element
RMP	Raven Management Plan
RMS	Root mean square
ROD	Record of Decision
ROG	Reactive organic gases
ROW	Right-of-way
RPS	Renewables Portfolio Standard
RTC	Regional Transportation Commission
RTU	Remote Terminal Unit
RWQCB	Regional Water Quality Control Board
SAA	Streambed Alteration Agreement
SAE	Society of Automotive Engineers
SARA	Superfund Amendments and Reauthorization Act
SBCFCD	San Bernardino County Flood Control District
SBCFIRE	San Bernardino County Fire Department
SBCM	San Bernardino County Museum
SBCSD	San Bernardino County Sheriff's Department
SBTCA	San Bernardino County Transportation Authority
SCADA	Support Supervisory Control and Data Acquisition

SCCIC	South Central Coastal Information Center
SCE	Southern California Edison
SE	State endangered
SES	Safety and Environmental Specialist
SHPO	State Historic Preservation Office
SLF	Sacred Lands File
SMARA	Surface Mining and Reclamation Act
SMGB	State Mining and Geology Board
SNTC	Southern Nevada Transit Coalition
SNWA	Southern Nevada Water Authority
SPCC	Spill Prevention, Control and Countermeasure
SR	State Route
SRMA	Special Recreation Management Areas
SRRE	Source Reduction Recycling Element
SSC	Species of Special Concern
SSURGO	Soil Survey Geographic
ST	State threatened
SVP	Society of Vertebrate Paleontology
SWGS	Solid Waste Generation Study
SWPPP	Stormwater Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TAC	Toxic air contaminant
TCR	Tribal Cultural Resource
TPZ	Timberland production zone
TSDF	Treatment, storage and disposal facility
TSP	Tubular steel pole
UBC	Uniform Building Code
USACE	United States Army Corps of Engineers
USC	United States Code
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
UWMP	Urban water management plan
UXO	Unexploded ordnance
VEA	Valley Electric Association
VMT	Vehicle miles traveled
VOC	Volatile organic compounds
VRI	Visual Resource Inventory
VRI/VRM	Visual Resource Inventory/Visual Resource Management
VRM	Visual Resource Management Plan
VRP	Visual Resource Program
VVTA	Victor Valley Transit Authority
VVWRA	Victor Valley Wastewater Reclamation Authority
WAPA	Western Area Power Administration
WEAP	Worker Environmental Awareness Program
WHO	World Health Organization
WWII	World War II
ZR	Zinc ribbon

PUBLIC UTILITIES COMMISSION
505 VAN NESS AVENUE
SAN FRANCISCO, CA 94102-3298

~~DRAFT~~FINAL

Mitigated Negative Declaration

Southern California Edison's Eldorado-Lugo-Mohave Series Capacitor Project Application No. A.1805007

1. Mitigated Negative Declaration

Project: Eldorado-Lugo-Mohave Series Capacitor Project
San Bernardino County, California and Clark County, Nevada

Project Sponsor: Southern California Edison Company
2244 Walnut Grove Avenue
Post Office Box 800
Rosemead, CA 91770

1.1 Project Objectives

Under this project, Southern California Edison (SCE) proposes a number of improvements to its existing high-voltage transmission system in San Bernardino County, CA and Clark County, NV. The Proposed Project would meet the following objectives:

- Meet the target in-service date of June 2021 in an effort to support the requirements as outlined and required by the California Renewables Portfolio Standard (RPS)[1] including 33% by 2020 and the increased requirement of 60% by 2030, and ensure compliance with California Public Utilities Commission (CPUC) General Order (G.O.) 95 and the National Electrical Safety Code (NESC).
- Continue to provide safe and reliable electrical service.
- Maintain system reliability of SCE transmission facilities within the Los Angeles Basin (metropolitan Orange, Riverside, San Bernardino, Los Angeles, Ventura, and Santa Barbara Counties) as well as the entire California Independent System Operator (CAISO) grid, which is defined as the Electrical Needs Area (ENA).

[1] The California RPS requires investor-owned utilities, electric service providers, and community choice aggregators to procure a minimum quantity of electricity products from eligible renewable energy resources so that the total kilowatt-hours of those products sold to their retail end-use customers achieve a designated percentage for a given year. Currently, the RPS requires 60% procurement by 2030. Additional information regarding the RPS can be found on the CPUC's website: http://www.cpuc.ca.gov/RPS_Homepage/.

- Increase power flow through the existing Eldorado-Lugo, Eldorado-Mohave, and Lugo-Mohave 500 kV Transmission Lines for the purpose of increasing the amount of power delivered from California, Nevada, and Arizona to the ENA[2] through the SCE system in an effort to meet requirements associated with the California RPS[3].
- Reduce SCE's current flow into the LADWP transmission system for the purpose of mitigating power flow overloads under abnormal system conditions.
- Ensure compliance with all applicable reliability planning criteria required by the North American Electric Reliability Corporation, Western Electricity Coordinating Council, and California Independent System Operator (CAISO).
- Integrate planned generation resources in order for those facilities to become fully deliverable.[4]
- Meet the requirements of existing Interconnection Agreements that require the Proposed Project to achieve FCDS for generation facilities.
- Meet Proposed Project needs while minimizing environmental impacts.
- Design and construct the Proposed Project in conformance with SCE's approved engineering, design, and construction standards for substation, transmission, subtransmission, and distribution system projects.

1.2 Introduction

Pursuant to the California Environmental Quality Act (CEQA), the California Public Utilities Commission (CPUC) must prepare an Initial Study (IS) for the Proposed Project to determine if any significant adverse effects on the environment would result from project implementation. The IS uses the significance criteria outlined in Appendix G of the CEQA *Guidelines*. If the IS for the project indicates that a significant adverse impact could occur, the CPUC would be required to prepare an Environmental Impact Report (EIR).

According to Article 6 (Negative Declaration Process) and Section 15070 (Decision to Prepare a Negative Declaration or Mitigated Negative Declaration) of the CEQA *Guidelines*, a public agency shall prepare or have prepared a proposed negative declaration or mitigated negative declaration for a project subject to CEQA when:

(a) The initial study shows that there is no substantial evidence, in light of the whole record before the agency, that the project may have a significant effect on the environment, or

(b) The initial study identified potentially significant effects, but:

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[2] While SCE's original Application to the CPUC defined the Electrical Needs Area (ENA) to include just the Los Angeles Basin, the Proposed Project benefits a larger regional area as well, as is depicted in SCE's Proponent's Environmental Assessment at Figure 1-2 Electrical Needs Area which can be found at http://www.cpuc.ca.gov/environment/info/aspen/elm/pea/vol1_ch1-ch3.pdf.

[3] The Proposed Project provides for the delivery of additional renewable generation into southern California by increasing the operating transmission line capacities from:
- 1,645 megavolt-ampere (MVA) to 2,858 MVA on the Eldorado-Lugo 500 kV Transmission Line and
- 2,078 MVA to 2,858 MVA on the Lugo-Mohave 500 kV Transmission Line

[4] A generating facility is referred to as being "fully deliverable" once it has achieved Full Capacity Deliverability Status (FCDS).

(1) Revisions in the project plans or proposals made by or agreed to by the applicant before a proposed mitigated negative declaration and initial study are released for public review would avoid the effects or mitigate the effects to a point where clearly no significant effects would occur, and

(2) There is no substantial evidence, in light of the whole record before the agency, that the project as revised may have a significant effect on the environment.

Based on the analysis in the IS, and on SCE's agreement to the mitigation measures incorporated therein, it has been determined that all project-related environmental impacts would be less than significant or reduced to a less than significant level with the incorporation of feasible mitigation measures. Therefore, adoption of a Mitigated Negative Declaration (MND) will satisfy the requirements of CEQA. The mitigation measures included in this MND are designed to reduce or eliminate the potentially significant environmental impacts described in the Initial Study. Where a measure described in this document has been previously incorporated into the project, either as a specific project design feature or as an Applicant-Proposed Measure, this is noted in the discussion. Mitigation measures are structured in accordance with the criteria in Section 15370 of the CEQA *Guidelines*.

1.3 Project Description

Southern California Edison's (SCE's) Proposed Project would:

- Construct 2 new 500 kV mid-line series capacitors (i.e., the proposed Newberry Springs Series Capacitor and Ludlow Series Capacitor) and associated equipment.
- Provide 2 communication paths between the series capacitor sites.
  - Install approximately 2 miles of overhead and ~~500~~ 700 feet of underground telecommunications facilities as one path to connect the proposed series capacitors to SCE's existing communication system.
  - Install approximately 2 miles of underground telecommunications facilities as a second communication path to connect the series capacitors to SCE's existing communication system.
- Provide station light and power to the proposed series capacitors by extending and/or rerouting existing lines to create approximately 2 miles of overhead and 700 feet of underground 12 kV distribution circuits. (The new distribution poles would support overhead telecommunication facilities as well as the electric distribution lines.)
- Construct 3 new fiber optic repeater facilities (Barstow, Kelbaker, and Lanfair) within the Lugo-Mohave ROW.
- Install distribution lines for light and power at the 3 proposed fiber optic repeater sites.
- Install underground telecommunications facilities from existing transmission structures to the Barstow, Kelbaker, and Lanfair fiber optic repeater sites.
- Address 16 potential overhead clearance discrepancies at 14 locations by:
  - Relocating, replacing, or modifying existing transmission, subtransmission, and distribution facilities at approximately 12 locations along the Eldorado-Lugo, Eldorado-Mohave, and Lugo-Mohave 500 kV Transmission Lines to address 14 of the overhead clearance discrepancies. Tower modifications would include raising 9 towers up to approximately 18.5 feet by inserting new lattice-steel sections in tower bodies.

  - Performing minor grading at 2 locations along the Lugo-Mohave 500 kV Transmission Line to address 2 of the overhead clearance discrepancies.

- Install approximately ~~235~~ 232 miles of optical ground wire (OPGW) (approximately 59 miles on the Eldorado-Mohave Transmission Line and approximately 173 miles on the Lugo-Mohave Transmission Line, ~~including~~ and approximately 3 miles of underground telecommunications facilities in the vicinity of the Mohave Substation).
- Modify and strengthen the ground wire peak of existing suspension towers where OPGW splices would occur (some of these towers would also require minor modifications to the steel in the tower body).
- Install approximately 2,000 feet of underground telecommunications facilities within the existing Lugo, Mohave, and Eldorado Substations.
- Within Lugo Substation, perform modifications on the existing series capacitors and install new terminating equipment and remove 2 existing tubular steel poles (TSPs) and install 2 new TSPs on the Eldorado-Lugo and Lugo-Mohave 500 kV Transmission Lines.
- Within the Eldorado Substation, perform modifications on the existing series capacitors and upgrade the terminal equipment on the Eldorado-Lugo 500 kV Transmission Line.
- Within the Mohave Substation, replace existing series capacitors on the Lugo-Mohave 500 kV Transmission Line and install new terminal equipment on the Eldorado-Mohave and Lugo-Mohave 500 kV Transmission Lines.
- Within LADWP's McCullough Substation, replace 5 existing 500 kV 50 kA circuit breakers with 5 new 500 kV 63 kA circuit breakers.
- Install (if necessary) cathodic protection on approximately 60 miles of SoCalGas's natural gas pipelines parallel to SCE's Lugo-Mohave 500 kV Transmission Line and on other pipelines as needed.

1.4 Initial Study

An IS was prepared to identify the potential environmental effects resulting from implementation of the Proposed Project and to evaluate the level of significance of these effects. The IS relies on information in SCE's Proponent's Environmental Assessment (PEA) filed on May 2, 2018, subsequent information provided by SCE in response to queries from the CPUC, project site reconnaissance by the CPUC environmental team in June 2018 and April and June 2019, and other environmental analyses and data.

1.5 Applicant Proposed Measures and Mitigation Measures

SCE's PEA identified measures called Applicant-Proposed Measures (APMs) to address potentially significant impacts. The APMS are listed in Section 4.9 in Table 4.18: Applicant Proposed Measures. APMs applicable to a particular resource are cited in the applicable resource section of Section 5. These APMs are considered part of the Proposed Project. Based on the Initial Study analysis, additional mitigation measures are identified to ensure that impacts of the Proposed Project would be less than significant. In some cases the additional mitigation measures supersede some APMs or pertain to impacts not addressed by the APMs. SCE has agreed to implement all of the additional mitigation measures as part of the Proposed Project.

~~SCE is a regulated utility and the CPUC must address and act upon the project in its entirety. However, portions of the project are located on lands under federal jurisdiction or outside of California. Therefore, the mitigation measures adopted as a condition of project approval and agreed to by the Applicant shall~~

~~be implemented throughout the project except where federal agencies or agencies outside California with jurisdiction over lands or resources through which the project passes (collectively, "Other Agencies") impose equivalent or more effective measures, in which case such equivalent or more effective measures will be implemented. Drawing upon CEQA Guidelines section 15074.1 (d) concerning substitute mitigation measures, "equivalent or more effective" means that the substitute or revised measure will avoid or reduce the significant effect to at least the same degree as, or to a greater degree than, the original measure and will create no more adverse effect of its own than would have the original measure. The CPUC will monitor the implementation of mitigation measures over federal land or land outside California by securing appropriate verification that the mitigation measures imposed by the CPUC are implemented or that the mitigation measures imposed by Other Agencies are (i) equivalent or more effective and (ii) implemented.~~

A Mitigation Monitoring Plan has been prepared to ensure that the APMs and mitigation measures are properly implemented. The plan describes specific actions required to implement each measure, including information on timing of implementation and monitoring requirements. Mitigation measures identified in the Initial Study apply to lands under CPUC jurisdiction. On lands within the jurisdiction of other agencies (federal agencies and Nevada), the appropriate authorities can and should impose them or equivalent or more effective measures that would achieve similar results with regard to the reduction of impacts.

Based on the analysis and conclusions of the IS, the impacts of the project as proposed by SCE would be mitigated to less than significant levels with the implementation of the mitigation measures presented herein, which have been incorporated into the Proposed Project.

Not all resources require mitigation to ensure impacts are less than significant. There are no mitigation measures required for Agriculture and Forestry, Energy, Greenhouse Gas Emissions, Land Use and Planning, Mineral Resources, Population and Housing, Public Services, or Recreation.

Other resources require mitigation measures. Implementation of the mitigation measures, listed below by resource topic, would avoid or reduce to less than significant levels all potentially significant impacts identified in the Initial Study. (The full text of mitigation measures also is provided in the resource analysis sections of Section 5, under Environmental Impacts and Mitigation Measures, as well as in Section 6. Mitigation Monitoring Plan.) In some instances, a mitigation measure for one resource is also applicable to a different resource and is cross referenced in the text.

Aesthetics

MM AES-1 **Minimize visual contrast in project design**. In the final design of approved project structures, SCE shall use design fundamentals that reduce the visual contrast of new facilities with the characteristic landscape. These include surface treatments; siting and location; reduction of visibility; repetition of form, line, color, and texture of the landscape; and reduction of unnecessary disturbance. New and modified transmission structures shall be of a dulled galvanized steel consistent with that of existing structures. SCE shall treat the surfaces of other structures and new buildings visible to the public such that: (a) their colors minimize visual contrast by blending with the characteristic landscape colors; and (b) their colors and finishes do not create excessive glare. The steel used to repair or strengthen structures, new steel structures, and conductors, and OPGW shall have surfaces that are non-specular and non-reflective. Project elements with colored surfaces shall be in hues and tones that do not contrast with the surrounding landscape and are consistent with the palette of natural colors that occur in the area.

SCE shall provide for review by the CPUC, BLM, and NPS, a draft Project Design and Surface Treatment Plan describing the siting, placement, and other design considerations to be employed to minimize Proposed Project contrast. The draft plan must explain how the design will minimize visual intrusion and contrast by effectively blending earthwork, vegetation manipulation, and facilities with the landscape. The Project Design and Surface Treatment Plan shall describe the colors and textures to be applied to all new facility structures, buildings, walls, fences, and components to be constructed.

The draft Project Design and Surface Treatment Plan shall be submitted at least 60 days prior to the start of construction. If a reviewing agency notifies SCE that revisions to the plan are needed before the plan can be approved, within 30 days of receiving that notification, SCE shall prepare and submit for review and approval a revised plan.

MM AES-2 **Screen construction activities from view.** To reduce significant impacts associated with construction yards, staging areas, and material and equipment storage areas shall be visually screened using temporary screening fencing, with the exception of construction yards, staging areas, and material and equipment storage areas on existing substation properties. Fencing will be of an appropriate structure, material, and color for each specific location. This requirement shall not apply if SCE can demonstrate that construction yards are located away from areas of high public visibility including public roads, residential areas, and public recreational facilities or the yards are in areas where high winds pose a risk of the screening detaching and creating a hazard. For any site that SCE proposes to exempt from the screening requirement, SCE shall define the site on a detailed map demonstrating its visibility from nearby roads, residences, or recreational facilities to the agency having jurisdiction over the land (CPUC, BLM, or NPS) for review and approval at least 60 days prior to the start of construction at that site.

MM AES-3 **Minimize vegetation removal and ground disturbance.** Only the minimum amount of vegetation necessary for the construction of structures and facilities shall be removed during construction. In particular, vegetation within the ROW and ground clearing at the foot of each tower and between towers shall be limited to the clearing necessary to comply with requirements of CPUC General Order 95 and other regulatory requirements. Scars from temporary work areas and access road may be highly visible when located on hill slopes and along ridges, or when visible from elevated vantage points. In order to reduce visual impacts, the boundaries of all areas to be disturbed shall be delineated consistent with the requirements of Biological Resources Mitigation Measure BR-3. Staking, flagging, or other appropriate means shall define construction work areas, such as capacitor site grading areas, staging yards, and pulling sites. Stakes and flagging shall be installed before construction and in consultation with the Project Biologist and the agency's Environmental Monitor or Visual Specialist. Areas staked or flagged shall be as small as possible in order to minimize the visibility of ground disturbance from sensitive viewing locations such as roads, trails, residences, and recreation facilities and areas. Parking areas and staging and disposal site locations shall be similarly located in areas approved by the Project Biologist and the agency's Environmental Monitor or Visual Specialist prior to the start of construction. All disturbances by Proposed Project vehicles and equipment shall be confined to the staked and flagged areas.

MM BR-7 **Restore or revegetate temporary disturbance areas**. (The full text of this mitigation measure is provided in Section 5.4, Biological Resources. It would require restoration and revegetation of disturbed areas, which would reduce visual impacts.)

MM AES-4 **Minimize night lighting at new project facilities.** At the project's new in-line series capacitors and fiber optic repeater facilities, SCE shall avoid night lighting where possible and minimize its use under all circumstances. To ensure this, SCE shall implement the following general principles and specifications:

- When used, portable truck-mounted lighting shall point away from roads and from residences within 1,000 feet.
- White lighting (metal halide) (a) shall only be used when necessitated by specific work tasks; and (b) shall be less than 3500 Kelvin color temperature.
- All lamp locations, orientations, and intensities shall be the minimum needed for safety and security.
- Light fixtures that could be visible from beyond project facility boundaries shall have cutoff angles sufficient to prevent lamps and reflectors from being visible beyond the project facility boundary, including security lighting.
- If security lighting is installed, motion sensors are to be used to activate the security lighting; lights shall operate continuously only when the area is occupied.
- All temporary construction lighting, including at yards, and all permanent exterior lighting shall include: (a) lamps and reflectors that are not visible from beyond the construction site or facility including any off-site security buffer areas; (b) lighting that does not cause excessive reflected glare; and (c) directed lighting that does not illuminate the nighttime sky, except for required FAA aircraft safety lighting, if required.
- Lighted nighttime maintenance is to be minimized or avoided as a routine practice and should occur only during emergencies.

Air Quality

MM AQ-1 **Prepare and implement a Dust Control Plan.** SCE shall avoid visible fugitive dust emissions by implementing the following dust control measures derived from MDAQMD Rule 403.2. Prior to commencing earth-moving activity, SCE shall prepare and submit to the MDAQMD, Clark County DAQ, CPUC, BLM and NPS a **Dust Control Plan** that describes all dust control measures that will be implemented for the project, including, but not limited to:

- Use periodic watering for short-term stabilization of disturbed surface area to minimize visible fugitive dust emissions. If used, non-water-based or chemical soil stabilizers and dust suppressants shall be non-toxic and must not cause loss of vegetation, adverse odors, or additional emissions of ozone precursor reactive organic gases (ROG) or volatile organic compounds (VOC).
- Provide stabilized access route(s) to the project site as soon as is feasible and enforce a maximum 15 mile per hour vehicle speed limit on any unpaved surface.
- Stabilize graded site surfaces upon completion of grading when subsequent development is delayed or expected to be delayed more than thirty days, except when such a delay is due to precipitation that dampens the disturbed surface sufficiently to eliminate visible fugitive dust emissions.
- Maintain natural topography to the extent possible.

- Construct parking lots and paved areas first, where feasible.
- Take actions sufficient to prevent project-related trackout or spills onto publicly maintained paved surfaces, and cleanup project-related trackout or spills on publicly maintained paved surfaces within 24 hours.
- Cover loaded haul vehicles or provide adequate freeboard while operating on publicly maintained paved surfaces.
- Reduce non-essential earth-moving activity under high wind conditions, gusts exceeding 25 miles per hour.

Biological Resources

MM BR-1 **Conduct biological monitoring and reporting.** The following provisions shall apply to the approved project during the construction and post-construction restoration phases.

Lead biologist: SCE shall propose one or more lead biologist(s) and submit their resume(s) to the CPUC and BLM for concurrence, no less than 60 days prior to the start of any ground-disturbing activities, including those occurring prior to site mobilization (including, but not limited to geotechnical borings or hazardous waste evaluations). At minimum the lead biologist will hold a bachelor's degree in biological sciences, zoology, botany, ecology, or a closely related field; have at least three years of experience in field biology and at least one year of direct field experience with biological resources found in or near the project area, *OR* relevant education and experience that demonstrates the ability to carry out the tasks required of a lead biologist. The resume(s) shall demonstrate to the satisfaction of the CPUC and BLM the appropriate education and experience to accomplish the assigned biological resources tasks.

The lead biologist will be SCE's primary point of contact to CPUC, BLM, NPS, CDFW, and USFWS regarding any biological resource issues and implementation of related mitigation measures and permit conditions throughout project construction and post-construction restoration work. In addition, the lead biologist will oversee supervision and training of biological monitors (below) and preparation and submission of all monitoring reports and notifications (below).

If the lead biologist is replaced, the specified information of the proposed replacement must be submitted to the CPUC and BLM at least ten working days prior to the termination or release of the preceding lead biologist. In an emergency, SCE shall immediately notify the CPUC and BLM to discuss the qualifications and approval of a short-term replacement while a permanent lead biologist is proposed for consideration.

Biological monitors: SCE shall assign qualified biological monitors to the project to monitor all work activities with the potential to impact special status species or their habitat during the construction phase. Work sites or activities considered to have no potential to impact special-status species or habitats will be subject to review and approval by CPUC in coordination with CDFW, USFWS, and BLM.

Monitors are responsible for ensuring that impacts to special-status species, native vegetation, wildlife habitat, and sensitive or unique biological resources are avoided or minimized to the fullest extent safely possible. Monitors are also responsible to ensure that work activities are conducted in compliance with the retained APMs, mitigation measures, permit conditions, and other project requirements.

Resumes of all biological monitors, including specialty monitors (including but not limited to bat, nesting bird, and special-status species monitors), shall be provided for concurrence by the CPUC and BLM, at least 10 working days prior to the monitor commencing field duties. The resumes shall demonstrate, to the satisfaction of the CPUC and BLM, the appropriate education and experience to accomplish the assigned biological resources tasks.

SCE shall provide training to biological monitors, in addition to WEAP (see Mitigation Measure BR-2) and prior to the monitor commencing field duties, on biological resources present or potentially present on the Proposed Project, as well as mitigation measures, permit requirements, project protocols, and the duties and responsibilities of a biological monitor.

Biological monitors shall inform construction crews daily of any environmentally sensitive areas (ESAs), nest buffers, or other resource issues or restrictions that affect the work sites for that day. Biological monitors shall communicate with construction supervisors and crews as needed (e.g., at daily tailgate safety meetings ("tailboards"), by telephone, text message, or email) to provide guidance to maintain compliance with mitigation measures and permit conditions. SCE shall ensure that adequate numbers of monitors are assigned to effectively monitor work activities and that communications from biological monitors are promptly directed to crews at each work site for incorporation into daily work activities. If biological monitors are unavailable for a tailboard meeting, the construction supervisors shall communicate all ESA, nest buffers, or other resource restrictions to crews during the meeting. SCE shall ensure that biological monitors are provided with an accurate daily construction work schedule as well as updated information on any alterations to the daily construction work schedule. This information shall also be provided to CPUC/BLM monitors. SCE shall ensure that biological monitors are provided with up-to-date biological resource maps and construction maps in hardcopy or digital format. These maps shall also be provided to CPUC/BLM monitors.

Monitors shall be familiar with the biological resources present or potentially present, ESAs, nest buffers, and any other resource issues at the site(s) they are monitoring, as well as the applicable mitigation measures and permit requirements. Monitors shall exhibit diligence in their monitoring duties and refrain from any conduct or potential conflict of interest that may compromise their ability to effectively carry out their monitoring duties.

Biological monitor duties and responsibilities: Throughout the duration of construction, SCE shall conduct biological monitoring and have biological monitors on site at all times when project activities are occurring in any area where there is a potential to impact sensitive biological resources or jurisdictional waters, including but not limited to vegetation removal/trimming/disturbance, all ground-disturbing work activities, and initial "drive and crush" in the project area, including work sites, yards, staging areas, access roads, and any area subject to project disturbance. Pre-construction activities (e.g., for geotechnical borings, hazardous waste evaluations, etc.) and post-construction restoration shall also be monitored by a biological monitor during all such activities.

Each day, prior to work activities at each site requiring monitoring, a biological monitor shall conduct clearance surveys ("sweeps") for sensitive plant or wildlife resources that may be located within or adjacent to the construction areas. If sensitive resources are found, the biological monitor shall take appropriate action as defined in all adopted mitigation measures, retained APMs, and permit conditions. Work activities shall not

commence at any work site until the clearance survey has been completed and the biological monitor communicates to the contractor that work may begin.

Biological monitors shall clearly mark sensitive biological resource areas with staking, flagging, or other appropriate materials that are readily visible and durable. The monitors will inform work crews of these areas and the requirements for avoidance and will inspect these areas at appropriate intervals for compliance with regulatory terms and conditions. The biological monitors shall ensure that work activities are contained within approved disturbance area boundaries at all times.

Biological monitors shall have the authority and responsibility to halt any project activities that are not in compliance with applicable mitigation measures, retained APMs, permit conditions, or other project requirements, or will have an unauthorized adverse effect on biological resources.

Handling, relocation, release from entrapment, or other interaction with wildlife shall be performed consistent with mitigation measures, safety protocols, permits (including CDFW and USFWS permits), and other project requirements.

Biological monitors shall, to the extent safe, practicable, and consistent with mitigation measures and permit conditions, actively or passively relocate wildlife out of harm's way. On a daily basis, biological monitors shall inspect construction areas where animals may have become trapped, including equipment covered with bird exclusion netting, and release any trapped animals. Daily inspections shall also include areas with high vehicle activity (e.g., yards, staging areas), to locate animals in harm's way and relocate them if necessary. If safety or other considerations prevent biological monitors from aiding trapped wildlife or wildlife in harm's way, SCE shall consult with the construction contractor, CDFW, wildlife rehabilitator, or other appropriate party to obtain aid for the animal, consistent with Mitigation Measure BR-7 (Ensure wildlife impact avoidance and minimization).

At the end of each work day, biological monitors shall verify that excavations, open tanks, and trenches have been covered or have ramps installed to prevent wildlife entrapment and communicate with work crews to ensure these structures are installed and functioning properly.

Biological monitors shall regularly inspect any wildlife exclusion fencing daily to ensure that it remains intact and functional. Any need for repairs to exclusion fencing shall be immediately communicated to the responsible party, and repairs shall be carried out in a timely manner, generally within one work day.

Reporting: SCE shall prepare and implement a procedure for communication among biological monitors and construction crews, to ensure timely notification (i.e., daily or sooner, as needed) to crews of any resource issues or restrictions. SCE will notify the CPUC and BLM of the procedure and will maintain records of daily communication. SCE will provide CPUC and BLM on-line access to project resource management maps and GIS data.

Monitoring activities shall be thoroughly and accurately documented on a daily basis. SCE shall prepare and submit daily, weekly, annual, and final monitoring reports to the CPUC and BLM. Prior to the start of monitoring activities, SCE shall provide proposed monitoring report formats, describing content and organization, for CPUC and BLM review and approval in consultation with CDFW and USFWS.

MM BR-2 **Prepare and implement a Worker Environmental Awareness Program (WEAP).** SCE shall prepare and implement a project-specific Worker Environmental Awareness Program (WEAP) to educate on-site workers about the Proposed Project's sensitive environmental issues. The WEAP shall be presented by the lead biologist or a biological monitor to all personnel on-site during the construction phase, including but not limited to surveyors, engineers, inspectors, contractors, subcontractors, supervisors, employees, monitors, visitors, and delivery drivers. If the WEAP presentation is recorded on video, it may be presented by any competent project personnel. Throughout the duration of construction, SCE shall be responsible for ensuring that all on-site project personnel receive this training prior to beginning work. A construction worker may work in the field along with a WEAP-trained crew for up to 5 days prior to attending the WEAP training. SCE shall maintain a list of all personnel who have completed the WEAP training. This list shall be provided to the CPUC and BLM upon request.

The WEAP shall consist of a training presentation, with supporting written materials provided to all participants. At least 60 days prior to the start of ground-disturbing activities, SCE shall submit the WEAP presentation and associated materials to the CPUC and BLM for review and approval in consultation with the USFWS and CDFW.

The WEAP training shall include, at minimum:

- Overview of the project, the jurisdictions the project route passes through (e.g., San Bernardino County, CA; Clark County, Nevada; CSLC; BLM; NPS; BOR; DOD) and any special requirements of those jurisdictions.
- Overview of the federal and state Endangered Species Acts, Bald and Golden Eagle Protection Act, Migratory Bird Treaty Act, and the consequences of non-compliance with these acts.
- Overview of the project mitigation and biological permit requirements, and the consequences of non-compliance with these requirements.
- Sensitive biological resources on the project site and adjacent areas, including nesting birds, special-status plants and wildlife and sensitive habitats known or likely to occur on the project site, project requirements for protecting these resources, and the consequences of non-compliance.
- Construction restrictions such as limited operating periods, Environmentally Sensitive Areas (ESAs), and buffers and associated restrictions, and other restrictions such as no grading areas, flagging or signage designations, and consequences of non-compliance.
- Avoidance of invasive weed introductions onto the project site and surrounding areas, and description of the project's weed control plan and associated compliance requirements for workers on the site.
- Function, responsibilities, and authority of biological and environmental monitors and how they interact with construction crews.
- Requirement to remain within authorized work areas and on approved roads, with examples of the flagging and signage used to designate these areas and roads, and the consequences of non-compliance.
- Procedure for obtaining clearance from a biological monitor to enter a work site and begin work (including moving equipment), and the requirement to wait for that clearance.

- One-hour hold (or other method SCE will use to halt work when necessary to maintain compliance) and the requirement for compliance.
- Nest buffers and associated restrictions and the consequences of non-compliance. Procedure and time frame for halting work and removing equipment when a new buffer is established. Discussion of nest deterrents.
- Explanation that wildlife must not be harmed or harassed. Procedures for covering pipes, securing excavations, and installing ramps to prevent wildlife entrapment. What to do and who to contact if dead, injured, or entrapped animals are encountered.
- General safety protocols such as hazardous substance spill prevention, containment, and cleanup measures; fire prevention and protection measures; designated smoking areas (if any) and cigarette disposal; safety hazards that may be caused by plants and animals; and procedure for dealing with rattlesnakes in or near work areas or access roads.
- Project requirements that have resulted in repeated compliance issues on other recent transmission line projects, such as dust control, speed limits, track out (dirt or mud tracked from access roads or work sites onto paved public roads or other areas), personal protective equipment (PPE), work hours, working prior to clearance, and waste containment and disposal.
- Printed training materials, including photographs and brief descriptions of all special-status plants and animals that may be encountered on the project, including behavior, ecology, sensitivity to human activities, legal protection, penalties for violations, reporting requirements, and protection measures.
- Contact information for SCE, construction management, and contractor environmental personnel, and who to contact with questions.
- Training acknowledgment form to be signed by each worker indicating that they understand and will abide by the guidelines, and a hardhat sticker so WEAP attendance may be easily verified in the field.

WEAP Lite. An abbreviated version of WEAP training ("WEAP lite") may be used for individuals who are exclusively delivery drivers, concrete truck drivers, or visitors to the project site, and will be provided by a qualified project biologist, biological monitor, or environmental field staff prior to those individuals entering or working on the project. Short-term visitors (total of 5 days or less per year) to the project site who will be riding with and in the company of WEAP-trained project personnel for the entire duration of their visit(s) are not required to attend WEAP or WEAP lite training. WEAP lite presentations shall be tailored to delivery/concrete truck drivers and visitors as well as the situation and emphasize project requirements that are relevant to those individuals and that situation.

WEAP Refreshers. Biological monitors or environmental field staff will periodically present brief WEAP refresher presentations at tailboards to help construction crews and other personnel maintain awareness of environmental sensitivities and requirements. A 5- to 10-minute informal talk will be presented at each of the project's main contractor/ subcontractor tailboards at least once a week.

When a contractor or subcontractor resumes work after a long break, a biological monitor or environmental field staff will provide an extended WEAP refresher presentation (10-20 minutes) at each of the contractor/subcontractor tailboards on the first day back to work.

MM BR-3 **Minimize native vegetation and habitat loss.** Final engineering of the project shall minimize the extent of disturbance and removal of native vegetation and habitat, to the extent safely possible. Work activities and roadways will avoid or minimize direct or indirect effects to sensitive habitat types or jurisdictional waters and provide buffer areas to minimize disturbance. Project access will utilize existing routes or bridges over jurisdictional waters wherever possible.

Consistent with project safety and security protocols, landowner preferences, and any other applicable regulations or requirements, existing gates on project access roads will be closed and secured when project personnel enter or leave an area.

Prior to beginning any ground-disturbing activities, SCE shall provide CPUC and BLM with final engineering GIS shapefiles depicting all temporary and permanent disturbance areas, as well as summary data on temporary and permanent disturbance for each vegetation or habitat type.

On completion of project construction, SCE shall provide CPUC and BLM with GIS shapefiles of all actual temporary and permanent disturbance areas, and summary data of all discrepancies between final engineering and "as-built" conditions for each vegetation or habitat type.

To the extent feasible and safe, vegetation removal within work areas will be minimized and construction activities will implement drive and crush access and site preparation rather than grading. Stockpiling of spoils and salvaged topsoil will be located in previously disturbed areas and/or will avoid native habitat areas.

Prior to any construction, equipment or crew mobilization at each work site, work areas will be marked with staking or flagging to identify the limits of work and will be verified by project environmental staff and CPUC Environmental Monitor. Staking and flagging will clearly indicate the work area boundaries. Where staking cannot be used, traffic cones, traffic delineators, or other markers shall be used. Staking and flagging or other markers shall be in place during construction activities at each work site and refreshed as needed. Coded flagging colors or color combinations will be consistent and uniform across the project. All work activities, vehicles, and equipment will be confined to approved roads and staked and flagged or marked work areas.

MM BR-4 **Restore or revegetate temporary disturbance areas.** [Replaces APM BIO-01 to provide further specificity.] SCE will implement a restoration or revegetation plan for all temporarily disturbed sites. Given that temporary impacts to desert tortoise habitat is considered a permanent impact in this MND and under BLM's Programmatic Biological Opinion (BO) provides federal take authorization for the Project, SCE will mitigate for all desert tortoise habitat impacts as permanent impacts through compensatory mitigation. These temporarily disturbed sites will be subject to revegetation (i.e., re-establishment of vegetation to minimize long-term erosion, dust, and weed infestation) but habitat restoration will not be required. SCE will be required to implement habitat restoration at temporarily disturbed sites not mitigated through off-site compensation. SCE will provide a Habitat Restoration and Revegetation Plan (HRRP) to cover all temporarily disturbed sites, identifying sites to be subject to revegetation alone and those to be

restored. The HRRP will describe, at a minimum, which revegetation or restoration method (e.g., natural revegetation, planting, or reseeding with native seed stock in compliance with the Proposed Project's SWPPPs) will be implemented at each temporarily disturbed site. It will include the plant species or habitats to be restored or revegetated, the restoration or revegetation methods and techniques, and the monitoring periods and success criteria.

All temporarily disturbed areas will be subject to revegetation and site management activities and success criteria of the Proposed Project's SWPPP/Erosion Control Plan (HWQ-1) and the Integrated Weed Management Plan (BR-5) to ensure soil stabilization, vegetation cover, and weed prevention. In addition to those requirements, for any temporarily disturbed area not subject to compensatory mitigation (BR-8), the HRRP shall include:

- Restoration goals and objectives for each portion of the project area, based on vegetation type and jurisdictional status of each site.
- Quantitative success criteria for each restoration site, area, or category.
- Implementation details, including but not limited to topsoil stockpiling and handling; post-construction site preparation; soil decompaction and recontouring; planting and seeding palettes to include only native, locally sourced materials with confirmed availability from suppliers; fall or other suitable season planting or seeding dates (seeding outside the fall season may increase the risk of revegetation failure and need for subsequent remedial reseeding, irrigation, or other measures).
- Maintenance details, including but not limited to irrigation or hand-watering schedule and equipment, erosion control, and weed control measures.
- Monitoring and Reporting, specifying monitoring schedule and data collection methods throughout establishment of vegetation with key indicators of successful or unsuccessful progress, and quantitative criteria to objectively determine success or failure at the conclusion of the monitoring period.
- Contingency measures such as reseeding, replanting, drainage repairs, adjustments to irrigation or weeding schedule, and extension of maintenance beyond the original schedule, to repair or remediate sites not on track to meet success criteria, or not meeting the criteria at the close of the originally scheduled monitoring period.
- A Gantt Chart or similar exhibit identifying all components of the HRRP, including acquisition of plant materials, specifying site preparation and seeding or planting dates, identifying entity to perform each task (e.g., EPC contractor or restoration contractor) and indicating critical path activities.

The Draft HRRP shall be submitted to CPUC and BLM review and approval prior to the beginning of ground-disturbing activities. SCE shall incorporate all requested revisions in coordination with the CPUC and BLM and finalize the HRRP within 12 months from the start of construction.

For all restoration areas, if a fire, flood, or other disturbance beyond the control of SCE, CPUC, and BLM damages the area within the monitoring period, SCE shall be responsible for a one-time replacement. If a second event occurs, no replacement is required.

For all revegetation (per SWPPP requirements) or restoration sites (per the HRRP), only seed or potted nursery stock of locally occurring native species will be used. Seeding and

planting will be informed by Chapter 5 of *Rehabilitation of Disturbed Lands in California* (Newton and Claassen, 2003). The list of plants observed during botanical surveys of the project area will be used as a guide to site-specific plant selection.

Monitoring of the restoration sites will continue annually for up to 5 years or until the defined success criteria in the HRRP are achieved. SCE will be responsible for implementing remediation measures as needed. Following remediation work, each site will still be subject to the success criteria required for the initial restoration. The monitoring period for remediation work will be concurrent with the monitoring period required for the initial restoration.

Reporting. For all restoration areas, SCE will provide annual reports to the CPUC and BLM verifying the total vegetation acreage subject to temporary and permanent disturbance, identifying which items of the HRRP have been completed, and which items are still outstanding. The annual reports will also include a summary of the restoration activities for the year, a discussion of whether success criteria were met, any remedial actions conducted and recommendations for remedial action, if warranted, that are planned for the upcoming year. Each annual report will be submitted within 90 days after completion of each year of restoration work.

MM BR-5 **Prepare and Implement an Integrated Weed Management Plan.** [Supersedes APM BIO-03.] SCE shall prepare and implement an Integrated Weed Management Plan (IWMP) describing the proposed methods of preventing or controlling project-related spread or introduction of weeds. The IWMP also must meet BLM's requirements for NEPA disclosure and analysis if herbicide use is proposed for the project. A Draft IWMP shall be submitted to the CPUC and BLM for review and approval at least 60 days prior to SCE's application for Notice to Proceed, and no pre-construction activities (e.g., for geotechnical borings, hazardous waste evaluations, etc.), construction, equipment or crew mobilization, or project-related ground-disturbing activity shall proceed until the IWMP is approved.

For the purpose of the IWMP, "weeds" shall include designated noxious weeds, as well as any other non-native weeds or pest plants identified on the weed lists of the California Department of Food and Agriculture, the California Invasive Plant Council, or identified by BLM as special concern. The IWMP will include the contents listed below. The IWMP will be implemented throughout project pre-construction, construction, and post-construction revegetation phases, including throughout implementation of the HRRP (Mitigation Measure BR-4). The IWMP will include the information defined in the following paragraphs.

Background. An assessment of the Proposed Project's potential to cause spread of invasive non-native weeds into new areas, or to introduce new non-native invasive weeds into the ROW. This section must list known and potential non-native and invasive weeds occurring on the ROW and in the project region and identify threat rankings and potential consequences of project-related occurrence or spread for each species. This section must also identify control goals for each species (e.g., eradication, suppression, or containment) likely to be found within the Proposed Project area.

Pre-construction weed inventory. SCE shall inventory weeds in all areas (both within and outside the ROW) subject to project-related vegetation removal/disturbance, "drive and crush," and ground-disturbing activity. The weed inventory shall also include vehicle and equipment access routes within the ROW and all project staging and storage yards.

Weed occurrences shall be mapped and described according to density and area covered.

Pre-construction weed treatment. Weed infestations identified in the pre-construction weed inventory shall be evaluated to identify potential for project-related spread and potential benefits (if any) of pre-construction treatment, considering the specific weeds, potential seed banks, or other issues. The IWMP will identify any infestations to be controlled or eradicated prior to project construction, or other site-specific weed management requirements (e.g., avoidance of soil or transport and site-specific vehicle washing where threat or spread potential is high). Control and follow-up monitoring of pre-construction weed treatment sites will follow methods identified in appropriate sections of the IWMP.

Prevention. The IWMP shall specify methods to minimize potential transport of new weed seeds onto the ROW, or from one section of the ROW to another. The ROW may be divided into "weed zones," based on known or likely invasive weeds in any portion of the ROW. The IWMP will specify inspection procedures for construction materials and equipment entering the Proposed Project area. Vehicles and equipment may be inspected and cleaned at entry points to specified portions of the ROW, and before leaving work sites where weed occurrences must be contained locally. Construction equipment shall be cleaned of dirt and mud that could contain weed seeds, roots, or rhizomes. Equipment shall be inspected to ensure it is free of any dirt or mud that could contain weed seeds, and the tracks, outriggers, tires, and undercarriage will be carefully washed, with special attention being paid to axles, frame, cross members, motor mounts, underneath steps, running boards, and front bumper/brush guard assemblies. Other construction vehicles (e.g., pick-up trucks) that will be frequently entering and exiting the site will be inspected and washed on an as-needed basis. Tools such as chainsaws, hand clippers, pruners, etc., shall be cleaned of dirt and mud before entering project work areas.

All vehicles shall be washed off-site when possible. If off-site washing is infeasible, on-site cleaning stations will be set up at specified locations to clean equipment before it enters the work area. Wash stations will be located away from native habitat or special-status species occurrences. Wastewater from cleaning stations will not be allowed to run off the cleaning station site. When vehicles and equipment are washed, a daily log must be kept stating the location, date and time, types of equipment, methods used, and personnel present. The log shall contain the signature of the responsible crewmember. Written or electronic logs shall be available to BLM and CPUC monitors on request.

Erosion control materials (e.g., hay bales) must be certified free of weed seed before they are brought onto the site. The IWMP must prohibit on-site storage or disposal of mulch or green waste that may contain weed material. Mulch or green waste will be removed from the site in a covered vehicle to prevent seed dispersal and transported to a licensed landfill or composting facility.

The IWMP must specify guidelines for any soil, gravel, mulch, or fill material to be imported into the Proposed Project area, transported from site to site within the Proposed Project area, or transported from the Proposed Project area to an off-site location, to prevent the introduction or spread of weeds to or from the Proposed Project area.

Monitoring. The IWMP shall specify methods to survey for weeds during pre-construction, construction, and restoration phases; and shall specify qualifications of botanists responsible for weed monitoring and identification. It must include a monitoring schedule to ensure timely detection and immediate control of new weed infestations to prevent further spread. Surveying and monitoring for weed infestations shall occur at least two times per year through the close of the restoration phase, to coincide with the early detection period for early season and late season weeds (i.e., species germinating in winter and flowering in late winter or spring, and species germinating later in the season and flowering in summer or fall). It also must include methods for marking invasive weeds on the ROW and recording and communicating these locations to weed control staff. The map of weed locations (discussed above) shall be updated at least once a year. The monitoring section shall also describe methods for post-eradication monitoring to evaluate success of control efforts and any need for follow-up control.

Control. The IWMP must specify manual and chemical weed control methods to be employed. The IWMP shall include only weed control measures with a demonstrated record of success for target weeds, based on the best available information. The plan shall describe proposed methods for promptly scheduling and implementing control activity when any project-related weed infestation is located (e.g., located on a project disturbance site), to ensure effective and timely weed control. Weed infestations must be controlled or eradicated upon discovery, and before they go to seed, to the extent feasible with the goal to prevent further spread. All proposed weed control methods must minimize the extent of any disturbance to native vegetation, limit ingress and egress to defined routes, and avoid damage from herbicide use or other control methods to any environmentally sensitive areas identified within or adjacent to the ROW.

New weed infestations shall be treated at a minimum of once annually until eradication, suppression, or containment goals are met. For eradication, when no new occurrences are observed for three consecutive, years , the weed occurrence can be considered eradicated and weed control efforts may cease for the site.

Manual control shall specify well-timed removal of weeds or their seed heads with hand tools; seed heads and plants must be disposed of in accordance with guidelines from the San Bernardino County Agricultural Commissioner and Nevada Department of Agriculture, if such guidelines are available.

The chemical control section must include specific and detailed plans for any herbicide use. It must indicate where herbicides will be used, which herbicides will be used, and specify techniques to be used to avoid drift or residual toxicity to wildlife and native vegetation or special-status plants, consistent with BLM's *Vegetation Treatments Using Herbicides on BLM Lands in 17 Western States* (BLM, 2007) and *National Invasive Species Management Plan* (NISC, 2008). Only state and BLM-approved herbicides may be used. Herbicide treatment will be implemented by a Licensed Qualified Applicator. Herbicides shall not be applied during or within 24 hours of predicted rain. Only water-safe herbicides shall be used in riparian areas or within channels (engineered or not) where they could run off into downstream areas. Herbicides shall not be applied when wind velocities exceed six (6) mph. All herbicide applications will follow U.S. Environmental Protection Agency label instructions and will be in accordance with federal, state, and local laws and regulations.

Reporting schedule and contents. The IWMP shall specify the reporting schedule and contents of each report.

MM BR-6 **Minimize and mitigate impacts to special-status plants.** [Supersedes APM BIO-02.]

Pre-construction survey. SCE shall conduct focused pre-construction surveys for federal- and state-listed and other special-status plants within suitable habitat. All special-status plant species (including listed threatened or endangered species, and CNPS California Rare Plant Rank (CRPR) 1 and 2 ranked species likely to be impacted by project activities shall be documented in pre-construction survey reports. Surveys shall be conducted by a qualified botanist during the appropriate season in all suitable habitat within 50 feet of disturbance areas. . The field surveys and reporting must conform to current CDFW botanical field survey protocol (CDFG, 2018). Where any special-status plants may be discovered, the survey area will extend beyond the ROW to determine the extent of the local occurrence, to evaluate the significance of any project impacts. The reports will describe any conditions that may have prevented target species from being located or identified, even if they are present as dormant seed or below-ground rootstock. If pre-construction survey areas conducted in years of poor rainfall or following other extreme events (e.g., recent intense overgrazing or wildfire), then the project shall use data from 2016/2017 and 2019 surveys to define population area and maximum number of individuals (Note, the unusually high rainfall in 2017 and 2019 are likely to better define rare plant locations and have more accurate results than subsequent years with lower rainfall). For species not previously detected on surveys but for which have a high potential to occur, reference populations will be used to determine if the species is detectable for pre-construction surveys conducted in suitable habitat. Prior to initial ground disturbance at individual construction work areas, SCE shall submit pre-construction field survey reports along with maps showing locations of survey areas and special-status plants to the CPUC and BLM for review and approval in coordination with CDFW.

Native cactus and *Yucca*. Most native cactus and shrubby *Yucca* species (Joshua tree and Mohave yucca) can be successfully salvaged and transplanted, and yuccas often provide an important vertical component to wildlife habitat. Therefore, native cactus (excluding chollas in the genus *Cylindropuntia*) and yuccas (including Joshua trees, *Y. brevifolia*), shall be avoided or salvaged as follows:

SCE will prepare and implement a cacti and yucca salvage plan. The goal shall be maximum practicable survivorship of salvaged plants. The Plan will include at minimum: (a) species and locations of plants identified for salvage; (b) criteria for determining whether an individual plant is appropriate for salvage; (c) the appropriate season for salvage; (d) equipment and methods for collection, transport, and re-planting plants or seed banks, to retain intact soil conditions and maximize success; (e) a requirement to mark each plant to identify the north-facing side prior to transport, and replant it in the same orientation; (f) details regarding storage of plants or seed banks for each species; (g) location of the proposed recipient site, and detailed site preparation and plant introduction techniques for top soil storage, as applicable; (h) a description of the irrigation, weed control, and other maintenance activities; (i) success criteria, including specific timeframe for survivorship and reproduction of each species; and (j) a detailed monitoring program, commensurate with the Plan's goals.

Mitigation. SCE shall mitigate impacts to any state or federally listed plants or CRPR 1 or Nevada ranked S1, S2, or S3 species that may be located on the project disturbance areas or surrounding buffer areas through one or a combination of the following strate-

gies. Additionally, impacts to CRPR 2 ranked plants occurring in California will be similarly mitigated.

Avoidance of special-status plants will be the preferred strategy wherever feasible. Where avoidance is not feasible, and the project would directly or indirectly affect more than 10 percent of a local occurrence,[5] by either number of plants (shrubs and trees) or extent of occupied habitat (annuals or perennial herbs), SCE shall prepare and implement a mitigation plan to consist of off-site compensation, salvage, horticultural propagation / off-site introduction, or a combination of these.

- **Avoidance.** Work areas shall be located to avoid or minimize impacts to special-status plants to the greatest extent possible. Effective avoidance through project design shall include a buffer area surrounding each avoided occurrence, where no project activities will take place. The buffer area will be clearly staked, flagged, and signed for avoidance prior to the beginning of ground-disturbing activities, and maintained throughout the construction phase. At minimum, the buffer for shrub species shall be equal to twice the drip line (i.e., two times the distance from the trunk to the canopy edge) to protect and preserve the root systems. The buffer for herbaceous species shall be a minimum of 50 feet from the perimeter of the occupied habitat or the individual(s). However, for locations in the mountains, a larger buffer may need to be applied to shrub and herbaceous species if the construction monitors determine there is a risk of indirect effects from erosion or inundation. If a smaller buffer is necessary due to other project constraints, SCE will develop and implement site-specific monitoring and put other measures in place to avoid the take of the species, with the approval of the CPUC and BLM, in coordination with CDFW.
- **Off-site compensation.** SCE shall provide compensation lands consisting of habitat occupied by the impacted CRPR 1 or 2 ranked plant populations at a 1:1 ratio of acreage and number of plants for any occupied habitat directly impacted (whether temporary or permanent) by the project. Occupied habitat will be calculated on the project site and on the compensation lands as including each special-status plant occurrence and a surrounding 50-foot buffer area. If compensation is selected as a means of mitigating special-status plant impacts, it may be accomplished by purchasing credit in an established mitigation bank, acquiring conservation easements, or direct purchase and preservation of compensation lands. Compensation for these impacts may be "nested" or "layered" with compensation for habitat loss described in Mitigation Measure BR-8.
- **Salvage.** SCE shall consult with a qualified restoration ecologist or horticulturist regarding the feasibility and likely success of salvage efforts for each species. If salvage is deemed to be feasible, based on prior success with similar species, then SCE shall prepare and implement a Special-status Plant Salvage and Relocation Plan, to be reviewed and approved by the CPUC and BLM, in consultation with CDFW and USFWS, prior to direct or indirect disturbance of any occupied habitat. For special-status plants, excluding cacti and Yuccas (see above), the goal shall be to improve existing populations or establish new populations . For cacti and yuccas, the goal shall be maximum practicable survivorship of salvaged plants. The Plan will include at minimum: (a) spe-

[5] An occurrence for a plant is defined as any population or group of nearby populations located more than 0.25 miles from any other population (CDFW, 2009).

cies and locations of plants identified for salvage; (b) criteria for determining whether an individual plant is appropriate for salvage; (c) the appropriate season for salvage; (d) equipment and methods for collection, transport, and re-planting plants or seed banks, to retain intact soil conditions and maximize success; (e) for shrubs, cacti, and yucca, a requirement to mark each plant to identify the north-facing side prior to transport, and replant it in the same orientation; (f) details regarding storage of plants or seed banks for each species; (g) location of the proposed recipient site, and detailed site preparation and plant introduction techniques for top soil storage, as applicable; (h) a description of the irrigation, weed control, and other maintenance activities; (i) success criteria, including specific timeframe for survivorship and reproduction of each species; and (j) a detailed monitoring program, commensurate with the Plan's goals.

Annual monitoring reports shall be submitted to CPUC and BLM for five years or until the relocation effort is deemed successful on agreement of SCE and the CPUC. Reports shall include, but not be limited to, details of plants salvaged, stored, and transplanted (salvage and transplanting locations, species, number, size, condition, etc.); adaptive management efforts implemented (date, location, type of treatment, results, etc.); and evaluation of success of transplantation.

- **Horticultural propagation and off-site introduction.** If salvage and relocation is not believed feasible for special-status plants, then SCE shall consult with a qualified entity to develop an appropriate experimental propagation and relocation strategy, based on the life history of the species affected. The Plan will include at minimum: (a) collection and salvage measures for plant materials (e.g., cuttings), seed, or seed banks, to maximize success likelihood; (b) details regarding storage of plant, plant materials, or seed banks; (c) location of the proposed propagation facility, and proposed methods; (d); time of year that the salvage and other practices will occur; (e) success criteria; and (f) a detailed monitoring program, commensurate with the Plan's goals.

MM BR-7 **Ensure wildlife impact avoidance and minimization.** SCE shall undertake the following measures during the construction and revegetation phases to avoid or minimize impacts to wildlife resources.

- **Minimize traffic impacts.** SCE will specify and enforce a maximum 15 mile per hour vehicle speed limit on access roads within the ROW and project vicinity. No project-related pedestrian or vehicle traffic will be permitted outside defined work site or access route boundaries.
- **Minimize lighting impacts.** Night lighting, when in use, shall be designed, installed, and maintained to prevent side casting of light towards surrounding fish or wildlife habitat.
- **Avoid use of toxic substances.** Soil bonding and weighting agents used for dust suppression on unpaved surfaces shall be non-toxic to wildlife and plants.
- **Minimize noise and vibration impacts.** To minimize disturbance to wildlife nesting or breeding activities in surrounding habitat, project-related helicopter use shall be avoided or managed to the extent feasible from January 1 to August 31. Unnecessary noise (e.g., blaring radios) shall be avoided.
- **Water.** Potable and non-potable water sources such as tanks, ponds, and pipes shall be covered or otherwise secured to prevent animals (including birds) from entering.

Prevention methods may include storing all water within closed tanks, covering open storage ponds or tanks with 2-centimeter netting, or other means as applicable. Water applied to roads and construction areas for dust abatement shall use the minimal amount needed to meet safety and air quality standards. Water sources (e.g., hydrants, tanks, etc.) shall be checked periodically by biological monitors to ensure they are not creating open water sources by leaking or consistently overfilling trucks.

- **Worker guidelines.** All trash and food-related waste shall be contained in vehicles or covered trash containers and removed from the site regularly. Workers shall not feed wildlife or bring animals or pets to the project site with the exception of ADA-compliant service animals. Except for law enforcement personnel, no workers or visitors to the site shall bring firearms or weapons.
- **Wildlife netting or exclusion fencing.** SCE may install temporary netting or permanent screening or fencing around equipment, work areas, or project facilities to prevent wildlife exposure to hazards such as toxic materials or vehicle strikes or prevent birds from nesting on equipment or facilities. Bird deterrent netting will be maintained free of holes and will be deployed and secured on the equipment in a manner that prevents wildlife from becoming trapped inside the netted area or within the excess netting. The biological monitor will inspect netting (if installed) twice daily, at the beginning and close of each work day, with the exception of netting installed in established material yards, which will be inspected at least once daily. The biological monitor will inspect exclusion fence (if installed) weekly and will inform SCE of any needed repairs; SCE shall promptly repair any damage to the exclusion fencing. Temporary netting shall be removed and properly disposed of following the completion of project activities.
- **Wildlife entrapment.** Project-related excavations shall be secured to prevent wildlife entry and entrapment. Holes and trenches shall be backfilled, securely covered, or fenced. Excavations that cannot be fully secured shall incorporate appropriate wildlife ramp(s) at a slope of no more than a 3:1 ratio, or other means to allow trapped animals to escape. Biological monitors shall provide guidance to construction crews to ensure that wildlife ramps or other means are sufficient to allow trapped animals to escape. At the end of each work day, a biological monitor shall ensure that excavations have been secured or provided with appropriate means for wildlife escape.

All pipes or other construction materials or supplies that CPUC monitors determine to present a risk to wildlife will be covered or capped in storage or laydown areas. No pipes or tubing of the size and nature that may entrap wildlife will be left open either temporarily or permanently, except during use or installation. Any construction pipe, culvert, or other hollow materials will be inspected for wildlife before it is moved, buried, or capped.

- **Dead animals.** Dead animals (of non-special-status species) large enough to subsidize ravens found on unpaved project roads, work areas, or the ROW shall be reported to the appropriate local animal control agency within 24 hours, to minimize raven subsidies. A biological monitor shall safely move the carcass out of the road or work area as needed. Dead animals of special-status species found on unpaved project roads, work areas, or the ROW shall be reported to CDFW within one work day and the carcass handled as directed by CDFW.

- **Injured special-status wildlife.** SCE shall create and implement guidelines for dealing with injured or entrapped special-status wildlife found on or near project roads, work areas, or the ROW, and provide these guidelines to all biological monitors. If an animal is entrapped, a qualified biological monitor shall free the animal if feasible, or work with construction crews to free the animal, in compliance with applicable safety regulations and project requirements. If biological monitors cannot free the animal or the animal is too large or dangerous for monitors to handle, SCE shall contact and work with animal control, CDFW, or other qualified party to obtain assistance for the animal as soon as possible.

SCE shall ensure that one or more qualified biological monitors receive training in the safe and proper handling and transport of injured wildlife and are provided with the appropriate equipment. These trained and equipped monitors shall be available to capture and transport injured wildlife to a local wildlife rehabilitator or veterinarian as needed. If the injured animal is too large or dangerous for monitors to handle, or a trained and equipped monitor is not available, SCE shall contact and work with a local wildlife rehabilitator, animal control, CDFW, or other qualified party to obtain assistance for the animal as soon as possible. A list of qualified wildlife rehabilitators, veterinarians, and animal control agencies will be maintained to ensure a timely response to requests for support. SCE shall bear the costs of veterinary treatment and rehabilitation for any wildlife injured by project-related activities and any injured wildlife found on or near project roads, work areas, or the ROW, unless the injuries are clearly not project-related, as determined by a qualified biologist. Additionally, any entrapped or injured special-status species found on project roads (with the exception of public roads), work areas, or the ROW shall be reported to the appropriate resource agency within one work day.

MM BR-8 **Compensate for desert tortoise habitat loss.** [Supersedes APM BIO-05.] SCE shall compensate for all desert tortoise habitat loss through off-site habitat acquisition and management, or through participation in an approved in-lieu fee compensatory mitigation bank, or other agency approved mitigation strategies. This mitigation measure will be applicable to all temporary and permanent project disturbance to natural habitat types, (i.e., all vegetation types identified in Table 5.4-2, excluding active agriculture, barren, and developed lands). This compensatory mitigation for desert tortoise will also mitigate for habitat impacts to other native wildlife species.

Habitat compensation shall be accomplished by acquisition of mitigation land or conservation easements or by providing funding for specific land acquisition, endowment, restoration, and management actions. SCE shall prepare a Habitat Compensation Plan to be reviewed and approved by the CPUC- and, BLM, in coordination with the USFWS and CDFW.

SCE shall acquire and protect, in perpetuity, compensation habitat to mitigate impacts to biological resources as detailed below. SCE shall be responsible for the acquisition, initial protection and or habitat improvement. . SCE may convey title of the compensation lands to a public agency such as BLM, NPS, or CDFW or the lands may be held by a private conservation entity. If the land is conveyed to BLM, it shall be within a land use designation such as Area of Environmental Concern, wilderness, or similar designation consistent with long-term management for biological resource values and excluding incompatible land uses (e.g., energy development). If it is conveyed to CDFW, or retained under private ownership, it shall be covered by a conservation easement or other terms acceptable to CDFW. If there is any conflict between the requirements of

this mitigation measure and requirements of any resource agency permit (e.g., USFWS Biological Opinion or CDFW Incidental Take Permit), the more stringent requirement shall apply.

The acreages of compensation land shall be based upon final engineering calculation of impacted acreage for each resource and on ratios set forth in this measure, or a USFWS Biological Opinion, a CDFW Streambed Alteration Agreement, a CDFW Incidental Take Permit, or the Consistency Determination, whichever presents a higher ratio. Acreages will be adjusted as appropriate for other alternatives or future modifications during implementation.

Compensation shall be provided for impacts to the following resources, at the ratios specified below (acres acquired and preserved to acres impacted). These ratios reflect multiple biological resource values, including habitat suitability for special-status species.

- Previously disturbed lands (agriculture, developed/disturbed) and open water: n/a (no habitat compensation required)
- Undisturbed land, including suitable desert tortoise habitat outside designated critical habitat: 1:1
- Suitable desert tortoise habitat within designated critical habitat: 5:1

The Habitat Compensation Plan must specify compensation acreage for each habitat type, based on final engineering. Final compensation requirements may be adjusted to account for any deviations in project disturbance, according to the as-built shapefiles aerial imagery.

Compensation Land Selection Criteria. Criteria for the acquisition, initial protection and habitat improvement, and long-term maintenance and management of compensation lands for impacts to biological resources shall include all of the following:

- Compensation lands will provide habitat value that is equal to or better than the quality and function of the habitat impacted by the project, taking into consideration soils, vegetation, topography, human-related disturbance, wildlife movement opportunity, proximity to other protected lands, management feasibility, and other habitat values, subject to review and approval by CPUC and BLM;
- Potential compensation sites where creosote rings are found will be prioritized where feasible, and where consistent with the other selection criteria;
- To the extent that proposed compensation habitat may have been degraded by previous uses or activities, the site quality and nature of degradation must support the expectation that it will regenerate naturally when disturbances are removed and SCE will receive appropriate ratio credits for restoration;
- Be near larger blocks of lands that are either already protected or planned for protection, or which could feasibly be protected long-term by a public resource agency or a non-governmental organization dedicated to habitat preservation;
- Not have a history of intensive recreational use or other disturbance that might cause future erosion or other habitat damage, and make habitat recovery and restoration infeasible;

- Not be characterized by high densities of invasive species, either on or immediately adjacent to the parcels under consideration, that might jeopardize habitat recovery and restoration;
- Not contain hazardous wastes that cannot be removed to the extent that the site could not provide suitable habitat;
- Have water and mineral rights included as part of the acquisition, unless the CPUC and BLM, in consultation with CDFW and USFWS, agree in writing to the acceptability of land without these rights.

Review and Approval of Compensation Lands Prior to Acquisition. SCE shall submit a Draft Habitat Compensation Plan for review and approval by the CPUC and BLM describing the parcel(s) intended for protection. This Plan will discuss the suitability of the proposed parcel(s) as compensation lands in relation to the selection criteria listed above.

Management Plan. If the compensation land is held by a private entity, SCE or approved third party shall prepare a management plan for the compensation lands in consultation with the entity that will be managing the lands. The goal of the management plan will be to support and enhance the long-term viability of the biological resources. The Management Plan must be submitted for review and approval to the CPUC and BLM, in consultation with CDFW and USFWS. If the land is conveyed to a public agency, SCE will coordinate with the agency as needed to identify management planning needs (if any).

Compensation Lands Acquisition Requirements. Compensation land parcels, management planning and funding mechanism, management entities, habitat protection and improvement measures, title conveyance, conservation easement language and easement holder, all will be subject to review and approval by CPUC and BLM in coordination with CDFW and USFWS.

MM BR-9 **Conduct surveys and avoidance for special-status reptiles.** [This measure incorporates and supersedes APM BIO-04].

- **Pre-activity Surveys:** No more than seven days prior to the onset of ground-disturbing activities, an agency-approved biologist — with experience monitoring and handling desert tortoise — will conduct a pre-activity survey in all work areas within potential desert tortoise, banded Gila monster, desert rosy boa, or Mojave fringe-toed lizard habitat, plus an approximately 300-foot buffer. If potentially suitable burrows, sand fields, or rock piles are found, they shall be checked for occupancy. All desert tortoise burrows within the pre-activity survey area (including desert tortoise pallets) must be flagged or marked using an alternate method with minimal potential risk of cuing predators, to be developed in coordination with CDFW so that they may be avoided during work activities. Proposed actions will avoid disturbing desert tortoise burrows to the extent possible. However, burrows may be excavated if they can't be avoided and would be impacted by construction activities. If a tortoise must be handled or a potential tortoise burrow must be excavated, the biologist shall proceed according to the Desert Tortoise (Mojave Population) Field Manual (USFWS 2009) or any requirements of the USFWS and CDFW incidental take authorizations. No desert tortoise may be handled except under explicit authorization from USFWS and CDFW.
- **Monitoring:** The approved tortoise biologist shall be available on site to monitor any work areas for desert tortoise, banded Gila monster, desert rosy boa, and Mojave fringe-toed lizard as needed. The approved tortoise biologist shall also be responsible

for performing surveys prior to Proposed Project activities in suitable habitat for all three species. The approved tortoise biologist will have the authority to halt all non-emergency actions (as soon as safely possible) that may result in harm to desert tortoise, and will assist in the overall implementation of all adopted protection measures for special-status reptiles. As an alternative to full-time on-site monitoring, selected work areas (e.g., the series capacitors) may be enclosed by desert tortoise exclusion fencing and then covered by two complete 100 percent coverage clearance surveys. If exclusion fencing is installed, the agency-approved tortoise biologist shall monitor installation.

- **Desert Tortoise in Work Area:** In the event that a desert tortoise is encountered in the work area, all work shall cease and the approved biologist must be contacted. Work shall not recommence until the animal has voluntarily moved to a safe distance away from the work area unless incidental take permits have been obtained to allow handling. Desert tortoises may be moved by an agency-approved biologist as authorized by state and federal incidental take permits if necessary to move them out of harm's way. Encounters with special-status herpetofauna will be reported to an approved biologist. Encounters with desert tortoise will be documented and provided to the California Department of Fish and Wildlife (CDFW), BLM, and U.S. Fish and Wildlife Service (USFWS). In the event that a dead or injured desert tortoise is observed, the approved biologist shall notify SCE's herpetologist and report the incident to the CDFW, BLM, and USFWS.
- **Under Vehicle Checks:** Desert tortoises and other wildlife commonly seek shade during the hottest times of the day. All employees shall be required to check under their equipment or vehicles before they are moved. If special-status wildlife is encountered, the vehicle shall not be moved until the animal(s) have voluntarily moved to a safe distance away from the parked vehicle. Desert tortoises and special-status species may be moved by the approved biologist, if necessary, to move them out of harm's way.
- **Handling Desert Tortoise:** Only an agency-approved biologist may move or handle desert tortoises as authorized by state and federal incidental take permits. When a desert tortoise is moved, the approved biologist will be responsible for taking appropriate measures to ensure that the animal is not exposed to harmful temperature extremes. The approved biologist shall follow the appropriate protocols outlined in the Desert Tortoise (Mojave Population) Field Manual (USFWS 2009) when handling desert tortoises or excavating their burrows as described in the state and federal take authorizations.
- **Excavation of Desert Tortoise Burrows:** Should it prove necessary to excavate a desert tortoise from its burrow to move it out of harm's way, excavation shall be done using hand tools, either by or under the direct supervision of an approved biologist. Excavation of desert tortoise burrows will occur no more than seven days before the onset of construction activities at any given site. All desert tortoises removed from burrows must be placed in an unoccupied burrow that is approximately the same size as the one from which it was removed. If an existing burrow is unavailable, the approved biologist shall construct or direct the construction of a burrow of similar shape, size, depth, and orientation as the original burrow following guidelines in the Desert Tortoise (Mojave Population) Field Manual (USFWS 2009). To ensure their

safety, desert tortoises moved during inactive periods must be monitored for at least two days after placement in the new burrows or until the end of the construction activity.

If desert tortoises need to be moved at a time of day when ambient temperatures could harm them (i.e., at temperatures lower than 40 degrees Fahrenheit (°F) or higher than 90°F), they must be held overnight in a clean cardboard box. These desert tortoises shall be kept in the care of the approved biologist under appropriate controlled temperatures and released the following day when temperatures are favorable. All cardboard boxes shall be appropriately discarded after one use.

- **Vehicle Travel:** Motor vehicles shall be limited to maintained roads and designated routes. If additional routes are needed, they must first be surveyed and approved by the approved biologist.
- **Raven Management:** SCE shall prepare (for CPUC review and wildlife agency approval) and implement a Raven Management Plan (RMP) to minimize avian predation of desert tortoise for the Proposed Project. The purpose of the RMP is to utilize methods that deter raven depredation of juvenile desert tortoises, and other wildlife species. The RMP is not intended to eliminate or control raven populations, but will target offending ravens that have been found to prey upon desert tortoises. The RMP will incorporate an adaptive management strategy for immediate implementation following construction of the Proposed Project. The RMP will be evaluated after three years of implementation, or as needed, if avian predation becomes apparent. The following activities may be implemented as part of the RMP: 1) Common raven nest/power line monitoring, 2) Funding of offending raven control via contract with the U.S. Department of Agriculture, and 3) Alternative control strategies developed in coordination with USFWS (e.g. egg-oiling, laser deterrents, etc.). Mutual and timely cooperation between SCE and the BLM, USFWS, and CDFW is central to effective implementation of the RMP.

MM BR-10 **Prepare and implement a Nesting Bird Management Plan.** [Supersedes APM BIO-06.] SCE shall prepare and implement a Nesting Bird Management Plan (NBMP) in coordination with CPUC, BLM, CDFW, and USFWS. The NBMP shall describe methods to minimize potential project effects to nesting birds and avoid any potential for unauthorized take. Where scheduling allows SCE will endeavor to conduct clearing of any vegetation, site preparation in open or barren areas, or other project-related activities that may adversely affect breeding birds outside the nesting season. Project-related disturbance including construction and pre-construction activities shall not proceed within 300 feet of active nests of common bird species or 500 feet of active nests of raptors or special-status bird species (except for golden eagle) until approval of the NBMP by CPUC and BLM in consultation with CDFW and USFWS.

NBMP Content. The NBMP shall include: (1) definitions of default nest avoidance buffers for each species or group of species, depending on characteristics and conservation status for each species and the nature of planned Project activities in the vicinity; (2) a notification procedure for buffer distance reductions should they become necessary; (4) a pre-construction survey protocol (surveys no longer than 7 days prior to starting work activity at any site); (5) a monitoring protocol, to be implemented until adjacent construction activities are completed or the nest is no longer active, including qualifications of monitors, monitoring schedule, and field methods, to ensure that any project-related

effects to nesting birds will be minimized; and (6) a protocol for documenting and reporting any inadvertent contact with or effects to birds or nests. The NBMP will be applicable throughout the nesting season (beginning January 1 for raptors, February 1 for most other birds, and continuing through the end of August).

Golden eagles. SCE shall review all available USFWS data to identify known golden eagle nest sites or territories in the vicinity of the Project route. SCE shall either assume that known nest sites are occupied or at its discretion conduct nesting season surveys within a 1mile radius of the portions of the project area where suitable nesting habitat may exist and where work will occur during the breeding season (December 1 through July 31). If a potentially occupied nest (based either on assumption or field data) is detected within 1 mile of the project, SCE shall implement a one-mile line-of-sight and one-half mile no line-of-sight buffer to ensure that project construction activities do not result in injury or disturbance to golden eagles.

Nest deterrents. The NBMP shall describe any proposed measures or deterrents to prevent or reduce bird nesting activity on project equipment or facilities, such as buoys, visual or auditory hazing devices, bird repellents, securing of materials, and netting of materials, vehicles, and equipment. It shall also include timing for installation of nest deterrents and field confirmation to prevent effects to any active nest; guidance for the contractor to install, maintain, and remove nest deterrents according to product specifications; and periodic monitoring of nest deterrents to ensure proper installation and functioning and prevent injury or entrapment of birds or other animals. In the event that an active nest is located on project facilities, materials or equipment, SCE will avoid disturbance or use of the facilities, materials or equipment (e.g., by red-tag) until the nest is no longer active.

Communication. The NBMP shall specify the responsibilities of construction monitors with regard to nests and nest issues and specify a direct communication protocol to ensure that nest information and potential adverse impacts to nesting birds can be promptly communicated from nest monitors to construction monitors, so that any needed actions can be taken immediately.

The NBMP shall specify a procedure to be implemented following accidental disturbance of nests, including wildlife rehabilitation options. It also shall describe any proposed measures, and applicable circumstances, to prevent take of precocial young of ground-nesting birds such as killdeer or quail. For example, chick fences may be used to prevent them from entering work areas and access roads. Finally, the NBMP will specify a procedure for removal of inactive nests, including verification that the nest is inactive and a notification/approval process.

Reporting. Throughout the construction phase of the project, nest locations, project activities in the vicinity of nests (including helicopter traces), and any adjustments to buffer areas shall be updated and available to CPUC monitors on a daily basis. All buffer reduction notifications and prompt notifications of nest-related non-compliance and corrective actions will be made via email to CPUC monitors. The draft NBMP shall include a proposed format for daily and weekly reporting (e.g., spreadsheet available online, tracking each nest). In addition, the NBMP shall specify the format and content of nest data to be provided in regular monitoring and compliance reports. At the end of each year's nest season, SCE will submit an annual NBMP report to the CPUC, BLM, CDFW, and USFWS. Specific contents and format of the annual report will be reviewed and approved by the CPUC and BLM in consultation with CDFW and USFWS.

MM BR-11 **Conduct surveys and avoidance for burrowing owl.** [Supersedes APM BIO-07.] Burrowing owl surveys shall be conducted in accordance with the most current CDFW guidelines in Appendix D of the Staff Report on Burrowing Owl Mitigation (CDFG, 2012; or updated guidelines as they become available) in all potential habitat, regardless whether or not the previous assessment identified burrows. SCE shall take measures to avoid impacts to any active burrowing owl burrow within or adjacent to a work area. The default buffer for a burrowing owl burrow is 300 feet for ground construction, and 300 feet horizontal and 200 feet vertical for helicopter construction. Effectiveness of the buffer area will be monitored, and adjustments will be made if necessary. The Nesting Bird Management Plan (Mitigation Measure BR-10) will specify a procedure for adjusting this buffer, if needed. Binocular surveys may be substituted for protocol field surveys on private lands adjacent to the project site only when SCE has made reasonable attempts to obtain permission to enter the property for survey work but was unable to obtain such permission.

If active burrowing owl burrows are located within project work areas, SCE may passively relocate the owls by preparing and implementing a Burrowing Owl Passive Relocation Plan, as described below. SCE shall prepare a draft Burrowing Owl Passive Relocation Plan for review and approval by CPUC and BLM in consultation with CDFW and USFWS prior to the start of any ground-disturbing activities. SCE may not initiate burrowing owl passive relocation prior to finalization of the Plan and approval by CPUC and BLM. No active relocation shall be permitted. No passive relocation of burrowing owls shall be permitted during breeding season, unless a qualified biologist verifies through non-invasive methods that an occupied burrow is not occupied by a mated pair, and only upon authorization by CDFW. The Plan shall include, but not be limited to, the following elements:

- **Assessment of Suitable Burrow Availability.** The Plan shall include an inventory of existing, suitable, and unoccupied burrow sites within 500 feet of the affected project work site. Suitable burrows will include inactive desert kit fox, ground squirrel, or desert tortoise burrows that are deep enough to provide suitable burrowing owl nesting sites, as determined by a qualified biologist. If two or more suitable and unoccupied burrows are present in the area for each burrowing owl that will be passively relocated, then no replacement burrows will need to be built.
- **Replacement Burrows.** For each burrowing owl that will be passively relocated, if fewer than two suitable unoccupied burrows are available within 500 feet of the affected project work site, then SCE shall construct at least two replacement burrows within 500 feet of the affected project work site. Burrow replacement sites shall be in areas of suitable habitat for burrowing owl nesting, and subject to minimal human disturbance and access. The Plan shall describe measures to ensure that burrow installation or improvements would not affect sensitive species habitat or any burrowing owls already present in the relocation area. The Plan shall provide guidelines for creation or enhancement of at least two natural or artificial burrows for each active burrow within the project disturbance area, including a discussion of timing of burrow improvements, specific location of burrow installation, and burrow design. Design of the artificial burrows shall be consistent with CDFW guidelines (CDFG, 2012; or more current guidance as it becomes available) and shall be approved by the CPUC, BLM, CDFW, and USFWS.

- **Methods.** Provide detailed methods and guidance for passive relocation of burrowing owls, outside the breeding season. An occupied burrow may not be disturbed during the nesting season (generally, but not limited to, February 1 to August 31), unless a qualified biologist determines, by non-invasive methods, that it is not occupied by a mated pair. Passive relocation would include installation of one-way doors on burrow entrances that would let owls out of the burrow but would not let them back in. Once owls have been passively relocated, burrows will be carefully excavated by hand and collapsed by, or under the direct supervision, of a qualified biologist.
- **Monitoring and Reporting.** Describe monitoring and management of the replacement burrow site(s)) and provide a reporting plan. The objective shall be to manage the relocation area for the benefit of burrowing owls, with the specific goal of maintaining the functionality of the burrows for a minimum of two years. Monitoring reports shall be available to the CPUC and BLM on a weekly basis.

MM BR-12 **Conduct surveys and avoidance for bats.** SCE shall conduct surveys for roosting bats within 200 feet of project work areas within 14 days prior to any grading of rocky outcrops or removal of large trees (12 inches in diameter or greater at 4.5 feet above grade) with loose bark or other cavities, foliage, and palm fronds. Surveys shall be conducted during the breeding season (1 March to 31 July) and the non-breeding season. Surveys shall be performed by a qualified bat biologist (i.e., a biologist holding a CDFW collection permit and a Memorandum of Understanding or equivalent agreement with CDFW allowing the biologist to handle bats). The resume of the biologist shall be provided to the CPUC and BLM for concurrence in consultation with CDFW and USFWS prior to the biologist beginning field duties on the project. Surveys shall include a minimum of one day and one evening.

Any active bat roosts, including occupied day roosts, maternity roosts, and hibernacula, must be identified and clearly marked. An exclusion area will be established 165 feet from any active roost, and these areas will be avoided during construction activities. Ingress and egress along established routes will be permitted in those areas, and additional buffer reductions may be considered in coordination with the qualified bat biologist, CPUC, and CDFW. If active roosts are found, then SCE will either (1) delay construction activities at these sites until the roost is no longer active, or (2) conduct follow-up focused surveys to determine if the sites support special-status bat species. If the roost is occupied by common species, then work activities may proceed. SCE shall consult with a bat specialist in order to determine when the breeding cycle for the special-status bats is completed. SCE shall consult with CDFW regarding eviction of non-breeding bats.

SCE shall submit documentation providing pre-construction survey results and any avoidance of roosting and nursery sites to the CPUC and BLM for review and approval.

MM BR-13 **Conduct surveys and avoidance for American badger, ringtail, and desert kit fox.** SCE shall conduct pre-construction surveys for desert kit fox, ringtail, and American badger no more than 30 days prior to initiation of construction activities. Surveys shall be conducted in areas that contain habitat for this these species and shall include project disturbance areas and access roads plus a 200-foot buffer surrounding these areas. SCE shall submit documentation providing pre-construction survey results to the CPUC and BLM for review and approval. If dens are detected, each den shall be classified as inactive, potentially active, active non-natal, or active natal.

Inactive dens located in project disturbance areas may be excavated by hand and back-filled to prevent reuse, only upon confirmation that they are inactive.

Active or potentially active dens shall be flagged and project activities, with exceptions as listed below, within 100 feet (non-natal dens) or 200 feet (natal dens, or any active den during the breeding season) shall be avoided. Ingress/egress of construction vehicles and equipment through buffers and low intensity activities such as inspections and BMP maintenance within buffers is allowed, provided a qualified biologist determines that these activities will not impact dens or denning animals. Buffers may be modified with concurrence of CPUC and BLM, in consultation with CDFW and USFWS. If active dens are found within project disturbance areas and avoidance is not possible, SCE shall take action as specified below, after notifying and obtaining concurrence from CPUC, BLM, and CDFW.

Active and potentially active non-natal dens. Outside the breeding season, any potentially active dens that would be directly impacted by construction activities shall be monitored by a qualified mammologist or biologist for three consecutive nights using a tracking medium (such as diatomaceous earth or fire clay) or infrared camera stations at the entrance. If no tracks are observed in the tracking medium or no photos of the target species are captured after three nights, the den may be excavated and backfilled by hand. If tracks are observed, the den may be progressively blocked with natural materials (rocks, dirt, sticks, and vegetation piled in front of the entrance) for the next three to five nights to discourage continued use. After verification that the den is no longer active, the den may be excavated and backfilled by hand.

Active natal dens. Active natal dens (any den with cubs or pups) or any den active during the breeding season will not be excavated or passively relocated. The cub or pup-rearing season is generally from January 15 through mid-September. A 200-foot no-disturbance buffer shall be maintained around all active natal dens. Discovery of an active natal den that could be impacted by the project shall be reported to the CPUC, BLM, and CDFW within 24 hours of the discovery along with a map of the den location and a copy of the survey results. A qualified biologist shall monitor the natal den until he or she determines that the pups have dispersed. Any disturbance to denning animals or activities that might disturb denning activities shall be prohibited within the buffer zone. Once the pups have dispersed, methods listed above for non-natal dens may be used to discourage den reuse. After verification that the den is unoccupied, it shall then be excavated by hand and backfilled to ensure that no animals are trapped in the den.

If canine distemper is reported in desert kit fox on the site or surrounding areas, then SCE shall coordinate with CPUC, BLM, and CDFW to identify appropriate actions prior to continuing implementation of this mitigation measure in respect to desert kit fox. Any observations of a kit fox that appears sick or any kit fox mortality shall be reported to CPUC, CDFW, and BLM within one work day.

In the event that passive relocation techniques fail, SCE shall contact the CPUC, BLM, and CDFW to explore other relocation options.

All den monitoring and excavation activities and passive relocations shall be documented and reported to the CDFW, BLM, and CPUC in weekly monitoring reports, and a written summary will be included in each annual monitoring report.

Cultural Resources

CR-1 **Retain a Cultural Resources Specialist.** Prior to the start of construction, a project Cultural Resources Specialist (CRS) whose training and background conforms to the U.S. Secretary of Interior's Professional Qualifications Standards, as published in Title 36, Code of Federal Regulations, part 61 (36 C.F.R., part 61) shall be retained by SCE to supervise monitoring of construction excavations and to prepare a Cultural Resources Management Plan (CRMP) for the approved project. Their qualifications shall be appropriate to the needs of the project, specifically an archaeologist with demonstrated prior experience in the southern California desert and previous experience working with Southern California Tribal Nations. A copy of their qualifications shall be provided to the CPUC for review and approval. The project Cultural Resources Specialist shall use the services of Cultural Resources Monitors, tribal monitors and Field Crew as needed, to assist in mitigation, monitoring, and curation activities, as outlined in the CRMP. A copy of all proposed cultural staff qualifications shall be provided to the CPUC for review and approval prior to beginning work.

CR-2 **Cultural resources environmental awareness training.** Project personnel, including cultural resources monitors and tribal monitors, shall receive training that includes sensitivity training provided through participating tribes in video format regarding the appropriate work practices necessary to effectively implement the APMs and mitigation measures related to cultural resources and tribal cultural resources, including human remains. Training shall be required for all personnel before they begin work on a project site and repeated as needed for all new personnel before they begin work on the Project. This training program shall be submitted to the CPUC for approval at least 30 days before the start of construction and include procedures to be followed upon the discovery or suspected discovery of archaeological materials, tribal cultural resources, and human remains, consistent with the procedures set forth in the CRMP. This training may be integrated with a broader Worker Environmental Awareness Training program. Documentation of the training will be provided to the BLM and CPUC. The CPUC will provide documentation to the consulting tribes.

CR-3 **Prepare and implement a Cultural Resources Management Plan.** Prior to the beginning of construction, SCE shall submit at least 90 days before construction a Cultural Resources Management Plan (CRMP) for the project to the BLM and CPUC for review. The CPUC will submit the CRMP to representatives of consulting tribes for a 30-day review and comment period prior to approving the CRMP. The CPUC will in good faith consider any comments received from consulting tribes and incorporate such comments into the CRMP as deemed feasible. A single plan document that meets the requirements of both BLM and CPUC is acceptable. The CRMP shall be implemented under the direction of the SCE and the project Cultural Resources Specialist. The CRMP shall be prepared at the sole expense of the project proponent and shall meet all regulatory requirements. At a minimum the CRMP must address the following:

- The duties of the project Cultural Resources Specialist and associated staff shall be fully explained, including oversight/management, monitoring, and reporting duties with respect to known cultural resources and tribal cultural resources as well as site evaluation, data collection, and reporting for any newly identified resources discovered during project activities. The professional standards and ethical guidelines for all cultural resource personnel will be clearly outlined in the CRMP.

- No collection of artifacts is authorized or planned for this project. If an unanticipated discovery requires evaluation via excavation and artifact collection, the retention/ disposal, and permanent and temporary curation policies shall be specified. The decision-making process for identifying which artifacts are curated or reburied, where they are reburied and the individuals, including tribal participants, making these decisions shall be described. These policies shall apply to cultural resources materials and documentation resulting from evaluation and treatment of cultural resources and tribal cultural resources discovered during project activities.
- The CRMP shall define and map all known prehistoric and historic resources eligible to the NRHP and CRHR within 100 feet of proposed work areas. How these resources will be avoided and protected during construction will be described. Avoidance measures to be used will be described, including where and when they will be implemented. How avoidance measures and enforcement of Environment Sensitive Areas (ESAs) will be coordinated with construction personnel will be included.
- The implementation sequence and the estimated time frames needed to accomplish all project-related tasks (i.e., evaluation of new resources resulting in work stoppage, time to complete reports, etc.) during the project activities and any post-project analysis phases of the project, if necessary, shall be specified. The intensity of monitoring proposed for each resource that may be impacted by project activities shall be outlined in the CRMP.
- Person(s) expected to perform each monitoring and, if necessary, treatment task, their responsibilities, and the reporting relationships between project construction management and the monitoring and treatment team shall be outlined in the CRMP.
- Tribal Monitors shall be retained to monitor ground disturbing activities within 100 feet of prehistoric and protohistoric resources. Tribal Monitors shall be retained for data recovery within prehistoric and protohistoric resources identified for data recovery. The ELM Project area spans multiple Tribal areas. The Tribe affiliated with a specific area will be considered first to provide Tribal Monitors. If multiple Tribes or Tribal Organizations are affiliated with a specific area, Tribal Monitors will be selected on a rotating basis. The CRMP will describe the roles and responsibilities of the monitors. Tribal monitors will be compensated. All impact-avoidance measures (such as the presence of monitors) to prohibit or otherwise restrict access to sensitive resource areas that are to be avoided during ground disturbance, construction, and/or operation shall be described. Areas where these measures are to be implemented shall be identified. The description shall address how these measures would be implemented prior to the start of ground disturbance and how long they would be needed to protect the resources from project-related impacts.
- The commitment to record resources on Department of Parks and Recreation (DPR) 523 forms, to map, and to photograph all newly identified cultural resources over 50 years of age shall be stated. Participating tribes may offer their perspective regarding the newly identified cultural resource. Comments by tribes may be documented on the DPR 523c, parts A13 (Interpretation) and A14 (Remarks).
- The commitment to curate all artifacts retained as a result of any archaeological investigations in accordance with the appropriate requirements and the California State Historical Resources Commission's Guidelines for the Curation of Archaeological

Collections, into a retrievable storage collection in a public repository, museum, or reburial at the request of tribal representatives shall be stated. The different curation policies for archaeological material collected on BLM land as opposed to private or state land, shall be clearly articulated.

- The commitment of SCE to pay all curation or reburial fees for artifacts recovered and for related documentation produced during cultural resources investigations conducted for the project shall be stated. Should consulting tribes request that artifacts not be reburied, the CRMP shall identify a curation facility that could accept cultural resources materials resulting from project cultural resources investigations on private or state land. Tribal monitors shall be present for any reburials.
- A final report shall be prepared presenting the results of the monitoring efforts. The contents, format, and review and approval process of the final report shall meet appropriate federal, state, and local guidelines.

CR-4 **Inadvertent discovery of cultural or tribal cultural resources.** If previously undiscovered resources are identified during project activities all activities within 100 feet (30 meters) of the resource shall halt. The onsite construction supervisor and SCE shall be notified. SCE will notify the CPUC and BLM of the discovery. The monitoring team shall flag-off the area. SCE and its cultural resource specialist will coordinate with the CPUC, BLM, NPS and tribal representatives as appropriate, on avoidance measures.

If the resource cannot be avoided, methods of resource evaluation, and methods of mitigation will be discussed with all appropriate parties. Work may be temporarily diverted to activities that are outside of 100 feet (30 meters) of the discovered or suspected resource. The resource shall be evaluated to determine whether it is eligible for the NRHP, CRHR, a unique archaeological resource, a tribal cultural resource, or part of a larger culturally sensitive landscape area or traditional cultural property. If the resource is determined not to be significant, work may recommence in the area. If the resource is determined significant work shall remain halted within 100 feet (30 meters) of the area of the find, SCE shall consult with the BLM, CPUC, and representatives of the consulting tribes as appropriate regarding methods to ensure that no adverse effect and no substantial adverse change would occur to the significance of the resource. Preservation in place (i.e., avoidance) is the preferred method of mitigation for impacts to cultural resources. Other methods of mitigation, described below, shall only be used if it is determined the method would provide equivalent or superior mitigation of the impacts to the resource. The alternative methods of mitigation may include data recovery and documentation of the information contained in the resource to answer questions about local prehistory or history. The methods and results of the evaluation or data recovery work at an archaeological find shall be documented in a professional-level technical report to be filed with the California Historical Resources Information System (CHRIS). Work in the area may commence upon completion of treatment, as approved by the BLM and CPUC.

If data recovery of resources is necessary, additional archaeologists shall perform the excavation while the monitoring team(s) continues to monitor construction. Additionally, the tribes shall be offered the opportunity to monitor data recovery efforts at prehistoric sites in addition to construction efforts, under the same contract terms. This opportunity shall be additionally be extended to tribes that consulted on this project, but for which a tribal monitor was not provided for construction efforts.

CR-5 **Avoidance of cultural and tribal cultural resources.** When project work is planned within 100 feet of a known prehistoric-era cultural resource or a tribal cultural resource, or any resources that are eligible for the CRHR and/or NRHP, avoidance areas shall be established and monitors shall be present as outlined in the CRMP. ESAs shall be established with a 50 foot buffer around each resource prior to project activities, except where the 50-foot buffer would encroach on a work area, in which event the ESA buffer shall be the near edge of the identified work area. Monitoring teams shall include one qualified cultural resources monitor and one Native American monitor at prehistoric sites. ESAs shall be established by a qualified cultural resources monitor. The timing and intensity of the monitoring may vary according to the type of resource and the nature of the work planned and shall be determined in consultation with consulting tribes, as appropriate.

CR-6 **Prepare monitoring reports.** Upon completion of cultural resources and tribal cultural resources monitoring, SCE shall prepare a single report that summarize the monitoring efforts and the results, analyses, and conclusions of the monitoring program. Individual volumes per land ownership will be included and provide additional details. Copies of the report shall be submitted to both the CPUC and BLM within 60 days of the close of construction. Thereafter, consistent with individual agency policy, each agency will disseminate to the consulting tribes the report applicable to land under that agency's jurisdiction. Draft reports under CPUC jurisdiction will be submitted to consulting tribes for a 30-day review and comment period concurrent with agency review. If no new resources were discovered during construction, a letter report shall be submitted to the CPUC and BLM summarizing monitoring efforts. If resources were identified during construction, the reports shall be consistent with the California Archaeological Resources Management Reports (ARMR) and commensurate with the nature and significance of the identified resource(s). If artifacts are collected, they shall be curated at a recognized curation facility unless consulting tribes request that the Native American artifacts be reburied on site. Documentation associated with any newly identified resources shall be filled with the CHRIS, if appropriate.

CR-7 **Inadvertent discovery of human remains on state owned land or private property.** In the event that human remains or suspected human remains are identified, SCE shall comply with California law (Heath and Safety Code Section 7050.5; PRC Sections 5097.94, 5097.98, and 5097.99). The area shall be flagged off and all project activities within 200 feet (60 meters) of the find shall immediately cease. The CPUC-approved Cultural Resources Specialist and SCE shall be immediately notified. SCE shall immediately contact the Medical Examiner at the County Coroner's office, BLM, CPUC as well as representatives of consulting tribes. The Medical Examiner has two (2) working days to examine the remains. If the Medical Examiner believes the remains are Native American, they shall notify the California Native American Heritage Commission (NAHC) within 24 hours. If the remains are not believed to be Native American, the appropriate local law enforcement agency will be notified.

The NAHC will immediately notify the person or tribe it believes to be the most likely descendant (MLD) of the remains, and the MLD has 48 hours to make recommendations to the landowner or representative for the respectful treatment or disposition of the human remains and any associated grave goods. If the MLD does not make recommendations within 48 hours, the remains shall be reinterred in the location they were discovered and the area of the property shall be secured from further disturbance. If there are disputes between the landowner and the MLD, the NAHC shall mediate the dispute and attempt to find a solution. If the mediation fails to provide measures

acceptable to the landowner, the landowner or their representative shall reinter the remains and associated grave goods and funerary objects in an area of the property secure from further disturbance. The location of any reburial of Native American human remains shall not be disclosed to the public and shall not be governed by public disclosure requirements of the California Public Records Act, Cal. Govt. Code§ 6250 et seq., unless otherwise required by law. The Medical Examiner shall withhold public disclosure of information related to such reburial pursuant to the specific exemption set forth in California Government Code Section 6254(r).

CR-8 **Inadvertent discovery of human remains on federal land.** If potential human remains are discovered during any Project activity on lands administered by federal agencies, all activities within 200 feet that will cease immediately. SCE will take appropriate steps to secure and protect human remains and any funerary objects from further disturbance. SCE will notify the BLM and the County Coroner (California Health and Safety Code 7050.5(b)) immediately. If the remains are determined to be Native American or if Native American cultural items pursuant to the Native American Graves Protection and Repatriation Act (NAGPRA) are uncovered, the remains shall be treated in accordance with the provisions of NAGPRA (43 CFR 10) and the Archaeological Resources Protection Act (43 CFR 7). SCE shall assist and support the federal agency, as appropriate, in all required NAGPRA and Section 106 actions, government to-government and consultations with Native Americans, agencies, and consulting parties as requested by the federal agency. SCE shall comply with and implement all required actions and studies that result from such consultations.

Geology and Soils

MM PAL-1 **Retain qualified paleontological staff.** Project Paleontologist – Prior to the start of ground disturbance, a qualified paleontologist to serve as Project Paleontologist shall be retained by SCE. The qualifications of the Project Paleontologist shall be submitted to CPUC and BLM for approval. This individual shall retain a BLM paleontological resource use permit for the project and other appropriate permits. To do so this individual shall have the following qualifications as stipulated in BLM Manual 8270-1:

- Professional instruction in a field of paleontology relevant to the work proposed (vertebrate, invertebrate, trace, paleobotany, etc.), obtained through:
  - Formal education resulting in a graduate degree from an accredited institution in paleontology, or in geology, biology, botany, zoology or anthropology if the major emphasis is in paleontology; or
  - Equivalent paleontological training and experience including at least 24 months under the guidance of a professional paleontologist who meets qualification above that provided increased responsibility leading to professional duties similar to those in qualification above; and
- Demonstrated experience in collecting, analyzing, and reporting paleontological data, similar to the type and scope of work proposed in the application;
- Demonstrated experience in planning, equipping, staffing, organizing, and supervising crews performing the work proposed in the application;

- Demonstrated experience in carrying paleontological projects to completion as evidenced by timely completion and/or publication of theses, research reports, scientific papers and similar documents.

As described in BLM Instruction Manual (IM) 2009-011, the Project Paleontologist will serve as the Principal Investigator (PI) under the BLM permit and is responsible for all actions under the permit, for meeting all permit terms and conditions, and for the performance of all other personnel. This person is also the contact person for the project proponent, CPUC, and the BLM.

Additional Paleontological Staff – The Project Paleontologist may obtain the services of Paleontological Field Agents, Field Monitors, and Field Assistants, if needed, to assist in mitigation, monitoring, and curation activities. These individuals must meet the qualifications described in BLM IM 2009-011.

MM PAL-2 **Provide paleontological environmental awareness training.** SCE will provide worker's environmental awareness training on paleontological resources protection as part of its WEAP required under Mitigation Measure BR-2, Prepare and implement a Worker Environmental Awareness Program. This training may be administered by the project paleontologist as a stand-alone training or included as part of the overall worker's environmental awareness training. At a minimum, the training would 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 followed in the event of a fossil discovery; and
- penalties for disturbing paleontological resources.

MM PAL-3 **Prepare and implement a Paleontological Resource Mitigation and Monitoring Plan (PRMMP).** (Supersedes APM CUL-04) Prior to the start of the project, SCE shall submit a Paleontological Mitigation and Monitoring Plan (PRMMP) for the project to the CPUC and BLM for review and approval. The PRMMP shall be prepared and implemented under the direction of the Project Paleontologist and shall address and incorporate mitigation measures PAL-1, PAL-3 and PAL-4. The PRMMP shall be based on Society of Vertebrate Paleontology (SVP) assessment and mitigation guidelines and meet all regulatory requirements. A monitoring plan indicates the avoidance or treatments recommended for the area of the proposed disturbance and must at a minimum address the following:

- Identification and mapping of impact areas of high sensitivity that will be monitored during construction;
- A coordination strategy to ensure that a qualified paleontologist will conduct monitoring at the appropriate locations at the appropriate intensity;
- The significance criteria to be used to determine which resources will be avoided or recovered for their data potential;
- Procedures for the discovery, recovery, preparation, and analysis of paleontological resources encountered during construction, in accordance with standards for recovery established by the SVP;
- Provisions for verification that the project proponent has an agreement with a recognized museum repository, for the disposition of recovered fossils and that the fossils shall be prepared prior to submittal to the repository as required by the repository (e.g., prepared, analyzed at a laboratory, curated, or cataloged);

- Specifications that all paleontological work undertaken by the project proponent shall be carried out by qualified paleontologists with appropriate current permits, including but not limited to a Paleontological Resources Use Permit (for work on public lands administered by BLM) and any other permits required by other jurisdictions;
- Description of monitoring reports that will be prepared which shall include daily logs, monthly reports, and a final monitoring report with an itemized list of specimens found to be submitted to the BLM, the CPUC, the project proponent and the designated repository within 90 days of the completion of monitoring;
- The implementation sequence and the estimated time frames needed to accomplish all project-related tasks during the ground-disturbance and post-ground-disturbance analysis phases of the project shall be specified; and
- Person(s) expected to perform each of the tasks, their responsibilities, and the reporting relationships between project construction management and the mitigation and monitoring team shall be identified.
- All impact-avoidance measures (such as flagging or fencing) to prohibit or otherwise restrict access to sensitive resource areas that are to be avoided during ground disturbance, construction, and/or operation shall be described. Any areas where these measures are to be implemented shall be identified. The description shall address how these measures would be implemented prior to the start of ground disturbance and how long they would be needed to protect the resources from project-related impacts.

MM PAL-4 **Conduct monitoring for paleontological resources.** The applicant shall continuously comply with the following during all ground disturbing activities during the project:

- All ground disturbing activity in Proposed Project work areas identified with unknown, high, or very high paleontological sensitivity (PFYC U, PFYC 4, or PFYC 5) should be monitored on a full-time basis by a BLM- approved Paleontological Field Agent who will work under the supervision of the BLM- permitted paleontologist and principal investigator.
- Ground disturbing activity that exceeds 5 feet in depth in work areas underlain by Holocene units shall be monitored part time. Spot-checking shall take place at least once a day and be conducted by a Qualified Paleontologist.
- The level of effort and intensity for monitoring shall be modified as needed by a Qualified Paleontologist, in consultation with the appropriate agency personnel, based on the sediment types, depths, and distributions observed during monitoring throughout the life of the project.
- Project activities shall be diverted when data recovery of significant fossils is warranted, as determined by the Project Paleontologist. Monitoring shall be conducted as follows:
  - Monitoring of ground disturbance shall consist of the surface collection of visible vertebrate and significant invertebrate fossils within the project site. Upon discovery of paleontological resources by paleontologists or construction personnel, work in the immediate area of the find shall be halted and diverted and the Project Paleontologist shall be notified. Once the find has been inspected and a preliminary assessment has been made, the Project Paleontologist will notify SCE. SCE will notify the

CPUC, BLM, and MNP as a and of the discovery within 24 hours. If recovery of a large or unusually productive fossil occurrence is warranted, earth-moving activities shall be diverted temporarily around the fossil locality, and a recovery crew shall be mobilized to remove the material as quickly as possible. The monitor shall be permitted to photograph and/or draw stratigraphic profiles of cut surfaces and take samples for analysis of microfossils, dating, or other specified purposes in accordance with the PMMP.

- Recovered specimens shall be prepared to a point of identification, including washing of sediments to recover smaller fossil remains. Once excavation has reached specified depths, salvage of fossil material from the sidewalls of the cut shall resume. Specimens shall be identified and curated into a repository with retrievable storage.

- All significant fossil specimens recovered from the project site as a result of the paleontological monitoring and mitigation program shall be treated (prepared, identified, curated, and catalogued) in accordance with the designated repository requirements. Samples shall be submitted to a laboratory, acceptable to the designated repository, for identification, dating, and microfossil and pollen analysis.

Hazards and Hazardous Materials

MM HH-1 **Prepare and implement a Hazardous Materials and Waste Management Plan.** SCE shall prepare and implement a Project-specific Hazardous Materials and Waste Management Plan pursuant to Title 24, Part 9 of the California Code of Regulations (CCR) that identifies hazardous materials to be transported, used, and stored on site for the proposed construction activities — as well as hazardous wastes generated onsite as a result of the proposed construction activities — and appropriate management procedures according to the specifications outlined below.

- **Hazardous Materials and Hazardous Waste Handling:** The Plan will include the following components: (1) the program shall identify types of hazardous materials to be used during the project and the types of wastes that would be generated; (2) proper hazardous materials use, storage and disposal requirements as well as hazardous waste management procedures; and (3) all project personnel shall be provided with project-specific training to ensure that all hazardous materials and wastes associated with the project are handled in a safe and environmentally sound manner and disposed of according to applicable rules and regulations. Specifically, employees handling wastes shall have or receive hazardous materials training and shall be trained in hazardous waste procedures, spill contingencies, waste minimization procedures and treatment, storage and disposal facility (TSDF) training in accordance with current OSHA Hazard Communication Standard and Title 22 CCR. The Plan shall identify the landfill facilities that are authorized to accept the types of waste generated and hauled, and these landfills shall be used for hazardous waste disposal during construction.

- **Transport of Hazardous Materials:** Hazardous materials that would be transported by truck include fuel (diesel fuel and gasoline) and oil and lubricants for equipment. Containers used to store hazardous materials would be properly labeled and kept in good condition. The Plan shall include written procedures for the transport of hazardous materials used in accordance with U.S. Department of Transportation and Caltrans regulations. A qualified transporter would be selected to comply with U.S. Department

of Transportation and Caltrans regulations. The Plan shall identify proposed trucking routes.

- **Fueling and Maintenance of Construction Equipment:** Written procedures for fueling and maintenance of construction equipment shall be included in the Plan. Refueling and maintenance procedures may require vehicles and equipment to be refueled on site or by tanker trucks. Procedures will require the use of drop cloths made of plastic, drip pans and trays to be placed under refilling areas to ensure that chemicals do not come into contact with the ground. Refueling would be located in areas where absorbent pad and trays would be available. The fuel tanks would also contain a lined area to ensure that accidental spillage does not occur. Drip pans or other collection devices would be placed under the equipment at night to capture drips or spills. Equipment would be inspected daily for potential leakage or failures. Hazardous materials such as paints, solvents, and penetrants would be kept in an approved locker or storage cabinet.
- **Fueling and Maintenance of Helicopters:** Written procedures for fueling and maintenance of helicopters shall be included in the Plan. Procedures may require helicopters be refueled at construction work areas, helicopter staging areas, or local airports. Procedures would include the use of drop cloths made of plastic, drip pans and trays to be placed under refilling areas to ensure that chemicals do not come into contact with the ground. Refueling areas shall be identified in the Plan and necessary spill response materials shall be available within each refueling area.
- **Emergency Release Response Procedures:** The Plan shall include emergency response procedures in the event of a release of hazardous materials. The Plan must prescribe hazardous materials handling procedures for reducing the potential for a spill during construction and would include an emergency response program to ensure quick and safe cleanup of accidental spills. Hazardous materials shall not be stored near drains or waterways. Fueling shall not take place within 50feet of drains or waterways with flowing water or within 75 feet of drains or waterways that are dry. All construction personnel, including environmental monitors, would be made aware of state and federal emergency response reporting guidelines for accidental spills.

The Plan shall be submitted to CPUC and BLM 30 days prior to the start of construction for review and approval by the CPUC.

MM HH-2 **Manage discovery of unanticipated contamination.** In the event that contaminated media are encountered during construction requiring excavation, SCE shall stop work, contact SCE's Safety and Environmental Specialist (SES), request a site assessment, and notify the proper authorities. The potentially contaminated soil should first be segregated into lined stockpiles, dump trucks, or roll-off containers. Samples are to be collected and analyzed to determine the appropriate handling, treatment, and disposal options. If the analytical results indicate that the soils are hazardous, the affected soils would be properly managed on location and transported to a Class I Landfill or other appropriate soil treatment or recycling facility using a Uniform Hazardous Waste Manifest. Work at the affected site would continue at that location only when given clearance by the SES.

Hydrology and Water Quality

MM HWQ-1 **Implement an Erosion Control Plan.** SCE shall develop and submit an Erosion Control Plan to the CPUC and BLM for review at least 60 days prior to construction. The Erosion Control Plan may be part of the Stormwater Pollution Prevention Plan (SWPPP) and kept onsite and readily available on request.

Soil disturbance at structures and access roads is to be minimized and designed to prevent long-term erosion. The Erosion Control Plan shall include:

- The location of all soil-disturbing activities, including but not limited to new and/or improved access and spur roads.
- The location of all streams and drainage structures that would be directly affected by soil-disturbing activities (such as stream crossings or public storm drains by the right-of-way and access roads).
- BMPs to protect drainage structures, such as public storm drains, downstream of soil disturbance activities.
- Design features to be implemented to minimize erosion during construction and during operation (if the project feature is to remain permanent after construction).
- If soil cement is proposed, the specific locations must be defined in the Plan, and evidence of approval by the appropriate jurisdiction shall be submitted to the CPUC and BLM prior to its use.
- The location and type of BMPs that would be installed to prevent off-site sedimentation and to protect aquatic resources.
- Specifications for the implementation and maintenance of erosion control measures and a description of the erosion control practices, including appropriate design and installation details.
- Proposed schedule for inspection of erosion control/SWPPP measures and schedule for corrective actions/repairs, if required. Erosion control/SWPPP inspection reports shall be provided to the CPUC EM.

Locations requiring erosion control/SWPPP corrective actions/repairs shall be tracked, including dates of completion, and documented during inspections. Inspections and monitoring shall be performed in compliance with the Federal and California Construction General Permits. The inspection reports shall be maintained and kept with their respective SWPPP, kept on site as required by the Federal and State Construction General Permits, and made available upon request to the RWQCB, CPUC, BLM, and representatives of the traversed counties and cities. Additionally, an Annual Report shall be filed for each reporting period in compliance with Federal and California Construction General Permit reporting requirements.

SCE shall submit Grading Plans to the CPUC and BLM for approval that define the locations of the specific features listed above.

SCE shall submit to the CPUC and BLM evidence of possession of applicable required permits for the representative land disturbance prior to engaging in soil-disturbing construction/demolition activities. Such permits may include, but are not limited to, a CWA Section 402 NPDES California General Permit for Storm Water Discharges Associated with Construction Activities (General Permit) from the applicable Regional Water Quality

Control Board(s) (RWQCBs), and the Federal General Permit for Storm Water Discharges Associated with Construction Activities on Tribal Land.

Prior to any ground disturbance in stream channels or other waters jurisdictional to the State of California or the Federal Government, SCE shall obtain a Streambed Alteration Agreement from the California Department of Fish and Wildlife, a Section 404 permit from the USACE, and a CWA Section 401 certification from the SWRCB and submit to the CPUC and BLM evidence of possession of such Agreement/permits.

MM HWQ-2 **Prepare and implement an HDD Fluid Management Plan.** If Horizontal Directional Drilling (HDD) is required, an HHD Fluid Management Plan shall be prepared and implemented. The plan shall include, at a minimum, the following measures:

- Worst-case scenario development and response effort descriptions.
- Drilling pressure monitoring to ensure pressures do not exceed those needed to penetrate the formation.
- Monitoring by a minimum of two monitors (located both upstream and downstream) throughout drilling operations to ensure early detection and swift response in the event of a surface expression of drilling fluid.
- Site-specific contingency measures shall be developed for the drill site, taking into consideration terrain, access, resource sensitivities, and proximity of suitable areas for staging response equipment for the unanticipated surface expression of drilling fluid.
- Agency notification procedures.
- Training for responding personnel.
- Prevention, containment, clean up, and disposal of released drilling mud. Preventative measures shall include incorporation of the recommendations of a pre-construction geotechnical investigation to determine the most appropriate drilling depth and drilling mud mixture for the HDD bore site. Containment shall be accomplished through construction of temporary berms/dikes and use of silt fences, straw bales, absorbent pads, straw wattles, and plastic sheeting. Clean up shall be accomplished with plastic pails, shovels, portable pumps, and vacuum trucks.
- A copy of the Streambed Alteration Agreement (SAA) shall be provided in the Plan. If the SAA also requires development of a similar plan to address HDD fluid management, that plan, as approved by CDFW, may be used to satisfy this measure provided it adequately addresses the requirements identified herein, as determined by the CPUC and BLM.

Noise

MM N-1 **Limit construction noise levels.** SCE shall ensure that all construction activities occur within the following hours, during which construction noise would be exempt from local ordinances: in San Bernardino County and City of Hesperia, between 7:00 a.m. to 7:00 p.m. Monday through Saturday, except Federal holidays, unless an alternate schedule is coordinated with the applicable local jurisdiction. Additionally, SCE shall implement the following construction noise reduction methods as precautionary measures, as identified in the Noise Technical Report (Appendix K to SCE's PEA (Eilar, 2017)):

- Turn off equipment when not in use.
- Limit the use of enunciators or public address systems, except for emergency notifications.
- Equipment used in construction should be maintained in proper operating condition, and all loads should be properly secured, to prevent rattling and banging.
- Schedule work to avoid simultaneous construction activities that both generate high noise levels.
- Use equipment with effective mufflers.
- Minimize the use of backup alarms.

MM N-2 **Provide advance notification of construction noise.** Sixty days prior to construction, SCE shall prepare and submit a public notice mailer format to the CPUC for approval. The details of notification may be modified in consultation with CPUC as warranted by the circumstances.

No less than 15 days prior to construction that would occur within 500 feet of residences, businesses, or other occupied structures, SCE shall distribute a public notice mailer. The notice shall state the type of construction activities that will be conducted, and the location and duration of construction. The notice shall identify, and SCE shall provide a public liaison person before and during construction to respond to concerns of residents about construction noise. SCE shall also establish a toll-free telephone number for receiving questions or complaints during construction and develop procedures for responding to callers. SCE shall address all complaints within one week of when the complaint is filed, and shall provide to the CPUC, within 15 days of the end of each month, a monthly report with records of all complaints and responses. SCE shall mail the notice to all residents or property owners within 500 feet of the right-of-way or within 1,000 feet of helicopter fly yards and flight paths.

Transportation

MM T-1 **Prepare and implement a Construction Traffic Control Plan**. Prior to the start of construction, SCE shall submit a Construction Traffic Control Plan for review and approval by state and local agencies responsible for public roads that would be directly affected by the construction activities and/or would require permits and approvals. The Construction Traffic Control Plan shall include, but not be limited to:

- The locations and use of flaggers, warning signs, barricades, delineators, cones, arrow boards, etc. according to standard guidelines outlined in the Manual on Uniform Traffic Control Devices, the Standard Specifications for Public Works Construction, and/or the California Joint Utility Traffic Control Manual.
- The locations of all road or traffic lane segments that would need to be temporarily closed or disrupted due to construction activities.
- The locations where guard poles, netting, or similar means to protect transportation facilities for any construction work requiring the crossing of a local street, highway, or rail line are proposed.
- The use of continuous traffic breaks operated by the Highway Patrol on state highways (if necessary).

- Plans to coordinate in advance with emergency service providers to avoid restricting the movements of emergency vehicles. Police departments and fire departments shall be notified in advance by SCE of the proposed locations, nature, timing, and duration of any roadway disruptions, and shall be advised of any access restrictions that could impact their effectiveness. At locations where roads will be blocked, provisions shall be ready at all times to accommodate emergency vehicles, such as immediately stopping work for emergency vehicle passage, or providing short detours, or developing alternate routes in conjunction with the public agencies.

MM T-2 **Repair roadways and transportation facilities damaged by construction activities.** If roadways, sidewalks, medians, curbs, shoulders, or other such transportation features are damaged by project construction activities, as determined by Caltrans or other public agency responsible for the transportation feature, such damage shall be repaired and restored to the pre-project condition by SCE. Prior to construction, SCE shall establish the pre-construction conditions of the roads within 500 feet in each direction of project access points (where heavy vehicles will leave public roads to reach unpaved access roads, yards, or other project sites) and confer with state and local agencies regarding roads in the agency's jurisdiction to be crossed by the project components. Establishment of existing conditions may include dated photographic or video documentation.

At the end of major construction, SCE shall coordinate with each affected jurisdiction to confirm what repairs are required. Any damage demonstrable to the project is to be repaired to the pre-construction condition within 60 days from the end of all construction, or on a schedule mutually agreed to by SCE and the affected jurisdiction. If multiple projects or users access the same transportation features, SCE will pay its fair share of the required repairs. SCE shall provide CPUC and affected jurisdictions (as applicable) proof when any necessary repairs have been completed.

MM T-3 **Prepare and implement a final helicopter use plan.** SCE and its contractor shall prepare and obtain approval of a Final Helicopter Use Plan 30 days prior to using helicopters to transport personnel, materials, or equipment for the deconstruction of existing project facilities or construction of new or replacement project facilities. The plan shall identify the specific locations requiring deconstruction or construction work using helicopters. The Final Helicopter Use Plan shall draw upon protocols and methods used on previous transmission line projects and shall be submitted to CPUC and BLM for approval.

The Federal Aviation Agency (FAA) has jurisdiction over U.S. airspace, aircraft, aircraft operations, airports, and pilots. To the extent that they do not conflict with any FAA requirements, the following shall apply to helicopter use and be incorporated in the Final Helicopter Use Plan.

- All aircraft and pilots shall be in full compliance with applicable FAA requirements and standards.
- On the day before a flight, helicopter flight information shall be provided by email to CPUC/BLM monitors regarding the specific sites to be used for helicopter retrieval of materials, equipment, or personnel and the destination of the materials, equipment, or personnel being transported. Information provided in the email shall include pilot name, contact number, aircraft type, aircraft registration number, aircraft color, work/flight area, anticipated beginning and completion times, and scope of work.

- The specific locations requiring deconstruction or construction work using helicopters shall be identified.
- Temporary staging of materials outside of approved yards or on access or spur roads shall not occur without prior approval of CPUC or BLM, as appropriate.
- The yards to and from which helicopters would fly (fly yards) shall be identified and shall be of sufficient size to ensure safe operations, given the other activities occurring at the yards and the vicinity.
- Fly yards shall be no closer than a horizontal distance of 475 feet from occupied residences to avoid unacceptable nuisances.
- Site-specific steps taken to avoid nuisances and ensure safe refueling shall be identified for each fly yard.
- Flight paths that minimize flights in wilderness areas and near schools, hospitals, nursing homes, and other sensitive group receptors shall be identified and followed.
- Except in an emergency, helicopters shall land or hover near the ground only in areas previously approved for landing, and all dust control and biological and cultural resource protection requirements shall apply.
- External loads will be secured by appropriate rigging, including boxing, netting, choking, and cabling, or other suitable means. Only qualified riggers shall prepare and attach external loads to helicopters, and rigging shall be appropriate to the nature of the load, including the use of devices as necessary to prevent materials being lost in flight. Where appropriate to reduce load in-flight spinning and movement, drag chutes will be attached to loads. The need for drag chutes will be determined by the pilot and rigging personnel, where appropriate. At locations where rigging is to occur, a sufficient supply of appropriate rigging and containment materials in good repair shall be on hand at all times.
- All aircraft are to be configured with weight sensors such that, when preparing to haul external loads, the pilot is able to determine the weight of the load being lifted.
- Yards or landing zones shall have a designated qualified individual managing the movement of aircraft in and out of the yard or landing zone when flight activity is high.
- Appropriate protocols for communication among pilots and between pilots and the ground shall be developed and implemented.
- A GPS-based data system shall be installed in each aircraft.
  - The system shall identify for the pilot all project-approved project flight paths and those areas where overflights are restricted (such as seasonally restricted bird nesting areas and sensitive residential or institutional areas) and shall be updated as often as any flight restrictions are implemented or lifted.
  - The system shall automatically record and preserve flight data sufficient to identify the aircraft's flight path, including altitude above ground. The system shall be capable of providing the information required with regard to flight path and aircraft identifier and provide a location "ping" no less frequently the once every 3 seconds. These data shall be collected daily and maintained by SCE or its contractor for a period of no less than six months and made available to CPUC or BLM upon request.

The Helicopter Use Plan shall be submitted to CPUC and BLM for review and approval at least 30 days prior to the use of helicopters on the project. Once the Helicopter Use Plan is made final, a copy shall be provided as a courtesy to each jurisdiction through which the Project passes.

Tribal Cultural Resources

CR-1 **Retain a Cultural Resources Specialist.** Prior to the start of construction, a project Cultural Resources Specialist (CRS) whose training and background conforms to the U.S. Secretary of Interior's Professional Qualifications Standards, as published in Title 36, Code of Federal Regulations, part 61 (36 C.F.R., part 61) shall be retained by SCE to supervise monitoring of construction excavations and to prepare a Cultural Resources Management Plan (CRMP) for the approved project. Their qualifications shall be appropriate to the needs of the project, specifically an archaeologist with demonstrated prior experience in the southern California desert and previous experience working with Southern California Tribal Nations. A copy of their qualifications shall be provided to the CPUC for review and approval. The project Cultural Resources Specialist shall use the services of Cultural Resources Monitors, tribal monitors and Field Crew as needed, to assist in mitigation, monitoring, and curation activities, as outlined in the CRMP. A copy of all proposed cultural staff qualifications shall be provided to the CPUC for review and approval prior to beginning work.

CR-2 **Cultural resources environmental awareness training.** Project personnel, including cultural resources monitors and tribal monitors, shall receive training that includes sensitivity training provided through participating tribes in video format regarding the appropriate work practices necessary to effectively implement the APMs and mitigation measures related to cultural resources and tribal cultural resources, including human remains. Training shall be required for all personnel before they begin work on a project site and repeated as needed for all new personnel before they begin work on the Project. This training program shall be submitted to the CPUC for approval at least 30 days before the start of construction and include procedures to be followed upon the discovery or suspected discovery of archaeological materials, tribal cultural resources, and human remains, consistent with the procedures set forth in the CRMP. This training may be integrated with a broader Worker Environmental Awareness Training program. Documentation of the training will be provided to the BLM and CPUC. The CPUC will provide documentation to the consulting tribes.

CR-3 **Prepare and implement a Cultural Resources Management Plan.** Prior to the beginning of construction, SCE shall submit at least 90 days before construction a Cultural Resources Management Plan (CRMP) for the project to the BLM and CPUC for review. The CPUC will submit the CRMP to representatives of consulting tribes for a 30-day review and comment period prior to approving the CRMP. The CPUC will in good faith consider any comments received from consulting tribes and incorporate such comments into the CRMP as deemed feasible. A single plan document that meets the requirements of both BLM and CPUC is acceptable. The CRMP shall be implemented under the direction of the SCE and the project Cultural Resources Specialist. The CRMP shall be prepared at the sole expense of the project proponent and shall meet all regulatory requirements. At a minimum the CRMP must address the following:

- The duties of the project Cultural Resources Specialist and associated staff shall be fully explained, including oversight/management, monitoring, and reporting duties

with respect to known cultural resources and tribal cultural resources as well as site evaluation, data collection, and reporting for any newly identified resources discovered during project activities. The professional standards and ethical guidelines for all cultural resource personnel will be clearly outlined in the CRMP.

- No collection of artifacts is authorized or planned for this project. If an unanticipated discovery requires evaluation via excavation and artifact collection, the retention/ disposal, and permanent and temporary curation policies shall be specified. The decision-making process for identifying which artifacts are curated or reburied, where they are reburied and the individuals, including tribal participants, making these decisions shall be described. These policies shall apply to cultural resources materials and documentation resulting from evaluation and treatment of cultural resources and tribal cultural resources discovered during project activities.
- The CRMP shall define and map all known prehistoric and historic resources eligible to the NRHP and CRHR within 100 feet of proposed work areas. How these resources will be avoided and protected during construction will be described. Avoidance measures to be used will be described, including where and when they will be implemented. How avoidance measures and enforcement of Environment Sensitive Areas (ESAs) will be coordinated with construction personnel will be included.
- The implementation sequence and the estimated time frames needed to accomplish all project-related tasks (i.e., evaluation of new resources resulting in work stoppage, time to complete reports, etc.) during the project activities and any post-project analysis phases of the project, if necessary, shall be specified. The intensity of monitoring proposed for each resource that may be impacted by project activities shall be outlined in the CRMP.
- Person(s) expected to perform each monitoring and, if necessary, treatment task, their responsibilities, and the reporting relationships between project construction management and the monitoring and treatment team shall be outlined in the CRMP.
- Tribal Monitors shall be retained to monitor ground disturbing activities within 100 feet of prehistoric and protohistoric resources. Tribal Monitors shall be retained for data recovery within prehistoric and protohistoric resources identified for data recovery. The ELM Project area spans multiple Tribal areas. The Tribe affiliated with a specific area will be considered first to provide Tribal Monitors. If multiple Tribes or Tribal Organizations are affiliated with a specific area, Tribal Monitors will be selected on a rotating basis. The CRMP will describe the roles and responsibilities of the monitors. Tribal monitors will be compensated. All impact-avoidance measures (such as the presence of monitors) to prohibit or otherwise restrict access to sensitive resource areas that are to be avoided during ground disturbance, construction, and/or operation shall be described. Areas where these measures are to be implemented shall be identified. The description shall address how these measures would be implemented prior to the start of ground disturbance and how long they would be needed to protect the resources from project-related impacts.
- The commitment to record resources on Department of Parks and Recreation (DPR) 523 forms, to map, and to photograph all newly identified cultural resources over 50 years of age shall be stated. Participating tribes may offer their perspective regarding

the newly identified cultural resource. Comments by tribes may be documented on the DPR 523c, parts A13 (Interpretation) and A14 (Remarks).

- The commitment to curate all artifacts retained as a result of any archaeological investigations in accordance with the appropriate requirements and the California State Historical Resources Commission's Guidelines for the Curation of Archaeological Collections, into a retrievable storage collection in a public repository, museum, or reburial at the request of tribal representatives shall be stated. The different curation policies for archaeological material collected on BLM land as opposed to private or state land, shall be clearly articulated.
- The commitment of SCE to pay all curation or reburial fees for artifacts recovered and for related documentation produced during cultural resources investigations conducted for the project shall be stated. Should consulting tribes request that artifacts not be reburied, the CRMP shall identify a curation facility that could accept cultural resources materials resulting from project cultural resources investigations on private or state land. Tribal monitors shall be present for any reburials.
- A final report shall be prepared presenting the results of the monitoring efforts. The contents, format, and review and approval process of the final report shall meet appropriate federal, state, and local guidelines.

CR-4 **Inadvertent discovery of cultural or tribal cultural resources.** If previously undiscovered resources are identified during project activities all activities within 100 feet (30 meters) of the resource shall halt. The onsite construction supervisor and SCE shall be notified. SCE will notify the CPUC and BLM of the discovery. The monitoring team shall flag-off the area. SCE and its cultural resource specialist will coordinate with the CPUC, BLM, NPS and tribal representatives as appropriate, on avoidance measures.

If the resource cannot be avoided, methods of resource evaluation, and methods of mitigation will be discussed with all appropriate parties. Work may be temporarily diverted to activities that are outside of 100 feet (30 meters) of the discovered or suspected resource. The resource shall be evaluated to determine whether it is eligible for the NRHP, CRHR, a unique archaeological resource, a tribal cultural resource, or part of a larger culturally sensitive landscape area or traditional cultural property. If the resource is determined not to be significant, work may recommence in the area. If the resource is determined significant work shall remain halted within 100 feet (30 meters) of the area of the find, SCE shall consult with the BLM, CPUC, and representatives of the consulting tribes as appropriate regarding methods to ensure that no adverse effect and no substantial adverse change would occur to the significance of the resource. Preservation in place (i.e., avoidance) is the preferred method of mitigation for impacts to cultural resources. Other methods of mitigation, described below, shall only be used if it is determined the method would provide equivalent or superior mitigation of the impacts to the resource. The alternative methods of mitigation may include data recovery and documentation of the information contained in the resource to answer questions about local prehistory or history. The methods and results of the evaluation or data recovery work at an archaeological find shall be documented in a professional-level technical report to be filed with the California Historical Resources Information System (CHRIS). Work in the area may commence upon completion of treatment, as approved by the BLM and CPUC.

If data recovery of resources is necessary, additional archaeologists shall perform the excavation while the monitoring team(s) continues to monitor construction. Additionally, the tribes shall be offered the opportunity to monitor data recovery efforts at prehistoric sites in addition to construction efforts, under the same contract terms. This opportunity shall be additionally be extended to tribes that consulted on this project, but for which a tribal monitor was not provided for construction efforts.

CR-5 **Avoidance of cultural and tribal cultural resources.** When project work is planned within 100 feet of a known prehistoric-era cultural resource or a tribal cultural resource, or any resources that are eligible for the CRHR and/or NRHP, avoidance areas shall be established and monitors shall be present as outlined in the CRMP. ESAs shall be established with a 50 foot buffer around each resource prior to project activities, except where the 50-foot buffer would encroach on a work area, in which event the ESA buffer shall be the near edge of the identified work area. Monitoring teams shall include one qualified cultural resources monitor and one Native American monitor at prehistoric sites. ESAs shall be established by a qualified cultural resources monitor. The timing and intensity of the monitoring may vary according to the type of resource and the nature of the work planned and shall be determined in consultation with consulting tribes, as appropriate.

CR-6 **Prepare monitoring reports.** Upon completion of cultural resources and tribal cultural resources monitoring, SCE shall prepare a single report that summarize the monitoring efforts and the results, analyses, and conclusions of the monitoring program. Individual volumes per land ownership will be included and provide additional details. Copies of the report shall be submitted to both the CPUC and BLM within 60 days of the close of construction. Thereafter, consistent with individual agency policy, each agency will disseminate to the consulting tribes the report applicable to land under that agency's jurisdiction. Draft reports under CPUC jurisdiction will be submitted to consulting tribes for a 30-day review and comment period concurrent with agency review. If no new resources were discovered during construction, a letter report shall be submitted to the CPUC and BLM summarizing monitoring efforts. If resources were identified during construction, the reports shall be consistent with the California Archaeological Resources Management Reports (ARMR) and commensurate with the nature and significance of the identified resource(s). If artifacts are collected, they shall be curated at a recognized curation facility unless consulting tribes request that the Native American artifacts be reburied on site. Documentation associated with any newly identified resources shall be filled with the CHRIS, if appropriate.

CR-7 **Inadvertent discovery of human remains on state owned land or private property.** In the event that human remains or suspected human remains are identified, SCE shall comply with California law (Heath and Safety Code Section 7050.5; PRC Sections 5097.94, 5097.98, and 5097.99). The area shall be flagged off and all project activities within 200 feet (60 meters) of the find shall immediately cease. The CPUC-approved Cultural Resources Specialist and SCE shall be immediately notified. SCE shall immediately contact the Medical Examiner at the County Coroner's office, BLM, CPUC as well as representatives of consulting tribes. The Medical Examiner has two (2) working days to examine the remains. If the Medical Examiner believes the remains are Native American, they shall notify the California Native American Heritage Commission (NAHC) within 24 hours. If the remains are not believed to be Native American, the appropriate local law enforcement agency will be notified.

The NAHC will immediately notify the person or tribe it believes to be the most likely descendant (MLD) of the remains, and the MLD has 48 hours to make recommendations to the landowner or representative for the respectful treatment or disposition of the human remains and any associated grave goods. If the MLD does not make recommendations within 48 hours, the remains shall be reinterred in the location they were discovered and the area of the property shall be secured from further disturbance. If there are disputes between the landowner and the MLD, the NAHC shall mediate the dispute and attempt to find a solution. If the mediation fails to provide measures acceptable to the landowner, the landowner or their representative shall reinter the remains and associated grave goods and funerary objects in an area of the property secure from further disturbance. The location of any reburial of Native American human remains shall not be disclosed to the public and shall not be governed by public disclosure requirements of the California Public Records Act, Cal. Govt. Code§ 6250 et seq., unless otherwise required by law. The Medical Examiner shall withhold public disclosure of information related to such reburial pursuant to the specific exemption set forth in California Government Code Section 6254(r).

CR-8 **Inadvertent discovery of human remains on federal land.** If potential human remains are discovered during any Project activity on lands administered by federal agencies, all activities within 200 feet that will cease immediately. SCE will take appropriate steps to secure and protect human remains and any funerary objects from further disturbance. SCE will notify the BLM and the County Coroner (California Health and Safety Code 7050.5(b)) immediately. If the remains are determined to be Native American or if Native American cultural items pursuant to the Native American Graves Protection and Repatriation Act (NAGPRA) are uncovered, the remains shall be treated in accordance with the provisions of NAGPRA (43 CFR 10) and the Archaeological Resources Protection Act (43 CFR 7). SCE shall assist and support the federal agency, as appropriate, in all required NAGPRA and Section 106 actions, government to-government and consultations with Native Americans, agencies, and consulting parties as requested by the federal agency. SCE shall comply with and implement all required actions and studies that result from such consultations.

Utilities and Service Systems

MM UT-1 **Provide cathodic protection.** Prior to commencing construction or as soon as such data are available, if it is not available before construction, SCE shall determine and report to CPUC and BLM the location of adjacent utilities and other metallic or conducting objects susceptible to induced voltages and currents. The scope of SCE's report shall include the results of an alternating current interference study by SoCalGas on the natural gas pipelines that parallel or cross portions of the Lugo-Mohave 500 kV Transmission Line. Prior to the in-service date of the Proposed Project series capacitors, SCE shall ensure that the necessary grounding or other appropriate measures to provide appropriate cathodic protection has been installed and shall confirm this to the CPUC and BLM.

If SCE identifies other utilities near the 500 kV Transmission Lines that may be susceptible to increased risk of corrosion due to induced currents or voltages, SCE shall conduct or have conducted an alternating current interference study during construction of the ELM Project that evaluates the alternating current interference effects of the 500 kV transmission lines on such other utilities. The study shall include the development of a model using the maximum magnetic field levels for the transmission lines, including the conductor arrangement. For all utilities identified with a corrosion potential, SCE shall

coordinate with the owner of the utility and use data gathered in the alternating current interference study to determine appropriate design measures to protect the utility from corrosion, such as ground mats or gradient control wires for cathodic protection of buried pipelines and other utilities. The study, summary of coordination with potentially affected utilities, and specifications of any design measures to be installed shall be submitted to the CPUC and BLM for review and approval at least 60 days prior to initiation of installation of such protection. All required protective and grounding work shall be completed prior to the in-service date of the Proposed Project series capacitors.

MM UT-2 **Implement mitigation measures during pipeline protection work.** Any agreement between SCE on the one hand and any party undertaking installation of pipeline protection measures required as a result of the ELM Project on the other hand shall include a requirement that applicable mitigation measures required during construction of the ELM Project also apply to and be implemented during any required pipeline-related work. At a minimum, and to the extent that they apply in the geographic area of the pipeline work, these will include mitigation measures for impacts to biological resources, cultural and tribal cultural resources, and hazards and hazardous materials. The BLM and NPS may substitute equally effective mitigation measures or may require additional measures be implemented. A copy of the agreement between SCE and any other party for the pipeline work shall be provided to CPUC, BLM, and NPS. Business confidential information may be redacted, but the general nature of any redaction shall be identified. Absent a binding agreement between SCE and any other party to implement the required mitigation measures, or equally effective measures imposed by BLM and/or NPS, SCE will not be authorized to fund any of the required pipeline work.

MM UT-3 **Provide safety features for induced currents on adjacent metallic objects.** Prior to commencing construction or as soon as such data are available, if it is not available before construction, SCE shall determine and report to CPUC and BLM the location of metallic or conducting objects that may present a shock hazard to the public due to induced voltages or currents. SCE shall prepare an Induced Current Touch study that evaluates the conductive and inductive interference effects of the 500 kV transmission lines and new overhead distribution lines on the identified conductive objects. The Induced Current Touch study, including the criteria and approach that were used to determine what objects could present a shock and the details of the grounding or other measures to be installed, shall be submitted to the CPUC and BLM for review and approval. Prior to the in-service date of the Proposed Project series capacitors, SCE shall install the necessary grounding or other appropriate measures to protect the public from hazardous shocks or arcing.

Wildfire

MM WF-1 **Prepare and implement a Fire Management Plan.** A project-specific Fire Management Plan for construction of the ELM project shall be prepared by SCE and submitted for review and approval by the CPUC prior to initiation of construction. The draft copy of the Plan must also be provided to each responsible fire agency at least 90 days before the start of construction activities in areas designated as Very High or High Fire Hazard Severity Zones with a request for comments on the Plan's adequacy within 30 days. Plan reviewers shall include CPUC, BLM, CAL FIRE, and San Bernardino County. Comments received on the draft Plan shall be provided to SCE from all other reviewers, and SCE shall resolve each comment in consultation with the commenting agency. CPUC shall approve the final Plan, which shall be provided to the Plan reviewing agencies at least

30 days prior to the initiation of construction activities in the Fire Hazard Severity Zones. SCE shall fully implement the Plan during all construction activities.

A qualified project Fire Marshal or person of similar title and experience shall be established by SCE to implement and enforce all provisions of the approved Fire Management Plan as well as perform other duties related to fire detection, prevention, and suppression for the project. The Fire Marshal shall monitor construction activities to ensure implementation and effectiveness of the plan.

The Plan shall cover:

- The purpose and applicability of the plan;
- Responsibilities and duties;
- Preparedness training and drills;
- Procedures for fire reporting, response, and prevention that include:
  - identification of daily site-specific risk conditions,
  - the appropriate tools and equipment needed on vehicles and to be on hand at sites,
  - reiteration of fire prevention and safety considerations during tailboard meetings, and
  - daily monitoring of the red-flag warning system with appropriate restrictions on types and levels of permissible activity;
- Coordination procedures with BLM and San Bernardino County fire officials;
- Crew training, including fire safety practices and restrictions; and
- Methods for verification that Plan protocols and requirements are being followed.

2. Environmental Determination

2.1 Environmental Factors Potentially Affected

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" and requiring implementation of mitigation as indicated by the checklist on the following pages.

☒ Aesthetics	☐ Agriculture & Forestry Resources	☒ Air Quality
☒ Biological Resources	☒ Cultural Resources	☐ Energy
☒ Geology/Soils	☐ Greenhouse Gas Emissions	☒ Hazards & Hazardous Materials
☒ Hydrology/Water Quality	☐ Land Use/Planning	☐ Mineral Resources
☒ Noise	☐ Population/Housing	☐ Public Services
☐ Recreation	☒ Transportation	☒ Tribal Cultural Resources
☒ Utilities/Service Systems	☒ Wildfire	☒ Mandatory Findings of Significance

2.2 Environmental Determination

On the basis of this initial evaluation:

☐ I find that the Proposed Project COULD NOT have a significant effect on the environment, and a **NEGATIVE DECLARATION** will be prepared.

☒ I find that although the Proposed Project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A **MITIGATED NEGATIVE DECLARATION** will be prepared.

☐ I find that the Proposed Project MAY have a significant effect on the environment, and an **ENVIRONMENTAL IMPACT REPORT** is required.

☐ I find that the Proposed Project may have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect (1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and (2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An **ENVIRONMENTAL IMPACT REPORT** is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the Proposed Project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR, including revisions or mitigation measures that are imposed upon the Proposed Project, nothing further is required.

Billie Blanchard _____ _____

Billie Blanchard, Project Manager
Energy Division CEQA Unit
California Public Utilities Commission

Date

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3. Introduction to the Initial Study

3.1 Proposed Project Overview

On May 2, 2018, Southern California Edison (SCE) a regulated California utility, filed an application (A.1805007) with the California Public Utilities Commission (CPUC) for a Permit to Construct (PTC) the Eldorado-Lugo-Mohave Series Capacitor Project (Proposed Project). Following submission of additional information requested by CPUC, the application was deemed complete for review under the California Environmental Quality Act (CEQA) on October 10, 2018. On January 9, 2019, Commissioner Picker, the Commissioner assigned to the Proceeding, ruled that the Application for a PTC was improper and ordered SCE to file an amended Application to seek a Certificate of Public Convenience and Necessity (CPCN) rather than a PTC. On April 19, 2019, SCE submitted its amended Application for a CPCN.

The Proposed Project would:

- Construct 2 new 500 kV mid-line series capacitors (i.e., the proposed Newberry Springs Series Capacitor and Ludlow Series Capacitor) and associated equipment.
- Provide 2 communication paths between the series capacitor sites.
  - Install approximately 2 miles of overhead and 500 feet of underground telecommunications facilities as one path to connect the proposed series capacitors to SCE's existing communication system.
  - Install approximately 2 miles of underground telecommunications facilities as a second communication path to connect the series capacitors to SCE's existing communication system.
- Provide station light and power to the proposed series capacitors by extending and/or rerouting existing lines to create approximately 2 miles of overhead and 700 feet of underground 12 kV distribution circuits. (The new distribution poles would support overhead telecommunication facilities as well as the electric distribution lines.)
- Construct 3 new fiber optic repeater facilities (Barstow, Kelbaker, and Lanfair) within the Lugo-Mohave ROW.
- Install distribution lines for light and power at the 3 proposed fiber optic repeater sites.
- Install underground telecommunications facilities from existing transmission structures to the Barstow, Kelbaker, and Lanfair fiber optic repeater sites.
- Address 16 potential overhead clearance discrepancies at 14 locations by:
  - Relocating, replacing, or modifying existing transmission, subtransmission, and distribution facilities at approximately 12 locations along the Eldorado-Lugo, Eldorado-Mohave, and Lugo-Mohave 500 kV Transmission Lines to address 14 of the overhead clearance discrepancies. Tower modifications would include raising 9 towers approximately 18.5 feet by inserting new lattice-steel sections in tower bodies.
  - Performing minor grading at 2 locations along the Lugo-Mohave 500 kV Transmission Line to address 2 of the overhead clearance discrepancies.
- Install approximately 235 miles of optical ground wire (OPGW) (approximately 59 miles on the Eldorado-Mohave Transmission Line and approximately 173 miles on the Lugo-Mohave Transmission Line, including approximately 3 miles of underground telecommunications facilities in the vicinity of the Mohave Substation).

- Modify and strengthen the ground wire peak of existing suspension towers where OPGW splices would occur (some of these towers would also require minor modifications to the steel in the tower body).
- Install approximately 2,000 feet of underground telecommunications facilities within the existing Lugo, Mohave, and Eldorado Substations.
- Within Lugo Substation, perform modifications on the existing series capacitors and install new terminating equipment and remove 2 existing tubular steel poles (TSPs) and install 2 new TSPs on the Eldorado-Lugo and Lugo-Mohave 500 kV Transmission Lines.
- Within the Eldorado Substation, perform modifications on the existing series capacitors and upgrade the terminal equipment on the Eldorado-Lugo 500 kV Transmission Line.
- Within the Mohave Substation, replace existing series capacitors on the Lugo-Mohave 500 kV Transmission Line and install new terminal equipment on the Eldorado-Mohave and Lugo-Mohave 500 kV Transmission Lines.
- Within LADWP's McCullough Substation, replace 5 existing 500 kV 50 kA circuit breakers with 5 new 500 kV 63 kA circuit breakers.
- Install (if necessary) cathodic protection on approximately 60 miles of SoCalGas's natural gas pipelines parallel to SCE's Lugo-Mohave 500 kV Transmission Line and on other pipelines as needed.

The Proposed Project is located in San Bernardino County CA and Clark County NV and would occur mostly within existing 500 kV transmission line ROWs and at existing substations. At some new facility locations, additional ROW would be required as follows: at the Newberry Springs mid-line capacitor site and for the distribution and telecommunications link between the Newberry Springs and Ludlow capacitor facilities; on the Mojave National Reserve, an additional 20-ft ROW width would be needed adjacent to the existing ROW to accommodate distribution lines between existing distribution circuits along nearby roads and the Kelbaker and Lanfair repeater sites. The project would increase the amount of power delivered on the existing Eldorado-Lugo and Lugo-Mohave 500 kV Transmission Lines, address line clearance discrepancies, facilitate communications between substations, and modify substations to accommodate the Proposed Project. SCE anticipates construction to occur between March 2020 and June 2021.

3.2 Environmental Analysis

3.2.1 CEQA Process

This Initial Study (IS) has been prepared pursuant to the California Environmental Quality Act (CEQA), the current amended State CEQA Guidelines (14 CCR 15000 et seq.), and the CPUC CEQA rules (Rule 2.4). The purpose of the IS is to inform the decision-makers, responsible agencies, and the public of the Proposed Project, the existing environment that would be affected by the project, the environmental effects that would occur if the project is approved, and the proposed mitigation measures that would avoid or reduce environmental effects.

A Mitigated Negative Declaration (MND) has been prepared based on the assessment of potential environmental impacts identified in the IS. All potentially significant impacts associated with the project can be mitigated to a less than significant level; therefore, an MND can be adopted by the CPUC in accordance with Public Resources Code Section 21080.

3.2.2 CEQA Lead Agency/Scope of CEQA Review

The CPUC is the lead agency for review of the project under CEQA because it is the public agency with the greatest responsibility for supervising or approving the project as a whole and will act first on the project in question (CEQA Guidelines Section 15051). SCE is a regulated investor-owned utility whose projects are subject to the jurisdiction of the CPUC, which must evaluate the whole of the proposed action. The CPUC's jurisdiction over the project preempts the authority of local jurisdictions in California with respect to the project.

The project crosses federally-administered lands in both California and Nevada, primarily Bureau of Land Management (BLM) and National Park Service (NPS) lands. The BLM is the lead agency for compliance with the federal National Environmental Policy Act (NEPA) and will evaluate the project based on Department of the Interior and NEPA guidance and issue its independent evaluation. On non-federal lands in Nevada, the project must comply with applicable Nevada laws and regulations. The BLM is preparing an environmental assessment document under NEPA. In evaluating direct, indirect and cumulative effects of the Proposed Project, the NEPA document will cover all elements of the project spanning California and Nevada, including both federal and non-federal lands.

CEQA does not apply to elements of a project located in another state that will be subject to environmental review under NEPA or by virtue of a law of that state requiring preparation of a document containing similar analysis as an environmental impact statement under NEPA. (See specifically CEQA Section 21080(b)14) and CEQA Guidelines Section 15277.) Public Utilities Code 1002(a)(4) echoes this scheme by providing that the CPUC need not consider "influence on the environment" in granting a CPCN "in the case of any line, plant, or system or extension thereof located in another state which will be subject to environmental impact review pursuant to [NEPA] or similar state laws in the other state . . . unless any emissions or discharges therefrom would have a significant influence on the environment of this state." Thus, CEQA does not apply to the parts of the Proposed Project in Nevada because they are subject to environmental review under NEPA. CEQA also does not apply to such project elements because they are subject to Nevada's Utility Environmental Protection Act (Nevada Revised Statues Sections 704.820 through 704.900), which does require the same type of analysis as under NEPA. In this case, the Public Utilities Commission of Nevada on January 9, 2019 issued an order (following public notice, opportunity for comment and a public hearing) finding the Proposed Project exempt from the Nevada Utility Environmental Protection Act since most of the work in Nevada is replacement of existing facilities. Although on either of these two bases the parts of the Proposed Project in Nevada are not subject to CEQA, for informational purposes, such elements are evaluated in this IS. Any pertinent mitigation measures identified in this IS can be considered by the federal and other agencies that must approve the parts of the Proposed Project in Nevada.

All mitigation measures in this IS have been agreed to by the Applicant. If the Proposed Project is approved by the CPUC, the CPUC would impose as conditions of project approval and would monitor implementation of the mitigation measures in this IS pertaining to actions on non-federal lands within California. The CPUC would also require that for actions on federal lands within California, SCE must implement the mitigation measures in this IS or equivalent or more effective measures, recognizing that the federal approval bodies may impose the same mitigation measures as identified in this document, or may instead formulate their own mitigation requirements. Drawing upon CEQA Guidelines section 15074.1 (d) concerning substitute mitigation measures, "equivalent or more effective" means that the substitute or revised measure will avoid or reduce the significant effect to at least the same degree as, or to a greater degree than, the original measure and will create no more adverse effect of its own than would have the original measure. The CPUC will ensure the implementation of mitigation measures over federal land

within California by securing appropriate verification that the mitigation measures imposed by the CPUC are implemented or that the mitigation measures imposed by the federal agencies are (i) equivalent or more effective and (ii) implemented.

3.2.3 Initial Study

This IS presents an analysis of potential effects of the Proposed Project on the environment. The IS is based on information from SCE's Proponent's Environmental Assessment (PEA) and associated submittals, site visits, responses to CPUC data requests to SCE, and additional research.

Construction activities and subsequent project operation could have direct and indirect physical impacts on the environment. Environmental effects that may be associated with future generation facilities (solar or otherwise) that may use Proposed Project facilities to transmit electricity are not evaluated in this IS because such generation projects: (i) are speculative; (ii) are not the result of, or made more likely by, the Proposed Project (which identifies that, as it relates to transmission, the Proposed Project is in response to analyses by the CAISO, including CAISO's identification of proposed generation projects that would require deliverability); and (iii) will themselves be subject to full CEQA and NEPA review processes.

The Proposed Project is intended to supply power to serve the demand for energy in California and enable deliverability for generation projects that have plans or commitments pending to interconnect to California's loads through SCE's system. By increasing transmission line capacity, the project would allow increased power flow through the existing 500 kV lines and increase SCE's ability to provide transmission service to existing and future electric power generation facilities seeking to deliver power to California's load. The development and operation of future generation facilities would not result in substantial population growth, but is likely to result in the conversion of substantial land areas to a new type of land use. The Proposed Project would be growth inducing in that it could improve the viability of development of electric power generation projects covering potentially significant amounts of land. While transmission capacity is necessary for development of these projects, it alone is not growth-inducing. The projects would require approvals from the officials having jurisdiction over the land on which they would be built. The approval process would include environmental review, implementation of conditions of approval and mitigation measures, and consideration of public policy objectives such as increasing the supply of renewable energy in lieu of using fossil fuels.

The following environmental topics are analyzed with regard to the potential effects of the Proposed Project on the environment and potential growth-inducing or cumulative effects of the project in combination with other projects. As discussed in Chapter 5, mitigation measures would be required to reduce impacts to a less than significant level for the following:

- Aesthetics
- Air Quality
- Biological Resources
- Cultural Resources
- Geology and Soils
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Noise
- Transportation
- Tribal Cultural Resources
- Utilities and Service Systems
- Wildfire
- Mandatory Findings of Significance

Chapter 5 also demonstrates that no impacts requiring mitigation measures will result from the project in the following environmental topics:

- Agricultural and Forestry Resources
- Energy
- Greenhouse Gas Emissions
- Land Use and Planning
- Mineral Resources
- Population and Housing
- Public Services
- Recreation

Initial Study Organization

The IS has been organized into the following chapters:

- **Chapter 1:** Mitigated Negative Declaration
- **Chapter 2:** Environmental Determination
- **Chapter 3:** Introduction. Provides an introduction and overview describing the Proposed Project and the CEQA process and identifies key areas of environmental concern.
- **Chapter 4:** Project Description. Presents the project objectives and provides an in-depth description of the Proposed Project, including construction details and methods.
- **Chapter 5:** Environmental Analysis and Mitigation. Includes a description of the existing conditions and analysis of the Proposed Project's potential environmental impacts and identifies mitigation measures to reduce potentially significant impacts to less than significant levels.
- **Chapter 6:** Mitigation Monitoring Plan. Includes applicant proposed measures (APMs) and mitigation measures that SCE must implement as part of the project, actions required to implement these measures, monitoring requirements, and timing of implementation for each measure.
- **Appendix A:** List of Preparers. Lists the preparers of the Initial Study.
- **Appendix B:** Air Quality/Greenhouse Gas Data. Provides data used for Air Quality and GHG analyses.
- **Appendix C:** Local California Regulations. Lists local regulations that are superseded by CPUC authority.
- **Appendix D:** Biological Resources. Provides information on affected or potentially affected biological resources.

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4. Project Description

4.1 Project Information

4.1.1 Project Title

Eldorado-Lugo-Mohave Series Capacitor Project

4.1.2 Lead Agency Name and Address

California Public Utilities Commission
Energy Division
300 Capitol Mall, 4th Floor, Room 4-21
Sacramento, CA 95814

4.1.3 Lead Agency Contact Person and Phone Number

Billie Blanchard, Project Manager
Energy Division
(916) 823-4799 or billie.blanchard@cpuc.ca.gov

4.1.4 Project Location

The Proposed Project would be in San Bernardino County, CA and Clark County, NV and include activities on private, state, and federal lands. Figure 4-1. Proposed Project Regional Overview Map shows the overall project area and Figure 4-2. Project Overview illustrates the location of project activities along the entire length of the Proposed Project. **(Note: All figures and attachments referenced in Section 4 are included at the end of the section.)**

4.1.5 Project Sponsor's Name and Address

Southern California Edison Company
2244 Walnut Grove Avenue
Post Office Box 800
Rosemead, CA 91770

4.1.6 General Plan Designation

A large portion of the land crossed by the Proposed Project is under federal jurisdiction and does not have a general plan designation. County and city general plan designations in areas not under federal jurisdiction are as follows:

- San Bernardino County, CA: Agricultural and Resource Management; Special Purpose; Residential and Rural Living
- City of Hesperia, CA: Utilities Corridor
- Clark County, NV: Major Development Projects; Open Lands; Public Facility; Residential Suburban; Road ROW, Residential Agriculture.
- City of Boulder City, NV: Open Lands

4.1.7 Zoning

Land under federal jurisdiction does not have zoning designations. County and City zoning designations in areas crossed by the Proposed Project are as follows:

- San Bernardino County, CA: Agricultural and Resource Management; Special Purpose; Residential
- City of Hesperia, CA: Utilities Corridor
- Clark County, NV: Special Districts; Manufacturing Districts; Residential Districts
- City of Boulder City, NV: Government Open Space/Boulder City Conservation Easement

4.1.8 Description of Project

The overall extent of the Proposed Project is illustrated in Figure 4-1, Proposed Project Regional Overview Map. The primary Proposed Project components are shown in more detail in Figure 4-2, Proposed Project Overview Map Series, which consists of 12 map sheets. As indicated by notations in Figure 4-2, sites where extensive construction would occur are shown separately in individual figures. The Proposed Project would:

- Construct 2 new 500 kV mid-line series capacitors (i.e., the proposed Newberry Springs Series Capacitor and Ludlow Series Capacitor) and associated equipment.
- Provide 2 communication paths between the series capacitor sites:
  - Install approximately 2 miles of overhead and 500 feet of underground telecommunications facilities as one path to connect the proposed series capacitors to SCE's existing communication system.
  - Install approximately 2 miles of underground telecommunications facilities as a second communication path to connect the series capacitors to SCE's existing communication system.
- Provide station light and power to the proposed series capacitors by extending and/or rerouting existing lines to create approximately 2 miles of overhead and 700 feet of underground 12 kV distribution circuits. (The new distribution poles would support overhead telecommunication facilities as well as the electric distribution lines.)
- Construct 3 new fiber optic repeater facilities (Barstow, Kelbaker, and Lanfair) within the Lugo-Mohave ROW.
- Install distribution lines for light and power at the 3 proposed fiber optic repeater sites.
- Install underground telecommunications facilities from existing transmission structures to the Barstow, Kelbaker, and Lanfair fiber optic repeater sites.
- Address 16 potential overhead clearance discrepancies at 14 locations by:
  - Relocating, replacing, or modifying existing transmission, subtransmission, and distribution facilities at approximately 12 locations along the Eldorado-Lugo, Eldorado-Mohave, and Lugo-Mohave 500 kV Transmission Lines to address 14 of the overhead clearance discrepancies. Tower modifications would include raising 9 towers up to approximately 18.5 feet by inserting new lattice-steel sections in tower bodies.
  - Performing minor grading at 2 locations along the Lugo-Mohave 500 kV Transmission Line to address 2 of the overhead clearance discrepancies.

- Install approximately 235 miles of optical ground wire (OPGW) (approximately 59 miles on the Eldorado-Mohave Transmission Line and approximately 173 miles on the Lugo-Mohave Transmission Line, including approximately 3 miles of underground telecommunications facilities in the vicinity of the Mohave Substation).
- Modify and strengthen the ground wire peak of existing suspension towers where OPGW splices would occur (some of these towers would also require minor modifications to the steel in the tower body).
- Install approximately 2,000 feet of underground telecommunications facilities within the existing Lugo, Mohave, and Eldorado Substations.
- Within Lugo Substation, perform modifications on the existing series capacitors and install new terminating equipment and remove 2 existing tubular steel poles (TSPs) and install 2 new TSPs on the Eldorado-Lugo and Lugo-Mohave 500 kV Transmission Lines.
- Within the Eldorado Substation, perform modifications on the existing series capacitors and upgrade the terminal equipment on the Eldorado-Lugo 500 kV Transmission Line.
- Within the Mohave Substation, replace existing series capacitors on the Lugo-Mohave 500 kV Transmission Line and install new terminal equipment on the Eldorado-Mohave and Lugo-Mohave 500 kV Transmission Lines.
- ~~Within LADWP's McCullough Substation, replace 5 existing 500 kV 50 kA circuit breakers with 5 new 500 kV 63 kA circuit breakers.~~
- Install (if necessary) cathodic protection on approximately 60 miles of SoCalGas's natural gas pipelines parallel to SCE's Lugo-Mohave 500 kV Transmission Line.

This project description is based on planning-level assumptions described in SCE's PEA and on responses to data requests from CPUC to SCE seeking clarification or additional information. Exact details would be determined following completion of final engineering; identification of field conditions; availability of labor, material, and equipment; and compliance with applicable environmental and permitting requirements. To estimate surface area disturbance under the Proposed Project, the project description relies on conservative ground disturbance assumptions based on preliminary engineering. The actual surface area disturbance is expected to be reduced from this initial estimate following completion of final engineering.

4.1.9 Surrounding Land Uses and Setting

Nearly all of the Proposed Project activities would occur in rural to remote locations primarily with recreation or open-space uses. A large portion of the land traversed by the project is administered by the BLM or the NPS. Figure 4-2. identifies land jurisdictions and shows the setting for the Proposed Project.

4.1.10 Permits and Approvals Required.

The CPUC has exclusive authority to approve or deny SCE's application for a CPCN; however, various permits and approvals from other agencies may need to be obtained by SCE for the project to be executed. Table 4-1 summarizes the permits from other federal, State, and local agencies that may be needed for the project.

Table 4-1. Permits and Approvals that May Be Required for the Project

Permit/Approval	Agency	Purpose/Jurisdiction
Federal		
ROW Grant	BLM	500 kV Transmission Lines and access roads. Construction on BLM-administered lands.
Special Use Permit	NPS	500 kV Transmission Lines and access roads
Special Use Permit	NPS	Construction on NPS-administered lands
Record of Decision	BLM	Considers Federal actions on the project approval.
Notice to Proceed	BLM	Final BLM approval to proceed with construction
Section 7 Consultation	United States Fish and Wildlife Service (USFWS)	Federal listed, threatened, and endangered species
Section 106 Consultation, National Historic Preservation Act	BLM	Cultural resources listed or eligible for listing on the National Register of Historic Places
Clean Water Act Section 404 Permit (CA and NV) – Nationwide	United States Army Corps of Engineers (USACE)	Construction impacting waters of the United States including wetlands
Permit	United States Bureau of Reclamation (BOR)	500 kV Transmission Lines and access roads
7460(1) Permit and Notice Proposed Construction or Alteration	Federal Aviation Administration (FAA)	Erection of tall structures or the use of tall construction equipment in the vicinity of an airport
Field Work Authorization (Arch)	BLM	Ability to conduct surveys
Field Work Authorization (Paleo)	BLM	Ability to conduct surveys
Archaeological Resources Protection Act (ARPA) Permit	NPS	Permit for Archaeological Investigations within the Mojave National Preserve
SF-299 Commercial Vehicle Permit	NPS	To allow non-SCE vehicles to travel within the 500 kV transmission line corridors located within the Mojave National Preserve to conduct surveys or field verification for existing infrastructure
Permit/Agreement/ Consent Type (TBD)	Western Area Power Administration (WAPA)	SCE 500 kV transmission line crossing WAPA 230 kV transmission line in Nevada
State		
CPCN	CPUC	State lead agency to approve project
Notice to Proceed	CPUC	Final CPUC approval to proceed with construction
Declaratory Order or Advisory Opinion	Nevada Public Utilities Commission (PUCN)	Nevada UEPA Permit to Construct not required
2081 Incidental Take Permit	California Department of Fish and Wildlife (CDFW)	State listed threatened or endangered species

Table 4-1. Permits and Approvals that May Be Required for the Project

Permit/Approval	Agency	Purpose/Jurisdiction
401 Certification – CA	State Water Resources Control Board	Certifies that activities subject to a federal permit meet state water quality standards
401 Certification – NV	Nevada Division of Environmental Protection (NDEP)	Certifies that activities subject to a federal permit meet state water quality standards
Temporary work in waterways permit – NV	NDEP	Regulates work in waterways
1602 Streambed Alteration Agreement	CDFW	Activity that may modify a river, stream, or lake
NPDES Construction General Permit for Discharges of Storm Water	State Water Resources Control Board	Construction activities that disturb more than one acre of soil
NPDES Construction General Permit for Discharges of Storm Water	NDEP	Construction activities that disturb more than one acre of soil
Oversize Load/Special Load Permit	Caltrans	Movement of vehicle/loads exceeding statutory limitations on the size, weight, and loading of vehicles
Encroachment Permit	Caltrans	Activities related to the placement of encroachments within, under, or over the State highway ROWs
Permit Type (TBD)	California State Lands Commission	Activities related to the placement of encroachments and landing zones within, under, or over the State of California School Lands
Encroachment Permit	CA and NV Cities or Counties, NVDOT	OH/UG crossings over or under travelways during OPGW stringing and work areas
NDOW Special Purpose Permit/Wildlife Authorization	NV Department of Wildlife	State listed threatened or endangered species
Operational Permit (CA and NV Fire Codes)	CA and NV	Operation of 500-gallon or greater propane tanks
Local		
Dust Control Permit	Clark County DAQ, NV	A dust control plan will need to be submitted to County
Generator Permit	MDAQMD	Use of temporary and permanent generators exceeding 50 horsepower
Landscaping Permit	Cities or Counties	County/City approval of landscaping plan
Tree Removal Permit	Cities or Counties	Tree trimming or removal for line clearance requirements
San Bernardino County Fire Protection District, Hazardous Materials Division Permit	San Bernardino County	Facility inspections and management of a facility's Hazardous Materials Business Plan program
Fire Permit – CA	Cities or Counties	If batteries are over 70 kilowatt, fire permit may be needed
Hazardous Materials Permits	CA and NV Counties	Hazardous materials inventory for materials used for construction (e.g. batteries, SF6 gas)
Grading Permit	San Bernardino and Clark Counties	Project work that includes earthwork

Table 4-1. Permits and Approvals that May Be Required for the Project

Permit/Approval	Agency	Purpose/Jurisdiction
Building Permit (e.g., Fence)	San Bernardino and Clark Counties	Construction activity subject to the county building code requirements. Desert Tortoise fencing design also needs to be approved by the BLM, CDFW, and USFWS
Building Permit (e.g., MEER)	San Bernardino and Clark Counties	Construction activity subject to the city or county building code requirements.
Temporary Entry Permit or Temporary Construction Easement (e.g., Material and Storage Yards, Landing Zones, Access Roads)	Counties or Private Property Owners	Approval to use project work areas
Demolition Permit	CA and NV Cities or Counties	Demolition of existing platforms and equipment at substations
Encroachment Permit (e.g., Traffic Control Plan, lane closure)	NV Cities or Counties	Activities related to the placement of encroachments within, under, or over the State highway ROWs
Other		
License, Easement, or Agreement (RR Permits)	BNSF and UPRR	Overhead crossings over railways during OPGW stringing

4.1.11 California Native American Tribal Consultation

Pursuant to Public Resources Code Section 21080.3.1, upon determining that an IS would be prepared for the Proposed Project, the CPUC initiated a plan to conduct consultation with California Native American Tribes traditionally and culturally affiliated with the project area. Tribes who had formally requested to be contacted by CPUC regarding projects in their geographic area of interest as well as other tribes identified by the Native American Heritage Commission (NAHC) as having a potential affiliation with the project area were contacted to determine their interest in consulting with the CPUC regarding the project. A total of 23 tribes were contacted. Of these, 4 tribes requested consultation – the San Manuel Band of Mission Indians, the Morongo Band of Mission Indians, the Twenty-Nine Palms Band of Mission Indians, and the Fort Mojave Tribe. Consultations were held with each tribe to explain the Proposed Project, including the nature and location of its associated activities, and to learn from the tribes regarding their concerns about tribal cultural resources potentially affected by the Proposed Project. Methods to ensure tribal cultural resources would be adequately protected were also addressed in consultation with the tribes. The analyses and mitigation measures in Sections 5.5 Cultural Resources, and 5.18 Tribal Cultural Resources, reflect input from these consultations.

As part of the consultation process, site visits were made to various cultural resource locations identified by the individual consulting tribes as locations of interest to them. Tribal representatives and representatives from BLM, NPS, SCE, and CPUC participated. The site visits took place over four days with tribal representatives attending as follows:

- On April 16, 2019, representatives from the Morongo Band of Mission Indians and the Twenty-Nine Palms Band of Mission Indians participated.
- On April 17, 2019, representatives from the San Manuel Band of Mission Indians and the Morongo Band of Mission Indians participated.
- On June 25 & 26, 2019, representatives of the Fort Mojave Tribe participated.

During the site visits, the parties discussed the location and nature of project activities and how to protect identified cultural resources near planned activities. Subsequent to their site visits, the CPUC provided draft mitigation measures to the individual tribes for comment. The draft measures were based on information available in cultural resource reports, discussions with tribal representatives, and comments provided during the site visits. Tribal comments on the draft measures were considered during development of final mitigation measures. A Cultural Resources Management (CRMP) is required to guide cultural resource management and protection procedures. The CPUC has agreed to provide the four consulting tribes a copy of the draft CRMP when it is prepared for their review and comment. Two of the tribes also requested that tribal monitors be engaged during construction. This request has been incorporated into impact mitigation requirements.

4.2 Project Capacity and Objectives

4.2.1 Project Capacity

The Proposed Project would not increase the nominal voltage of the three 500 kV transmission lines. With installation of the new series capacitors and additional work at the substations, the Proposed Project would provide for an operating capacity or entitlement increase from:

- 1,645 megavolt-ampere (MVA)[1] to 2,858 MVA on the Eldorado-Lugo 500 kV Transmission Line,
- 2,078 MVA to 2,858 MVA on the Lugo-Mohave 500 kV Transmission Line, and
- 1,580[2] MVA to 2,598 MVA on the Eldorado-Mohave 500 kV Transmission Line.

4.2.2 Project Objectives

The Proposed Project is being proposed to meet the following objectives:

- Meet the target in-service date of June 2021 in an effort to support the requirements as outlined and required by the California Renewables Portfolio Standard (RPS)[3] including 33% by 2020 and the increased requirement of 60% by 2030 Ensure compliance with California Public Utilities Commission (CPUC) General Order (G.O.) 95 and the National Electrical Safety Code (NESC).
- Continue to provide safe and reliable electrical service.

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1 MVA is a unit of measurement that refers to the rated capacity of electrical equipment such as transmission lines, transformers, etc., to carry or transport alternating current (AC). MW refers to the power delivered by the transmission system.

2 1,580 MVA (MW) refers to the total capacity entitlement allocated between SCE, the Los Angeles Department of Water and Power (LADWP) and Nevada Energy (NVE). The capacity entitlement refers to the MW ownership that each of these utilities, as co-owners of the Eldorado-Mohave transmission line, currently have over the transmission of power across this transmission line. Under existing agreements SCE, LADWP & NVE each have a capacity entitlement of 530, 716 & 334 MWs respectively. The rated capacity of the transmission line will remain as 2,598 MVA before and after the project. As a result of the project, the capacity entitlement of SCE will increase from 530 MW to 1,548 MW.

3 The California RPS requires investor-owned utilities, electric service providers, and community choice aggregators to procure a minimum quantity of electricity products from eligible renewable energy resources so that the total kilowatt-hours of those products sold to their retail end-use customers achieve a designated percentage for a given year. Currently, the RPS requires 60% procurement by 2030. Additional information regarding the RPS can be found on the CPUC's website: http://www.cpuc.ca.gov/RPS_Homepage/.

- Maintain system reliability within the Los Angeles Basin as well as the entire CAISO grid, which is defined as the Electrical Needs Area (ENA).
- Increase power flow through the existing Eldorado-Lugo, Eldorado-Mohave[4], and Lugo-Mohave 500 kV Transmission Lines for the purpose of increasing the amount of power delivered from California, Nevada, and Arizona to the ENA[5] through the SCE system in an effort to meet requirements associated with the California RPS[6].
- Reduce SCE's current flow into the LADWP transmission system for the purpose of mitigating power flow overloads under abnormal system conditions.
- Ensure compliance with all applicable reliability planning criteria required by the North American Electric Reliability Corporation, Western Electricity Coordinating Council, and California Independent System Operator (CAISO).
- Integrate planned generation resources in order for those facilities to become fully deliverable.[7]
- Meet the requirements of existing Interconnection Agreements that require the Proposed Project to achieve FCDS for generation facilities.
- Meet Proposed Project needs while minimizing environmental impacts.
- Design and construct the Proposed Project in conformance with SCE's approved engineering, design, and construction standards for substation, transmission, subtransmission, and distribution system projects.

4.3 Project Location

General Location. SCE's proposed Eldorado-Lugo-Mohave Series Capacitor Project would be located in southeastern California and southern Nevada. The Proposed Project would involve work along three existing SCE 500 kV transmission lines:

- Lugo-Mohave Transmission Line – connecting Lugo Substation in San Bernardino County, California and Mohave Substation in Laughlin, Clark County, Nevada;
- Eldorado-Mohave Transmission Line – connecting Eldorado Substation in the City of Boulder City, Nevada and the Mohave Substation; and
- Eldorado-Lugo Transmission Line – connecting Eldorado Substation and Lugo Substation.

The Proposed Project crosses San Bernardino and Clark counties, including the unincorporated communities of Lucerne Valley in California and Searchlight and Laughlin in Nevada. In San Bernardino

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4 *See* Footnote 3

5 While SCE's original Application to the CPUC defined the Electrical Needs Area (ENA) to include just the Los Angeles Basin, the Proposed Project benefits a larger regional area as well, as is depicted in SCE's Proponent's Environmental Assessment at Figure 1-2 Electrical Needs Area which can be found at http://www.cpuc.ca.gov/environment/info/aspen/elm/pea/vol1_ch1-ch3.pdf.

6 The Proposed Project provides for the delivery of additional renewable generation into southern California by increasing the operating transmission line capacities from:
- 1,645 megavolt-ampere (MVA) to 2,858 MVA on the Eldorado-Lugo 500 kV Transmission Line and
- 2,078 MVA to 2,858 MVA on the Lugo-Mohave 500 kV Transmission Line

7 A generating facility is referred to as being "fully deliverable" once it has achieved Full Capacity Deliverability Status (FCDS).

County, portions of the Proposed Project would also cross the incorporated City of Hesperia. The Proposed Project also would cross lands under the jurisdiction of the BLM, the NPS, the U.S. Bureau of Reclamation (BOR), and the Department of Defense, as well as land managed by the California State Lands Commission.

Figure 4-2, Proposed Project Overview Map Series, provides a series of 12 sheets depicting the location of Proposed Project components and land ownership. In the text below, information in parentheses [e.g., (See Figure 4-2, Sheet 3)] refers to individual sheets in Figure 4-2 that show where an activity would occur.

General Land Use. A majority of the land area crossed by and in the vicinity of the Proposed Project is under federal jurisdiction, including the BLM, NPS, the BOR, and Department of Defense. The Proposed Project area is generally characterized by undeveloped and open land, utilities and infrastructure, and some low-density residential land uses.

Most of the Proposed Project is in San Bernardino County, California. The area north of Lugo Substation is mostly residential development on private land. The remaining portions of San Bernardino County (i.e., in the vicinity of the Eldorado-Lugo and Lugo-Mohave 500 kV Transmission Lines) are mostly undeveloped open lands, with some low-density residential and agricultural uses. However, for approximately 55 miles of its length, the Lugo-Mohave transmission line parallels an existing Southern California Gas (SoCalGas) gas pipeline, as well as approximately 6 miles of a second pipeline. The pipeline locations are shown on Figure 4-2, Sheets 4, 5, and 6. Large portions of unincorporated San Bernardino County between Hesperia and the California border traversed by the Proposed Project are under federal jurisdiction and are managed by the BLM or the NPS.

Portions of the Proposed Project are within the City of Hesperia, California, which is bordered to the north by the City of Victorville, to the northeast by the Town of Apple Valley, to the west, east and south by unincorporated areas of San Bernardino County and to the southeast by San Bernardino National Forest. The City of Hesperia contains a mix of residential, agricultural, industrial, and commercial uses. The area surrounding the Lugo-Mohave 500 kV Transmission Line is mostly undeveloped, with residential uses and public facilities to the north. (See Figure 4-2, Sheet 1.)

The eastern portion of the Proposed Project is located in undeveloped, open lands in southern Clark County, Nevada. The Eldorado-Mohave 500 kV Transmission Line and a portion of the Lugo-Mohave 500 kV Transmission Lines traverse Clark County through mostly BLM-managed land and the unincorporated communities of Searchlight and Laughlin.

The City of Boulder City, Nevada, is surrounded by unincorporated Clark County and, to the northwest, by the City of Henderson, Nevada. The Eldorado Substation, LADWP's McCullough Substation, and a portion of the Eldorado-Mohave 500 kV Transmission Line are located in the southern half of the City of Boulder City, in Eldorado Valley. Land uses in this area are dedicated to energy resources and open space. The northern portion of the City of Boulder City includes residential, commercial, and open space land uses.

Property Description. The majority of the Proposed Project would be constructed within existing SCE Rights-of-Way (ROWs), existing public ROWs where SCE has existing franchise agreements, or ROWs on federal lands that SCE is in the process of renewing. SCE's previous ROW Grant for lands currently and formerly under BLM administration has expired. The utility would need to renew the ROW Grant for lands still under BLM jurisdiction, ~~and~~ obtain a Special Use Permit from NPS on lands formerly under BLM jurisdiction but now administered by the NPS as the Mojave National Preserve, and obtain a Use Authorization from Reclamation that will authorize SCE to operate, maintain, and eventually decommission the components of SCE's facilities located on Reclamation-administered lands. The BLM Grant would include permission to both construct and operate the Proposed Project. The BLM Grant for the Lugo-Mohave Transmission Line would be for a 160-foot wide ROW. The BLM Grant for the Eldorado-

Lugo Transmission Line would be for a 180-foot wide ROW. In addition, a small area of additional BLM ROW would be required at the Newberry Springs mid-line capacitor site to accommodate the facility footprint and new ROW would be required for a distribution and telecommunication link between the Newberry Springs and Ludlow capacitor facilities. On the Mojave National Preserve, an NPS Special Use Permit would be needed for the ROW and a separate Special Use Permit would be required for construction. For the Special Use Permit for the ROW the widths would be the same as on BLM-administered land: 160 feet on the Lugo-Mohave Transmission Line and 180 feet on the Eldorado-Lugo Transmission Line.[8] In addition, SCE would require an additional 20-foot ROW width adjacent to the 160-foot Lugo-Mohave Transmission Line ROW within the Mojave National Preserve at the Kelbaker and Lanfair repeater sites to accommodate distribution lines between the nearby roads and the repeater sites. No additional ROW on Reclamation land would be required for capacitor or repeater facilities. Applications for the ROW Grant, ~~and~~ Special Use Permits, and Use Authorization have been submitted by SCE to the BLM, ~~and~~ the NPS, and Reclamation, respectively.

The 2 proposed series capacitor sites and the 3 proposed fiber optic repeater sites may require slight increases in the amount of ROW from what is currently authorized in order to accommodate installation of these facilities. The amount of land required will be determined at the time of final engineering and Proposed Project approval. A more detailed discussion of ROW requirements is provided in Section 4.6, Right-of-Way Requirements.

4.4 Project Components – Overview

The Proposed Project would support the integration of renewable energy that would be used to help serve retail end-use customers throughout the ENA.

Project Components. The Proposed Project components and activities include:

- Construction of 2 new 500 kilovolt (kV) mid-line series capacitors – the proposed Newberry Springs Series Capacitor and Ludlow Series Capacitor. A series capacitor is used to improve the efficiency of power delivery and voltage stability on a transmission line. The proposed series capacitors would increase the megawatt (MW) capacity of the two transmission lines, which would remain at 500 kV. The series capacitor sites are about 1.25 miles apart and are located under the existing Eldorado-Lugo and Lugo-Mohave 500 kV Transmission Lines, respectively. The sites are approximately 0.6 miles north of Interstate 40 (I-40) and 18 miles east of Newberry Springs. For most of their route between Lugo Substation and I-40, the two transmission lines are parallel; near I-40, they separate. (See Figure 4-2, Sheet 4; Figure 4-3, Ludlow Mid-line Series Capacitor Detail; and Figure 4-4, Newberry Springs Series Capacitor Detail.)
- Installation of electric distribution and telecommunication facilities at and in the vicinity of the proposed series capacitor sites to provide light, power, and communications at these facilities. (See Figure 4-2, Sheet 4; and Figure 4-5, Ludlow-Newberry Springs Distribution/Telecom Detail.)

[8] In the Mojave National Preserve, the only work on the Eldorado-Lugo 500 kV Transmission Line under the Proposed Project would be the raising of one tower adjacent to the Union Pacific Railroad line that demarks a portion of the western boundary of the Preserve. However, the Special Use Permit would be for the entire Eldorado-Lugo transmission line, as the original BLM ROW Grant has expired.

- Correction of 16 overhead clearance discrepancies[9] that currently exist along the Eldorado-Lugo, Eldorado-Mohave, and Lugo-Mohave 500 kV Transmission Lines. The clearance discrepancies would require the relocation, replacement, or modification of some existing transmission, subtransmission, and distribution facilities, including minor grading. (See Figure 4-2, Sheets 1–4, 8, and 12.)
- Installation of telecommunications facilities, including:
  - Installation of overhead and underground fiber optic cable between the proposed Newberry Springs Series Capacitor and Ludlow Series Capacitor, which are 1.25 miles apart. (See Figure 4-5, Ludlow-Newberry Springs Distribution/Telecom Detail.)
  - Installation of 3 fiber optic repeater facilities in San Bernardino County within the Lugo-Mohave 500 kV Transmission Line ROW, along with local distribution lines, to provide light and power to the sites. Two of the sites would be in the Mojave National Preserve. (See Figure 4-6, Barstow Repeater Detail; Figure 4-7, Kelbaker Repeater Detail; and Figure 4-8, Lanfair Repeater Detail.)
  - Removal of an existing overhead ground wire (OHGW), modification of selected existing towers to support OPGW, and installation of approximately 235 miles of overhead OPGW (see Figure 4-2), including approximately 3 miles of underground fiber optic on SCE's existing Eldorado-Mohave and Lugo-Mohave 500 kV Transmission Lines. (See Figure 4-2; Figure 4-5, Ludlow-Newberry Springs Distribution/Telecom Detail; and Figure 4-9, Underground Telecom Line Detail.)
- Modifications within the existing SCE Lugo, Mohave, and Eldorado Substations ~~and LADWP McCullough Substation~~. (See Figure 4-10, Lugo Substation Detail; Figure 4-11, Mohave Substation Detail; and Figure 4-12, Eldorado Substation Detail.) These modifications include:
  - Installation of fiber optic cable within the 3 existing SCE substations.
  - Upgrading the existing series capacitor banks at the 3 SCE substations.
  - Installation of new terminal equipment at the 3 SCE substations.
  - Replacement of the existing series capacitor bank at Mohave Substation.
  - Removal of 2 existing tubular steel poles (TSPs) and installation of 2 new TSPs at Lugo Substation.
  - ~~Removal of 5 existing 50 kA circuit breakers and installation of 5 new 63 kA circuit breakers at LADWP's McCullough Substation located just north of Eldorado Substation.~~
- If required as the result of engineering studies, installation of protective measures along existing natural gas pipelines paralleling a portion of the Lugo-Mohave Transmission Line. The pipeline locations are shown on Figure 4.2, Sheets 4, 5, and 6.

Component Locations. The Proposed Project's components and activities would occur at multiple locations along the Eldorado-Lugo, Lugo-Mohave, and Eldorado-Mohave Transmission Lines.

- The 2 mid-line series capacitor sites are each approximately 0.7 miles north of Interstate 40 in unincorporated San Bernardino County, California. The sites are approximately 1.3 miles apart. The proposed Newberry Springs Series Capacitor site is on the south side of the BNSF Railway approximately 1,200 feet northeast of the existing Pisgah Substation, within the Eldorado-Lugo 500 kV Transmission

[9] SCE has defined "discrepancies" as potential clearance problems between an energized conductor and its surroundings, such as the structure supporting the conductor, another energized conductor on the same structure, a different line, or the ground. SCE has identified approximately 16 discrepancies along the Eldorado-Lugo, Eldorado-Mohave, and Lugo-Mohave 500 kV Transmission Lines where minor grading or relocation, replacement, or modification of transmission, subtransmission, or distribution facilities are needed to address California Public Utilities Commission (CPUC) General Order (G.O.) 95 and National Electrical Safety Code (NESC) overhead clearance requirements. Discrepancy locations are shown in Figure 4-2, Proposed Project Overview Map Series.

Line ROW. The proposed Ludlow Series Capacitor site is approximately 1.4 miles east of Pisgah Substation, within the existing Lugo-Mohave 500 kV Transmission Line ROW. Distribution facilities would be installed between the two sites to provide light and power to the mid-line series capacitor facilities; overhead and underground telecommunications lines would be installed between the facilities as well.

- The 16 identified clearance discrepancies are along the Eldorado-Lugo, Eldorado-Mohave, and Lugo-Mohave 500 kV Transmission Lines at 14 separate locations. To address these 16 discrepancies, transmission, subtransmission, and/or distribution facilities would be relocated, replaced, or modified at 12 locations to address 14 of the potential overhead clearance discrepancies. At two other locations, minor grading would correct two overhead clearance discrepancies. Figure 4-2 shows the location of each potential discrepancy work area and Attachment 4-A: Discrepancy Work Areas provides descriptions of the proposed work.
- The 3 Fiber Optic Repeater facility sites — Barstow, Kelbaker, and Lanfair — are dispersed within the Lugo-Mohave ROW. The Barstow Repeater site is in the ROW approximately 2,000 feet east of Barstow Road (Highway 247) and 900 feet north of Haynes Road in rural San Bernardino County. The Kelbaker Repeater site is in the transmission ROW approximately 700 feet east of Kelbaker Road in the Mojave National Preserve. The Lanfair Repeater site is in the transmission line ROW approximately 1,700 feet east of Lanfair Road, also in Mojave National Preserve. Distribution facilities also would be installed to provide light and power to the 3 proposed fiber optic repeaters. At the Barstow site, an underground distribution line would be installed for an adjacent overhead line. At the Kelbaker site, approximately eight wood poles would be installed between an existing overhead line on Kelbaker Road and the repeater site. At the Lanfair site, approximately 16 wood poles would be installed between an existing overhead distribution line along Lanfair Road and the repeater site.
- Approximately 232 miles of OPGW would be installed atop SCE's existing Eldorado-Mohave and Lugo-Mohave 500 kV Transmission Lines. Currently, 2 parallel OHGWs are strung between the tops of the transmission towers, above the 500 kV conductors. The OHGW shields high-voltage conductors from lightning strikes and provides for distributed grounding of towers for safe powerline operation. Under the Proposed Project, one of the two existing OHGW would be removed and replaced with OPGW, which has a fiber optic cable core surrounded by strands of steel and aluminum wire. From Lugo Substation to Mohave Substation, approximately 173 miles of OPGW would be installed on the Lugo-Mohave 500 kV Transmission Line and approximately 3 miles of underground fiber optic cable would be installed within existing SCE ROWs and public ROW where SCE is in franchise. OPGW also would be installed on approximately 59 miles of the Eldorado-Mohave 500 kV Transmission Line, from Mohave Substation to Eldorado Substation, including approximately 700 feet of underground fiber optic cable within Eldorado Substation.
- The Proposed Project would require minor internal modifications (e.g., circuit breaker replacement) within SCE's existing Lugo, Eldorado, and Mohave substations ~~and LADWP's McCullough substation~~ to accommodate the proposed system changes.
- Depending on final engineering studies, additional protective measures may be required to be installed along a portion of the SoCalGas natural gas transmission pipeline near a portion of the Lugo-Mohave Transmission Line.

4.5 Project Components by System

Detailed location information on project components and potential disturbance areas is provided in a 351-sheet map set submitted by SCE as Appendix E to its Proponent's Environmental Assessment (PEA)

that accompanies its Application. Subsequent to submitting Appendix E, SCE has eliminated some proposed helicopter landing zones and yard sites and adjusted the boundaries of other yards. The maps show all towers on the Lugo-Mohave and Eldorado-Mohave transmission lines; towers on the Eldorado-Lugo transmission line are shown from Lugo Substation to a point just north of the Newberry Springs Capacitor site. Because of its size, this appendix (PEA Vol. 5 Appendix E: Detailed Route Map) is not reproduced as part of the IS/MND, but it can be viewed online at http://www.cpuc.ca.gov/environment/info/aspen/elm/toc-pea.htm. It is divided into two files because of its size.

4.5.1 Line-Related Work

The following subsections describe the transmission line, subtransmission line, distribution line, and telecommunications line work associated with the Proposed Project.

4.5.1.1 500 kV Transmission Line System

Two separate sets of actions are planned with regard to 500 kV Transmission Line facilities. Modifications and/or upgrades would occur to the existing Eldorado-Lugo, Eldorado-Mohave, and Lugo-Mohave 500 kV Transmission Lines to address 16 overhead clearance discrepancies at 14 locations. Modifications would also be required on the Lugo-Mohave and Eldorado-Mohave Transmission Lines to accommodate OPGW installation and connect the 3 repeater facilities that would be located along the Lugo-Mohave line. Project components are shown in Figure 4-2, Proposed Project Overview Map Series; individual figures for key project locations are as referenced in Figure 4-2.

Clearance Discrepancies. The proposed activities on the 3 transmission lines to address clearance discrepancies are identified below and described in Table 4.A-1 Discrepancy Work Areas in Attachment 4-A. The Lugo-Mohave and Eldorado-Lugo 500 kV Transmission Lines are adjacent to each other for approximately 65 miles between Lugo Substation and a point just west of I-40, at which point they diverge.

- On the Eldorado-Lugo 500 kV Transmission Line:
  - Raise Tower M14-T4 a minimum of 18.5 feet to address two discrepancies on either side of the tower (Figure 4-2, Sheet 1).
  - Reframe and lower two structures on the Cottonwood-Savage 115 kV Subtransmission Line and lower the 12 kV distribution line between Towers M20-T2 and M20-T3 by a minimum of 5 feet (this also addresses a discrepancy on the adjacent Lugo-Mohave 500 kV Transmission Line) (Figure 4-2, Sheet 1).
  - Raise Tower M33-T1 by a minimum of 5 feet (Figure 4-2, Sheet 2).
  - Modify conductor sag between Towers M58-T1 and M58-T2 (Figure 4-2, Sheet 3).
  - Raise Tower M63-T3 by a minimum of 15 feet (Figure 4-2, Sheet 3).
  - Raise Tower M64-T2 by a minimum of 5 feet (Figure 4-2, Sheet 3).
  - Raise Towers M97-T1 and M97-T2 by a minimum of 18.5 feet (Figure 4-2, Sheet 12).
- On the Lugo-Mohave 500 kV Transmission Line:
  - Remove a minimum of 3.5 feet of concrete below the conductor between Towers M4-T2 and M4-T3 (Figure 4-2, Sheet 1).
  - Reframe and lower the distribution line between Towers M8-T1 and M8-T2 by a minimum of 5 feet (Figure 4-2, Sheet 1).
  - Raise Tower M22-T4 by a minimum of -15 feet (Figure 4-2, Sheets 1 and 2).

- Grade/remove a minimum of 2 feet of berm between Towers M29-T3 and M30-T1 (Figure 4-2, Sheet 2).
- Raise Tower M68-T1 by a minimum of 8.5 feet (Figure 4-2, Sheet 4).
- Modify conductor sag between Towers M89-T1 and M89-T2 (Figure 4-2, Sheet 4).

■ On the Eldorado-Mohave 500 kV Transmission Line

- Raise Tower M4-T1 by a minimum of 18.5 feet and add lattice steel tower (LST) and foundation modifications as required (Figure 4-2, Sheet 8).

OPGW-Related Modifications. In addition to addressing clearance discrepancies, the Proposed Project would install approximately 232 miles of OPGW on the Eldorado-Mohave and Lugo-Mohave 500 kV Transmission Lines. The OPGW would replace one of two existing overhead ground wires. This work would require modification to approximately 60 LSTs. These are towers where fiber optic splices would be required. Attachment 4-B: Table 4.B-1 Tower Modifications Associated with Optical Ground Wire Installation (at the end of this chapter) indicates which towers require ground wire peak (GWP) modification, body modification, and/or bent steel repair. Of the 60 towers requiring ground wire peak modification, 27 also require body modification and 4 require bent steel repair.

4.5.1.2 115 kV Subtransmission Line System

To address a clearance discrepancy, the Proposed Project would modify 2 wood poles on the existing Cottonwood-Savage 115 kV Subtransmission Line located on Desert View Road east of Canyon View Road (Figure 4-2, Sheet 1).

4.5.1.3 Distribution Line System

To provide electrical service for lighting and operations at the proposed series capacitor sites and repeater sites, distribution lines would be installed between existing distribution circuits and the proposed facilities. In addition, the cross-arm on one existing distribution pole would be lowered to address a clearance discrepancy with the overhead transmission line. The Proposed Project would include the following 12 kV and 16 kV distribution line elements:

■ Extend or reroute approximately 2 miles of overhead and approximately 700 feet of underground 12 kV distribution circuits to provide electrical power to the proposed Newberry Springs Series Capacitor and Ludlow Series Capacitor (Figure 4-2, Sheet 4; and Figure 4-5) and electrical power to the three proposed fiber optic repeater sites. The Barstow Repeater would be served by a 12 kV circuit; the Kelbaker and Lanfair Repeaters would be served by 16 kV circuits (Figure 4-2, Sheets 2, 5, and 7; and Figures 4-6, 4-7, and 4-8).

■ Address clearance discrepancies at two locations by changes to distribution circuits crossing under existing 500 kV transmission lines:

- Lower the cross arms by approximately 5 feet on 2 existing 12 kV distribution pole to address the clearance discrepancy between Towers M8-T1 and M8-T2 on the Lugo-Mohave 500 kV Transmission Line at Deep Creek Road southeast of Hesperia, CA (Figure 4-2, Sheet 1).
- Lower a 12 kV distribution line by approximately 5 feet by installing approximately two new distribution poles and removing one distribution pole near Towers M20-T3 and M20-T4 on the Eldorado-Lugo and Lugo-Mohave 500 kV Transmission Lines, respectively, on Desert View Road west of Lucerne Valley (Figure 4-2, Sheet 1).

4.5.1.4 Telecommunications System

Telecommunications infrastructure would be installed to connect the Proposed Project to SCE's telecommunications system and would support Supervisory Control and Data Acquisition (SCADA), protective relaying, and data transmission, and provide telephone services for the Proposed Project and associated facilities. The Proposed Project would include the following telecommunications lines and facilities:

- Install approximately 2 miles of overhead and approximately 500 feet of underground fiber optic cable to connect the proposed Newberry Springs Series Capacitor and Ludlow Series Capacitor (the overhead fiber optic cable would share the same poles with overhead distribution lines) (Figure 4-2, Sheet 4; and Figure 4-5).
- Install approximately 2 miles of underground telecommunications facilities in the same ROW as the overhead fiber optic cable as an additional connection of the proposed Newberry Springs Series Capacitor and Ludlow Series Capacitor to SCE's existing system.
- Install fiber optic cable within the existing Lugo, Mohave, and Eldorado Substations (Figures 4-10, 4-11, and 4-12).
- Install approximately 3 miles of underground fiber optic cable from Mohave Substation to existing tower M173-T2 on the Lugo-Mohave 500 kV Transmission Line (Figure 4-2, Sheet 8; and Figures 4-9 and 4-11).
- Install 3 fiber optic repeater facilities in the existing Lugo-Mohave 500 kV Transmission Line ROW. Two of these facilities would be within chain-link-fenced areas measuring approximately 70 feet by 35 feet, and one facility would be within a fenced area measuring approximately 101 feet by 57 feet. Access to Kelbaker and Lanfair repeater sites would be by way of approximately 80-foot-long new access road (Figure 4-2, Sheets 2, 5, and 7; and Figures 4-6, 4-7, and 4-8). The repeater facilities would consist of:
  - Pre-fabricated building
  - Communication manhole
  - Distribution manhole
  - Emergency generator
  - Aboveground propane fuel tank surrounded by a block wall
  - Underground telecommunications facilities
  - Access road from existing transmission line access road to repeater site ~~(at Kelbaker and Lanfair only)~~

A typical site plan for a fiber optic repeater facility is shown in Figure 4-13, Typical Site Plan for the Fiber Optic Repeater Sites, and a typical elevation is shown in Figure 4-14, Typical Elevation for the Fiber Optic Repeater Sites.

4.5.2 Poles/Towers

4.5.2.1 500 kV Transmission Poles/Towers

The Proposed Project would raise 9 existing 500 kV towers along the Eldorado-Lugo, Lugo-Mohave, and Eldorado-Mohave 500 kV Transmission Lines to address overhead clearance discrepancies. Approximately 60 existing 500 kV towers along the Eldorado-Mohave and Lugo-Mohave 500 kV Transmission Lines would be modified to facilitate the installation of OPGW. In addition, 2 existing TSPs would be removed and 2 new TSPs installed within Lugo Substation.

The approximate dimensions of the proposed structure types are shown in Figure 4-15, Typical Single-Circuit 500 kV Dead-End Tower; Figure 4-16, Typical Single-Circuit 500 kV Suspension Tower; and Figure

4-17, Typical Tubular Steel Pole. These are summarized in Table 4-2, Typical Transmission Structure Dimensions.

Table 4-2. Typical Transmission Structure Dimensions

Type of Structure	Proposed Number of Structures	Height Above Ground (feet)	Foundation or Pole Diameter (feet)	Auger Hole Depth (feet)	Auger Diameter (feet)
500 kV LST (Raised)	9	110 to 160	N/A	N/A	N/A
500 kV LST (Tower body and peak modifications)	60	N/A	N/A	N/A	N/A
500 kV TSP (New)	2	150 to 195	10 to 12	30 to 50	12 to 15

Note: "N/A" = Not Applicable.

To address potential conflicts with birds, transmission and distribution facilities would be designed consistent with the *Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006* (Avian Power Line Interaction Committee [APLIC], 2006) where feasible. Transmission and distribution facilities would also be evaluated for installation of potential collision reduction devices in accordance with *Reducing Avian Collisions with Power Lines: The State of Art in 2012* (APLIC, 2012).

Approximately 9 existing LSTs would be raised for the Proposed Project to address discrepancies. This would be achieved by installing extensions in the tower body. Figure 4-18, Use of a Body Extension to Raise a Tower, illustrates the appearance of an LST before and after a tower body extension is installed. The LSTs to be modified would have a 30-foot by 30-foot to 60-foot by 60-foot disturbance area and would extend 110 feet to 160 feet above ground. If the weight from the additional steel requires LST foundation modification, the modifications would include installing three 5.5-inch-diameter micropiles on each of the four existing concrete piers that would extend underground approximately 20 feet (depending on a geotechnical analysis), with a 5-foot-diameter, 4-foot-deep concrete cap that would encapsulate the three new micropiles and the existing pier foundation. The raised LSTs would be bolted to the new cap.

Approximately 60 existing LSTs would have their bodies and/or peaks modified to accommodate the installation of OPGW. The LSTs are steel structures with a dulled galvanized finish. Figure 4-19, Use of Ground Wire Peak and Body Modifications to Support OPGW Installation, illustrates the modifications that would occur, strengthening the body and the peak of the tower with added steel members as shown. These modifications reinforce these specific towers to better handle the weight/load of the OPGW. Following the LST modifications, one of the two existing ground wires would be removed and a new OPGW fiber optic cable would be installed on approximately 855 existing LSTs on the Eldorado-Mohave and Lugo-Mohave 500 kV Transmission Lines. The existing structures range in height from 80 to 250 feet.

At Lugo Substation, two TSPs would be removed and two new TSPs would be installed. The new TSPs would be 10 feet to 12 feet in diameter at the base and extend 150 feet to 195 feet above ground. The TSPs would be attached to concrete foundations that would be 10 to 12 feet in diameter and would extend underground 30 feet to 50 feet with up to approximately 3 feet of concrete visible above ground. Each TSP would use approximately 100 to 225 cubic yards of concrete. The TSPs would be all-steel structures and would have a dulled galvanized finish.

SCE has identified 6 locations between Lugo Substation and I-40 where transmission line spans (i.e., catenaries) would exceed 200 feet above ground level (AGL). These spans may require installation of marker balls for aviation safety. Two spans are in uninhabited hilly terrain approximately 1.3 and 6.6 miles east of the Mojave River. Two spans are at Highway 18 just west of Joshua Road. The final two spans are

approximately 15 miles northeast of Lucerne Valley, 1.3 miles east of Camp Rock Road along Powerline Road.

Prior to construction, SCE would file Federal Aviation Administration (FAA) notifications (Form 7460-1: Notice of Proposed Construction or Alteration) for Proposed Project structures meeting FAA notification requirements. This applies to any construction or alteration this is more than 200 feet AGL. SCE would consult with the FAA and implement recommendations, to the extent feasible. SCE submitted Form 7460-1 to the FAA for these towers and spans, providing location, elevation, and height-about-ground information. FAA conducted an aeronautical study and determined that the catenary wires and towers do not exceed FAA obstruction standards and would not be a hazard to air navigation. As a result, marking and lighting are not necessary

Typical FAA recommendations to utilities and others include, but are not limited to, installation of marker balls on spans between structures, and/or installation of lighting on structures and under some circumstances would involve minor modifications to the structure to accommodate additional weight of the marker balls. Generally, marking or lighting is recommended by the FAA for those spans or structures that exceed 200 feet AGL; however, marking or lighting may be recommended for spans and structures that are less than 200 feet AGL, but located within close proximity to an airport or other high-density aviation environment. The specific requirements for the installation of marker balls or lights are specified in FAA Advisory Circular AC 70/7460-1L. In situations where marker balls are installed, SCE complies with FAA installation recommendations, as follows:

Marker Ball Specifications

- **Size and Color:** The markers used on extensive catenary wires across canyons, lakes, rivers, etc., are not less than 36 inches in diameter. Smaller 20-inch spheres are permitted on less extensive power lines or on power lines below 50 feet above the ground and within 1,500 feet of an airport runway end. Each marker is to be a solid color, such as aviation orange, white, or yellow.
- **Spacing:** Markers are spaced equally along the wire at intervals of approximately 200 feet or a fraction thereof. Intervals between markers should be less in critical areas near runway ends (i.e., 30 to 50 feet). They are displayed on the highest wire or by another means at the same height as the highest wire. Where there is more than one wire at the highest point, the markers may be installed alternately along each wire if the distance between adjacent markers meets the spacing standard. This method allows the weight and wind loading factors to be distributed.
- **Pattern:** An alternating color scheme provides the most conspicuity against all backgrounds. Mark overhead wires by alternating solid colored markers of aviation orange, white, and yellow. Normally, an orange sphere is placed at each end of a line and the spacing is adjusted (not to exceed 200 feet) to accommodate the rest of the markers.

When lighting is required, SCE complies with FAA installation requirements, as follows:

Lighting Specifications

- **Structures 150 feet or less:** Structures 150 feet or less have two steady burning red lights on the top of the structure. The lights are illuminated only during darkness.
- **Structures over 150 feet:** Taller structures that exceed 150 feet have a flashing red beacon on the top of the structure and two steady burning red lights at mid-height. They are illuminated only during darkness.

4.5.2.2 Subtransmission Poles/Towers

The subtransmission segment of the Proposed Project would reframe two existing wooden subtransmission poles to address a clearance discrepancy with the overhead 500 kV lines. The wood poles extend 70 to 80 feet above the ground. The poles are 2 to 3 feet in diameter at ground level and taper to the top of the pole. This discrepancy location is west of Lucerne Valley, on Desert View Road between Canyon View Road and Joshua Road. The approximate dimensions of the existing structures are shown in Figure 4-20, Typical Subtransmission Structures, and are summarized in Table 4-3, Typical Subtransmission Structure Dimensions.

Table 4-3. Typical Subtransmission Structure Dimensions

Pole Type	Proposed Number of Existing Structures to be Modified	Approximate Height Above Ground (feet)	Approximate Pole Base Diameter (feet)	Approximate Auger Hole Depth (feet)	Approximate Auger Diameter (feet)
Wood Pole (Modified)	2	70 to 80	2 to 3	N/A	N/A

4.5.2.3 Distribution Poles

Approximately 100 distribution poles would be installed at various locations as part of the Proposed Project. Two existing distribution poles would be modified to address a clearance discrepancy and two new distribution poles would be installed to address a clearance discrepancy at a separate location. New distribution circuits on poles would extend from nearby existing distribution circuits to the two proposed series capacitor facilities and two of the optic fiber repeater facilities. The Barstow Repeater would be served by an underground circuit.

The distribution routes would use a combination of existing wood poles and new wood poles. As shown in Table 4-4, Typical Distribution Structure Dimensions, the wood poles would be 10 to 14 inches in diameter at the base and would extend 40 to 55 feet above the ground. As part of the Proposed Project, down guys may be required for certain structures, based on final engineering.

Table 4-4. Typical Distribution Structure Dimensions

Type of Structure	Approximate Number of Structures	Approximate Height Above Ground (feet)	Approximate Pole Diameter (Inches)	Approximate Auger Hole Depth (feet)	Approximate Auger Diameter (feet)
Wood Pole (New)	100	40 to 55	10 to 14	5 to 10	1.5 to 2
Wood Pole (Existing/ Modified)	3	40 to 55	10 to 14	N/A	N/A
Wood Pole (Removed)	1	40 to 55	10 to 14	N/A	N/A

4.5.3 Conductor/Cable

The following subsections describe the above ground and below ground installation of the transmission, subtransmission, telecommunications, and distribution lines.

4.5.3.1 Above Ground Installation

Transmission

The Proposed Project involves existing 500 kV transmission lines located primarily on LSTs. The existing 500 kV transmission lines support a non-specular two-bundled 2,156 kcmil[10] 84/19 stranded "BLUEBIRD" aluminum conductor steel-reinforced (ACSR) conductor. To correct potential clearance discrepancies at three locations, one location on the Eldorado-Lugo 500 kV Transmission Line and two locations on the Lugo-Mohave 500 kV Transmission Line, the length of the existing conductor between towers would be adjusted. This would involve transferring a portion of the conductor length in the span with the clearance discrepancy to an adjacent span. The approximate required distance from the ground to the lowest conductor would be 33 feet (non-pedestrian) and 28 feet (pedestrian only/not accessible to regular vehicles). The approximate required horizontal separation/distance between conductors would be 30 feet.

The Proposed Project also includes replacement of one of the two existing OHGW with one OPGW, which would be installed on existing structures on the Eldorado-Mohave and Lugo-Mohave 500 kV Transmission Lines to provide protection and to support telecommunications. The approximately 0.75-inch-diameter OPGW would be installed at the top of the existing structures, which range in height from 80 to 250 feet. The average span length (distance) between overhead structures is 350 to 1,850 feet. The OPGW would be installed above the conductor, with a radial clearance of at least 12.5 feet, as required by CPUC G.O. 95. To support OPGW installation, tower modifications would be required.

Subtransmission

To address clearance discrepancies, the Proposed Project would include lowering one existing 115 kV subtransmission line adjacent to Desert View Road by reconfiguring the cross arms on two existing wood poles to reduce the height of the conductor (see Figure 4-2, Sheet 1). This subtransmission line supports a non-specular 336.4 kcmil ACSR conductor. The lowest conductor would be 48 to 54 feet above the ground. The Proposed Project would use the existing conductors and would be designed to meet the CPUC G.O. 95 minimum ground-to-conductor clearance requirements**.**

Distribution

The distribution lines for the capacitor and repeater facilities would be installed on existing and new wood poles, with limited lengths of underground conduit. The lowest overhead conductor would be 30 to 47 feet above the ground. The average span length (distance) between overhead structures is estimated to be 150 feet to 200 feet.

Telecommunications

Fiber optic cables would be installed both overhead and underground. The overhead cable height would be between 20 and 25 feet above the ground and would be a 0.579-diameter all-dielectric self-supporting (ADSS) fiber optic cable. The average span length between overhead structures would be 150 feet to 200 feet. Overhead fiber optic cables would be co-located on poles carrying distribution lines.

[10] A kcmil (1,000 circular mils [cmils]) is a quantity of measure for the size of a conductor; kcmil wire size is the equivalent cross-sectional area in thousands of cmils. A cmil is the area of a circle with a diameter of 0.001 inch.

4.5.3.2 Below Ground Installation

Distribution

The Proposed Project would include the installation of approximately 0.2 miles of underground distribution cables in new duct banks.[11] At a minimum, the duct banks would measure approximately 2 feet wide by 4 feet deep and would each consist of approximately two 5-inch conduits, conduit spacers, and concrete.

Telecommunications

The Proposed Project includes the installation of approximately 4.3 miles of underground telecommunications cable in new underground duct banks. The newly installed duct banks would measure approximately 2 feet wide and 3 feet deep and would typically consist of two 5-inch conduits, conduit spacers, and concrete, with a minimum of 30 inches of cover. A 1.25-inch inner-duct would be placed inside the underground 5-inch conduit. The fiber cable would be placed within the inner-duct. In addition to the new duct banks, approximately 0.7 miles of existing underground conduit would be used. The Proposed Project would use new and existing vaults measuring approximately 5 feet wide by 5 feet long by 6 feet deep.

The dimensions of the duct banks and distribution vaults are provided in Table 4-5, Underground Structure Dimensions, and are depicted in Figure 4-21, Typical Telecommunications Duct Bank (Note: the duct bank may have one or two PVC conduits). Figure 4-22, Typical Manhole, shows a typical manhole used for access to underground telecommunications facilities.

Table 4-5. Underground Structure Dimensions

Type of Structure	Approximate Number of Locations	Approximate Width (feet)	Approximate Length (feet)	Approximate Depth (feet)
Distribution Duct Bank	5	2	1,000	4
Telecommunications Vault (New Manholes)	41	5	5	6
Telecommunications Duct Bank	8	2	22,700	3

4.5.4 Mid-Line Series Capacitors

The Proposed Project includes the construction of two new 500 kV mid-line series capacitors — the proposed Newberry Springs Series Capacitor and Ludlow Series Capacitor — largely within the Eldorado-Lugo and Lugo-Mohave 500 kV Transmission Line ROWs, respectively (see Figures 4-3 and 4-4). Each mid-line series capacitor pad would be approximately 225 feet wide by 324 feet long and would occupy approximately 1.67 acres within an approximately 3.2-acre graded site (for the Newberry Springs Series Capacitor) or 2.5-acre graded site (for Ludlow Series Capacitor). Each mid-line series capacitor would include the following components:

[11] Duct banks are groups of conduits designed to protect and consolidate cabling to and from one structure to another. In a duct bank, telecommunications and electrical cables are laid out within PVC conduits that are bundled together. These groupings of conduit are then typically protected by concrete casings and buried underground.

- A 500-kV capacitor bank with platforms, support insulators, foundations, conduits or trenches, cables, conductors, and bus and/or cable interconnections
- A Mechanical Electrical Equipment Room (MEER) with alternating current/direct current (AC/DC) panels, Control & Protection panels, batteries, batteries chargers, telecommunications racks, security racks, heating, ventilating, air conditioning (HVAC) equipment, communication room to house communication equipment, and emergency lighting
- Two transmission interface structures and bus supports[12]
- External site lighting system
- Distribution station light and power system
- External bypass switch with required support insulators, foundations, conduits or trenches, conductors, conductors support insulators, and grounding connections
- Two motor-operated isolating disconnect switches with ground attachments, required support insulators, foundations, conduits or trenches, conductors, conductors support insulators, and grounding connections
- Up to two new internal bypass switches with required foundations, conduits or trenches, cables, conductors, bus-work, and grounding connections
- Security cameras with support structures and foundations
- Conductor between the two transmission interface structures inside the series capacitor facilities with two-bundled 2,156 kcmil 84/19 stranded "BLUEBIRD" ACSR per phase; insulator assemblies and mounting hardware (existing conductor may be used from existing towers to the new transmission interface structures)
- Insulator assemblies and mounting hardware on both sides of conductor spans
- Two overhead ground wires to connect existing and proposed towers at the proposed series capacitor facilities with 7 No. 6 Alumoweld wire
- Chain-link fence and gates around the series capacitor bank and chain-link fence and gates with appropriate top guard (e.g., castle spikes, barbed wire, and/or razor wire) along the perimeter of the facility
- Propane emergency generator outside MEER structure and a minimum of 1,800-gallon propane fuel tank with a block wall on at least three sides
- Ground grid system
- Permanently installed portable restroom on site
- Placing asphalt within series capacitor platform area for weed control

The mid-line series capacitor components are described in the subsections that follow. Figure 4-23, Typical Mid-Line Series Capacitor Layout, shows the dimensions of the proposed Newberry Springs Series Capacitor and Ludlow Series Capacitor, as well as the placement and orientation of the major components that would be included in the facilities. Figure 4-24, Typical Mid-Line Series Capacitor Profile, provides a profile view of the proposed mid-line series capacitors.

[12] SCE is evaluating the use of transmission interface structures.

4.5.4.1 Mechanical and Electrical Equipment Room

A Mechanical and Electrical Equipment Room (MEER) typically is constructed with metal framing, structural steel, or concrete masonry units, and concrete. The MEER would be a one-story building. SCE anticipates that the MEER would have a dark-colored roof and earth-tone-colored sidewalls and that the roofline, wall joints, and doorway would have a contrasting trim. The facilities would be on BLM lands and would conform to BLM requirements. Control cable trenches would be installed in the yard to connect the MEER to the 500 kV equipment's control cabinets.

4.5.4.2 Access

Two new, approximately 24-foot-wide,[13] 190-foot-long access roads would be constructed for the proposed Newberry Springs Series Capacitor. The existing access road at the Ludlow Series Capacitor site would be rerouted around the capacitor facility with approximately 650 feet of existing road removed and a new, approximately 24-foot-wide, 840-foot-long access road installed. Two new, approximately 14-foot-wide crushed rock interior driveways would be constructed within the two proposed capacitor sites. An approximate 125-foot by 175-foot asphalt pad would be installed at each facility within the perimeter fencing. There are no new, permanent parking spaces associated with the Proposed Project.

4.5.4.3 Grading and Drainage Description

At the beginning of construction, the proposed Newberry Springs and Ludlow Series Capacitor sites would be cleared of brush, vegetation, rocks, and other deleterious materials. Sites may be over-excavated to remove any unsuitable base materials. If suitable, over-excavated materials may be used to backfill the site; otherwise, they would be disposed of offsite. The site would be graded and compacted to achieve the desired pad elevation. Construction of the proposed Newberry Springs Series Capacitor and Ludlow Series Capacitor would require approximately 4.1 and 4.3 acres for site development (construction work areas), respectively. Mowers, excavators, front-end loaders, dump trucks, rock crushers, and/or bulldozers would be used during clearing, grubbing, vegetation removal, and grading activities. A summary of the anticipated grading quantities for the proposed Newberry Springs and Ludlow Series Capacitors is provided in Table 4-6, Mid-Line Series Capacitor Cut and Fill Grading Summary.

Table 4-6. Mid-Line Series Capacitor Cut and Fill Grading Summary

Element	Material	Approximate Surface Area (square feet)	Approximate Volume (cubic yards)
Site Grading, Cut[1]	Dirt	90,830	5,220
Site Grading, Fill[1]	Dirt	62,320	10,060
Over-excavation[2]	Dirt	253,150	25,700
Site Grading, Net[1]	Dirt	253,150	4,910 (import)
External Roads, Spoils, Net[3]	Dirt	16,240	0
Equipment Foundations, Spoils, Cut	Dirt	12,540	1,080
Cable Trench, Spoils, Cut	Dirt	N/A	N/A
Drainage Structure, Spoils, Cut	Dirt	N/A	N/A

1 - The approximate area and volume include material needed for the retention basin.
2 - The approximate area and volume include 12 inches of over-excavation in areas of cut.
3 - The approximate area and volume include material needed for the ditch and berm that would be constructed as part of the access roads

[13] Access roads longer than 100 feet would have 24-inch shoulders.

A drainage berm would be constructed to divert storm water around the sites. Drainage devices would be required to convey storm water runoff to an approved discharge location. A retention/detention basin would be provided in order to mitigate increase in runoff as a result of site development. The permanent cut and fill slopes for the proposed Newberry Springs and Ludlow Series Capacitor sites and the permanent cut and fill for the access roads would be stabilized during construction by using best management practices (BMPs) that would be described in the Proposed Project's Storm Water Pollution Prevention Plans (SWPPPs) required prior to construction.

4.5.4.4 Lighting

Lighting at the proposed Newberry Springs Series Capacitor and Ludlow Series Capacitor would consist of light-emitting diode lights located in areas of the yard where Operation and Maintenance (O&M) activities may take place during evening hours for emergency/scheduled work. Maintenance lights would be controlled by a manual switch that would normally be turned off when lighting is not required. The maintenance lights would be directed downward to reduce glare outside the facility.

4.5.4.5 Perimeter

Each Series Capacitor site would be enclosed on all sides by a chain-link fence. Barbed wire would be affixed to the top of the fence and desert tortoise (*Gopherus agassizii*) exclusion fencing would be affixed at the bottom. Chain-link gates would be provided for vehicle and pedestrian access.

4.5.5 Modification to Existing Substations

The Proposed Project would require modifications at SCEs Lugo, Mohave, and Eldorado Substations ~~and LADWP's McCullough Substation~~. The substations are shown in Figures 4-10, 4-11, and 4-12.

Lugo Substation

Lugo Substation modifications include the following:

- Reconfiguring two existing 500 kV positions:
  - Removing the Eldorado 500 kV Transmission Line from the dead-end connection at the switch rack and retaining all equipment for a breaker-and-a-half position
  - Removing the Mohave 500 kV Transmission Line from the dead-end connection at the switch rack; demolishing the east circuit breaker and associated line disconnect switches; and configuring switch rack for a double-bus, double-breaker position
- Relocating the Eldorado and Mohave 500 kV Transmission Lines to two new positions equipped for 4,000 amps with 4,000-amp circuit breakers and 4,000-amp vertical break disconnect switches
- Removing two existing 500 kV TSP structures and foundations to an approximate depth of 3 feet and installing two new 500 kV TSP structures to support the relocation of the Eldorado and Mohave 500 kV Transmission Lines to their new positions
- Extending the existing 500 kV switch rack by four positions
- Installing four OHGWs to connect to the extended switch racks and TSPs with 7 No. 6 Alumoweld wire
- Conductoring the line positions with new two-bundled 2,156 kcmil 84/19 stranded "BLUEBIRD" ACSR per phase
- Installing new foundations, steel structures, grounding, and conduits for the new equipment

- Removing power line carrier protection equipment on the Eldorado 500 kV Transmission Line and Mohave 500 kV Transmission Line and installing new protective relays with digital communication in the existing MEER for line and series capacitor protection
- Removing the obsolete equipment for the series capacitor
- Upgrading existing 500 kV Eldorado and Mohave series capacitor banks to 3,300-amp, including required conductors, buses, and/or cable interconnections
- Updating the substation database at the Regional Control Center Energy Management System
- Installing a new Remote Terminal Unit (RTU) or adding a card to the existing RTU as required
- Installing additional telecommunications equipment — including channel equipment, light wave equipment, and fiber tie cables between buildings and existing MEER where required — to provide two communication paths
- Installing communications and related equipment in the Administration Building and relocating the existing Human Machine Interface from the MEER to the Administration Building
- Routing new fiber optic cable from the MEER to the Administration Building in existing underground conduit and installing new underground conduit, if needed
- Relocating an existing spare transformer bank pad

Mohave Substation

Mohave Substation modifications include the following:

- Equipping two existing 500 kV positions:
  - One 4,000-amp Lugo 500 kV Transmission Line position equipment with 4,000-amp circuit breakers and 4,000-amp disconnect switches
  - One 3,000-amp Eldorado 500 kV Transmission Line position with 4,000-amp circuit breakers and 4,000-amp disconnect switches
- Reconductoring the line position with new two-bundled 2,156 kcmil 84/19 stranded “BLUEBIRD” ACSR
- Removing and salvaging the existing 500 kV operating bus disconnect switches at two line positions
- Removing power line carrier protection equipment for the existing Lugo 500 kV Transmission Line and existing Eldorado 500 kV Transmission Line
- Installing new protective relays with digital communication and series capacitor protection on the Lugo 500 kV Transmission Line
- Install new protective relays with digital communication on the Eldorado 500 kV Transmission Line
- Replacing existing series capacitor yard lighting with LED lighting
- Installing a new 3,300-amp series capacitor bank on the Lugo 500 kV Transmission Line with required platforms, support insulators, foundations, conduits or trenches, cables, conductors, and buses and/or cable interconnections
- Installing new internal bypass switches

- Incorporating internal and external bypass switches, isolating disconnect switches, and ground switches into interlock logic, including conduits and terminating control and power wiring to terminal blocks in switches and Control & Protection panels in the series capacitor MEER
- Providing control and power, wiring, testing and commissioning to 500 kV external bypass switch and motor-operated isolating disconnect switches with ground attachments, including conduits from the Lugo series capacitors' MEERs to interface with SCE conduits for these switches located within the substation
- Removing an existing shed and installing a new MEER for series capacitor with series capacitor Control & Protection panels, Human-Machine Interfaces, digital fault recorder, AC/DC panels, telecommunications racks, batteries, battery chargers, HVAC equipment, emergency lighting, distribution station light and power system and security panels
- Installing conduits and trenches as required
- Modifying fencing for series capacitors
- Installing task lighting, tool outlets, and equipment power test outlet (100 amp) within the series capacitor's fenced area
- Installing and/or modifying grounding grid within the series capacitor fence, as well as equipment and personnel ground connections for all equipment
- Removing the existing foundation, platform, and equipment for the series capacitor
- Replacing the conductor between dead-end structures in the area of the series capacitor bank with new two-bundled 2,156 kcmil 84/19 stranded "BLUEBIRD" ACSR
- Relocating isolating disconnect switches as needed to accommodate the new 500 kV series capacitor
- Installing auxiliary switches for grounding attachments on the isolating disconnect switches
- Installing new foundations, structures, and grounding for the new equipment
- Providing new conduits and cables from the isolating disconnect switches to the new series capacitor MEER
- Installing relays for local breaker failure backup for new circuit breakers
- Adding motor-operating mechanisms to existing isolating disconnect switches
- Installing additional telecommunications equipment — including channel equipment, light wave equipment, and fiber tie cables between buildings and existing MEER where required — to provide two diverse communication paths
- Placing asphalt at series capacitor location for weed control
- Grading and cut and fill (Table 4-7, Mohave Substation Cut and Fill Grading Summary, provides a summary of the ground surface improvements at Mohave Substation.)

Table 4-7. Mohave Substation Cut and Fill Grading Summary

Element	Material	Approximate Surface Area (square feet)	Approximate Volume (cubic yards)
Site Grading, Cut[1]	Dirt	37,380	610
Site Grading, Fill[1]	Dirt	11,830	670
Over-excavation[2]	Dirt	38,200	1,420
Site Grading, Net[1]	Dirt	49,210	60 (Imported Fill)
External Roads, Spoils, Net	Dirt	N/A	N/A
Equipment Foundations, Spoils, Cut	Dirt	3,700	300
Cable Trench, Spoils, Cut	Dirt	N/A	N/A
Drainage Structure, Spoils, Cut	Dirt	N/A	N/A

1 - The approximate area and volume include material needed for the retention basin.
2 - The approximate area and volume include 12 inches of over-excavation in areas of cut (pad

The permanent cut and fill slopes for the retention/detention basin would be stabilized during construction using BMPs described in the Proposed Project's SWPPPs, which would be prepared and approved prior to construction.

Eldorado Substation

Eldorado Substation modifications include the following:

- Upgrading the Lugo 500 kV Transmission Line position equipment to 4,000 amps:
  - Replacing 3,000-amp circuit breakers with 4,000-amp circuit breakers
  - Replacing 3,000-amp disconnect switches with 4,000-amp disconnect switches
- Removing the obsolete equipment for the series capacitor
- Upgrading existing 500 kV Lugo series capacitor bank to 3,300-amp including required conductors, buses, and/or cable interconnections
- Adding motor-operating mechanisms to existing isolating disconnect switches
- Incorporating internal and external bypass switches, isolating disconnect switches, and ground switches into interlock logic, including conduits and terminating control and power wiring to terminal blocks in switches and Control & Protection panels in the series capacitor MEER
- Providing control and power, wiring, testing, and commissioning to 500 kV external bypass switch and motor-operated isolating disconnect switches with ground attachments, including conduits from the Lugo series capacitor's MEER to interface with SCE conduits for these switches located within the substation
- Reconductoring the line positions with new two-bundled 2,156 kcmil 84/19 stranded "BLUEBIRD" ACSR
- Removing power line carrier protection equipment on the Lugo 500 kV Transmission Line and the Mohave 500 kV Transmission line
- Install new protection relays with digital communication for the Mohave 500 kV Transmission Line
- Installing new protective relays with digital communication for line and series capacitor protection
- Installing transient recovery voltage capacitors

- Installing new foundations, steel structures, grounding, and conduits for the new equipment
- Replacing all cables from switchyard equipment to the existing MEER
- Installing additional telecommunications equipment — including channel equipment, light wave equipment, and fiber tie cables between buildings and existing MEER where required — to provide two diverse communication paths
- Placing asphalt at series capacitor location for weed control

~~**McCullough Substation (LADWP)**~~

~~- Replacing existing 4,000 amp 50kA circuit breakers with new 4,000 amp 63kA circuit breakers~~

4.5.6 Cathodic Protection of Natural Gas Transmission Pipelines

A SoCalGas natural gas transmission pipeline parallels approximately 55 miles of SCE's Lugo-Mohave 500 kV Transmission Line, from near Essex Road in the Mojave National Preserve to the proposed Newberry Springs and Ludlow series capacitor facility sites near Pisgah Substation (see Figure 4.2, Sheets 4, 5 and 6). Approximately 6 miles of a second SoCalGas pipeline also is located near the transmission line, from east of Ludlow to Pisgah Substation (See Figure 4-2, Sheets 4, 5 and 6). At their closest, the transmission line and pipelines are approximately 150 feet apart. Based on their proximity to and the planned increased power flow on the transmission line, these pipelines may require additional protective measures in areas where they are near the transmission line. Such protection, if needed, may include cathodic protection and grounding.

4.6 Right-of-Way Requirements

The Proposed Project would be built primarily within existing SCE fee-owned ROW, easements, or public ROW where SCE has existing franchise agreements. The BLM ROW grants and NPS Special Use Permit applicable to the existing 500 kV transmission lines have expired or will be expiring and need to be renewed or reissued prior to project construction.

The BLM Grant for the Lugo-Mohave Transmission Line would be for a 160-foot wide ROW. The BLM Grant for the Eldorado-Lugo Transmission Line would be for a 180-foot wide ROW. In addition, a small area of additional BLM ROW would be required at the Newberry Springs mid-line capacitor site to accommodate the facility footprint and new ROW would be required for a distribution and telecommunication link between the Newberry Springs and Ludlow capacitor facilities. Depending on final engineering design, the distribution/telecommunication ROW may be in an existing SoCalGas ROW on BLM land or a separate ROW on BLM land.

An NPS Special Use Permit would be needed for ROW on the Mojave National Preserve and a separate Special Use Permit would be required for construction. For the Special Use Permit addressing ROW needs, the ROW widths would be the same as on BLM-administered land: 160 feet on the Lugo-Mohave transmission line and 180 feet on the Eldorado-Lugo transmission line.[14] In addition, the Proposed Project would require an additional 20-foot ROW width adjacent to the 160-foot ROW within the Mojave National Preserve near the Kelbaker and Lanfair repeater sites to accommodate distribution lines from nearby Kelbaker

[14] In the Mojave National Preserve, the only work under the proposed project on the existing Eldorado-Lugo line would be the raising of one tower adjacent to the Union Pacific Railroad line that demarks a portion of the western boundary of the Preserve. However, the Special Use Permit would be for the entire Eldorado-Lugo transmission line, as the original BLM ROW Grant has expired.

and Lanfair Roads to the respective repeater sites. Depending on final design, the distribution/telecommunication ROW may be in an existing SoCalGas ROW on NPS land or a separate ROW on NPS land.

A portion of the project would also be on Bureau of Reclamation lands where the previously authorized BLM ROW grant has expired and a new Use Authorization is required for the ROW. The ROW on 0.6-acares of Reclamation land would be unchanged from its current width of 160 feet

Easement widths are based on facility types, final design, and type of right to be acquired. Upgrading easements may include adding land rights, adding width to existing easements, and improving or clarifying access or maintenance rights. Certain land rights may need to be acquired and/or amended as follows:

Substations and Mid-Line Series Capacitors: Substation access would continue to be provided directly from Escondido Avenue (for Lugo Substation), Edison Way (for Mohave Substation), and Eldorado Valley Drive (for Eldorado Substation). The proposed design requires a minimum of 0.09 acres of additional property to be granted by the BLM to construct the proposed Newberry Springs Series Capacitor, and a minimum of 0.69 acres of additional private property to be acquired to construct the proposed Ludlow Series Capacitor.

Access: Access to the Proposed Project components would be provided from existing public roads and existing access roads. New access roads would be constructed for the proposed Newberry Springs Series Capacitor and Ludlow Series Capacitor. Upon final engineering and project approval, new or amended access road rights for the proposed mid-line series capacitors may be required. Section 4.7.1.3, Access Roads and/or Spur Roads, provides more detail on access roads.

Transmission: SCE would install the proposed transmission facilities within the existing SCE fee-owned ROW, easements, BLM ROW Grants, NPS Special Use Permits, or public ROW where SCE has existing franchise agreements.

Distribution: Locations where SCE would install the proposed distribution facilities include the existing SCE fee-owned ROW, easements, BLM ROW Grants, or public ROW where SCE has existing franchise agreements. A new NPS Special Use Permit would be needed between existing distribution lines on Kelbaker Road and Lanfair Road and the Kelbaker and Lanfair Fiber Optic Repeaters, respectively.

A new 1.3 miles of ROW would be needed for new distribution and telecommunication lines between the Newberry Springs Series Capacitor and the Ludlow Series Capacitor sites. This would involve approximately 0.9 miles of BLM land and 0.4 miles of private land. The Barstow Repeater would be served by a new underground line in the existing ROW.

Telecommunications: Telecommunications lines would be co-located on overhead and underground structures within existing SCE ROWs, ROW grants (or renewed grants), or public ROW where SCE has existing franchise agreements. An underground telecommunication duct bank and an overhead telecommunication line (on the same wood poles as a new distribution line) would be installed in 1.3 miles of new ROW between the mid-line series capacitor sites. In addition, approximately 1,400 feet of underground telecommunication duct bank will be installed southwesterly of the Ludlow Series Capacitor, requiring the acquisition of additional underground rights on private property. The Kelbaker and Lanfair Fiber Optic Repeaters and associated underground fiber optic lines and overhead distribution lines would need to be included in an NPS Special Use Permit.

Construction Support: Based on final engineering and construction requirements, temporary land rights (e.g., temporary construction easements, permits, leases, and licenses) may be required for access roads, laydown areas, pulling sites, helicopter staging yards, and staging and work areas for any approved Proposed Project component.

4.7 Construction

4.7.1 For All Project Components

4.7.1.1 Staging Yards

Construction of the Proposed Project would require temporary staging yards. Staging yards would be temporary uses and, during project execution, would serve as a reporting location for workers and for vehicle and equipment parking and material storage. A yard may have construction trailers for supervisory and clerical personnel and may be lit for staging and security. Normal maintenance and refueling of construction equipment would be conducted at these yards; refueling and storage of fuels would be in accordance with the SWPPPs.

SCE anticipates using one or more of the possible locations listed in Table 4-8, Potential Staging Yard Locations, as the staging yard(s) for the Proposed Project. Not all potential yards identified are expected to be used. The locations ultimately used will depend on decisions by SCE and/or its contractors as to construction methods, material storage needs, and preferences. The yards locations identified range in size from 1 acre to 21 acres. Preparation of a staging yard would include temporary perimeter chain-link fencing, if fencing is not already in place. Depending on existing ground conditions at the site, grubbing and/or grading could be needed to provide a level and compact surface for the application of gravel or crushed rock. Yards not within remote or industrial locations and visible to the public within 0.5 miles would have temporary screening fencing (mesh or slats) that visually shield activities from offsite viewers. Following completion of construction for the Proposed Project, any land disturbed at a staging yard would be returned to pre-construction conditions or, if requested by the landowner, left in its modified condition.

Table 4-8. Potential Staging Yard Locations

Yard Name	Location	Condition	Approx. Area (acres)[1]	Proposed Project Component
Arrowhead Lake Road	Hesperia	Previously Disturbed	5.3	Transmission
Bear Valley	Lucerne Valley Joshua Rd at Hwy 18	Partially Disturbed	4.2	Transmission
Barstow Road	Lucerne Valley Between Barstow Rd & Fern Dr.	Undisturbed	10.1	Transmission
Coolwater	Daggett Santa Fe St at Sunray Ln	Previously Disturbed	21.0	Transmission
Ludlow	Ludlow North of I-40 at Ludlow exit	Previously Disturbed	1.7	Transmission
Goffs Yard	San Bernardino County Goffs Rd near Lanfair Rd	Previously Disturbed	5.9	Transmission
Goffs Yard – Alt	San Bernardino County Goffs Rd near Lanfair Rd	Previously Disturbed	2.5	Transmission
Mohave Substation	Mohave Substation	Previously Disturbed	7.5	Transmission/OPGW, Substation, Capacitor
Eldorado Substation	Eldorado Substation	Previously Disturbed	8.5	Transmission/ Substation
Eldorado Substation 2	Eldorado Substation	Previously Disturbed	5.5	Substation/Capacitor
South Eldorado Substation	Eldorado Substation	Previously Disturbed	4.2	Substation/ Capacitor
Mohave Substation 2	Mohave Substation	Previously Disturbed	1.0	Substation

Table 4-8. Potential Staging Yard Locations

Yard Name	Location	Condition	Approx. Area (acres)[1]	Proposed Project Component
Lugo Substation II	Lugo Substation	Previously Disturbed	3.3	Capacitor
Lugo Substation III	Lugo Substation	Previously Disturbed	1.0	Substation
Lugo Substation IV	Lugo Substation	Previously Disturbed	12.4	Substation
Newberry Springs Series Capacitor	Newberry Springs Adjacent – southwest side of site	Partially Disturbed	6.2	Capacitor
Ludlow Series Capacitor	Ludlow Adjacent – south side of site	Partially Disturbed	4.9	Capacitor

1 - Locations and acreages for staging yards within the existing SCE substation footprints are subject to change.

The need for temporary power at staging yards would be determined based on the type of equipment/ facilities at the yards. If existing distribution lines are available, a temporary service and meter may be used to provide electrical power at one or more of the yards. If it is determined that temporary power is not available, then a portable generator may be used intermittently for electrical power at one or more of the yards.

Materials commonly stored at yards used for substation construction would include, but not be limited to, portable sanitation facilities; electrical equipment such as circuit breakers, disconnect switches, lightning arresters, transformers, and vacuum switches; steel beams; rebar; foundation cages; conduit; insulators; conductor and cable reels; pull boxes; and line hardware.

Materials commonly stored at yards used for transmission, subtransmission, and/or telecommunications construction would include, but not be limited to, construction trailers; construction equipment; portable sanitation facilities; steel bundles; steel/wood poles; conductor reels; OHGW or overhead OPGW reels; marker balls, hardware; insulators; cross arms; signage; consumables (e.g., fuel); waste materials for salvaging, recycling, or disposal; and BMP materials (e.g., straw wattles, gravel, and silt fences).

Staging yards may also serve as assembly points for crews, from where they would be transported to work sites.

The majority of materials associated with the construction would be delivered by truck to designated staging yards for subsequent distribution to work areas. Some materials may be delivered directly to the temporary transmission and subtransmission construction areas, which are described in Section 4.7.1.2, Work Areas.

4.7.1.2 Work Areas

Work areas are temporary construction-related locations at or near sites where work is to occur. They serve as laydown areas for materials and are locations where crews and equipment are positioned and employed to undertake construction tasks. Table 4-9, Typical Laydown/Work Area Dimensions, identifies the approximate land disturbance for these work area dimensions by type of area.

The laydown/work areas provided in Table 4-9 would first be graded and/or cleared of vegetation as needed to provide a reasonably level and vegetation-free surface for construction activities. Sites would be graded such that runoff would run toward the direction of the natural drainage. In addition, drainage would be designed to prevent ponding and erosive water flows that could cause damage to structure

footings. The graded area would be compacted to at least 90-percent relative density and would be capable of supporting heavy vehicular traffic.

Erection of or work on some structures may require establishing a temporary crane pad. The crane pad would occupy an area of approximately 50 feet by 50 feet and would be adjacent to each applicable structure within the laydown/work area. The pad may be cleared of vegetation and/or graded as necessary to provide a level surface for crane operation. The decision to use a separate crane pad would be determined during final engineering for the Proposed Project and the selection of the appropriate construction methods to be used by SCE or its contractor.

Table 4-9. Typical Laydown/Work Area Dimensions

Laydown/Work Area Feature	Preferred Size (L x W) (feet)
Guard Structures	50 x 150
LSTs (New)	220 x 220
LSTs (Modify)	150 x 150
Wood Poles (Subtransmission)	150 x 75
Wood Poles (Distribution)	40 x 60
OPGW Pulling, Tensioning, and Splicing Areas	100 x 150
Underground Duct Banks	Proposed Length x 30
Underground Vaults	35 x 35
Mid-Line Series Capacitor Sites	400 x 450
Fiber Optic Repeater Sites	100 x 60

Note: The dimensions listed in this table are approximate lengths preferred for construction efficiency; actual dimensions may vary depending on Proposed Project constraints. This table does not include work within existing substation properties.

Benching is a technique in which an earth-moving vehicle excavates a terraced access to structure sites located in extremely steep and rugged terrain. Benching may be required to provide access for footing construction, assembly, erection, and wire stringing activities during construction. Benching would also be used on an as-needed basis in areas to help ensure the safety of personnel during construction activities.

4.7.1.3 Access Roads and/or Spur Roads

The 500 kV ROWs are served by existing access and spur roads. SCE maintenance of the existing roads is scheduled as an operations and maintenance activity completed once a year in accordance with G.O. 165 requirements or on an as-needed basis (e.g., after weather events). There are no anticipated road modifications planned to facilitate construction of the ELM Project. However, if at the time of construction portions or sections of roads are found to be in disrepair, repair of those existing roads would be done to facilitate construction activities. This would be done as a normal maintenance activity and not as part of the Proposed Project. Maintenance activities would include, for example, using a motor grader to blade the roads or a backhoe to clear rocks or winter ruts. If any cultural resources are found throughout the project area during construction, the approved Cultural Resources Management Plan will be followed.

For construction of the Proposed Project, SCE would use a combination of existing unpaved through roads and spur roads along the project that are accessed from the existing network of paved and unpaved public and private roads in the region. Access to the transmission ROW for construction activities and future O&M activities associated with the Proposed Project would be accomplished using this road network.

While not anticipated, if needed, the existing access roads may be improved and new roads constructed to support the construction and O&M activities of the Proposed Project.

During construction of the Proposed Project, crews would use existing public roads and transmission access roads to the maximum extent feasible. Any new temporary access roads would be constructed to ensure safety during construction and O&M. Rehabilitation, road widening, and/or upgrades to existing access roads may also be required to facilitate construction access and to support O&M activities.

While SCE does not anticipate the need for new or reconstructed roads, this possibility may arise. Typical construction activities associated with the rehabilitation of existing unpaved access roads may include vegetation clearing; blade-grading; grubbing; mowing; and re-compacting to remove potholes, ruts, and other surface irregularities in order to provide a riding surface that can support heavy construction and maintenance equipment. Unpaved roads may also require additional upgrades to address specific issues, such as protection of existing underground utilities using soil cover, steel plates, etc.

Construction activities associated with any new access roads typically include activities similar to those described for the rehabilitation of existing unpaved roads. However, they may also include the following additional construction requirements, depending on the terrain:

- **Existing relatively flat terrain (grades up to 4 percent):** Construction activities are generally similar to rehabilitation activities on existing unpaved roads and may also require activities such as clearing and grubbing, in addition to constructing drainage improvements (e.g., wet crossings, water bars, and culverts). Detailed information on locations requiring drainage improvements would be provided during final engineering.
- **Existing rolling terrain (grades of 5 to 12 percent):** Construction activities generally include typical flat terrain activities and may also require cut and fill depths more than 2 feet, benched grading, drainage improvements (e.g., v-ditches, downdrains, and energy dissipaters), and slope stability improvements (e.g., geogrid reinforcement). The extent of slope stability improvements would be determined during final engineering, as would detailed information on locations requiring cut and fill, benched grading, and/or drainage improvements.
- **Existing mountainous terrain (grades over 12 percent):** Construction activities would include rolling terrain construction activities and would also likely require significant cut and fill depths, benched grading, drainage improvements, and slope stability improvements. Detailed information on locations requiring cut and fill, benched grading, and/or drainage improvements would be provided during final engineering.

Typical construction activities associated with temporary access vary and could include drive and crush management of vegetation, vegetation clearing, blade-grading, grubbing, mowing, and compacting. In addition, other slope stabilizing approaches that may be used include mechanical stabilization and drainage improvements (e.g., v-ditches, downdrains, and energy dissipaters). The extent of slope stability improvements would be determined during final engineering.

Generally, access roads would have a minimum drivable width of 14 feet with 2 feet of shoulder on each side, as determined by the existing terrain. Typically, the drivable road width would be widened and would generally range up to an additional 8 feet along curved sections of the access road, resulting in up to 22 feet of drivable surface for the access road. Access road gradients would be leveled so that sustained grades generally do not exceed 14 percent. Curves would typically have a minimum radius of curvature of 50 feet measured from the center line of the drivable road width. Specific site locations may require a wider drivable area to accommodate multi-point turns where 50-foot minimum radii cannot be achieved.

Access roads would typically have turnaround areas around the structure location. In some cases where a turnaround is not practical, an alternative configuration would be constructed to provide safe ingress/egress of vehicles to access the structure location. It is common to use access road turnaround areas for the dual purpose of structure access and as a construction pad for construction activities.

The Proposed Project access roads would generally follow the existing transmission lines. New access or spur roads would be constructed to support construction and O&M of the new mid-line series capacitors and supporting transmission structures at these two locations and at two of the three repeater sites.

4.7.1.4 Helicopter Access

Helicopters would be used primarily to support construction activities associated with OPGW installation. They may be used in areas where access is limited (e.g., no suitable access road, limited construction area for on-site structure assembly, and/or there are environmental constraints to accessing the Proposed Project area with standard construction vehicles and equipment) or where system outage constraints are a factor. The exact method of construction employed and the sequence with which construction tasks occur would depend on final engineering, contract award, conditions of permits, and Contractor preference.

Helicopter activities may include transportation of construction workers and delivery of equipment and materials to work sites, installation of hardware and marker balls (if applicable), and OPGW stringing operations. SCE would be consistent with Institute of Electrical and Electronic Engineers (IEEE) Standards 951-1996, *Guide to the Assembly and Erection of Metal Transmission Structures*, and 524-2003, *Guide to the Installation of Overhead Transmission Line Conductors* in the construction of the Proposed Project.

Helicopter operations, including refueling, and related support areas typically occur at staging yards, storage and maintenance sites, and ground locations (landing zones) in close proximity to OPGW pulling, tensioning, and splice sites, and/or within previously disturbed areas near construction sites. During emergencies, helicopters may land within SCE ROWs, which could include landing on access or spur roads. For reasons of safety and security, at night or during off days, helicopters and their associated support vehicles and equipment are anticipated to be based at local airports.

Helicopters typically used for OPGW stringing activities include light and medium duty helicopters. Potential bases for operation include Ludlow Airport, Laughlin/Bullhead International Airport, Kidwell Airport, and Searchlight Airport, which are all within approximately 2 miles of the Proposed Project area. Refueling may occur at these base locations, in addition to staging yard sites. With the exception of Hesperia Airport and Barstow-Daggett Airport, the Proposed Project is not located within an area included within an Airport Land Use Compatibility Plans (ALUCPs). The potential Coolwater yard is west of the Barstow-Daggett Airport. No additional public or private airports or airstrips were identified within 2 miles of the Proposed Project.

Flight paths would be determined immediately prior to construction by the helicopter contractor. Flight paths would be filed with the appropriate authorities as required. During construction, after leaving a base location or staging yard, helicopter flight paths would parallel in close proximity with the existing transmission line alignments. SCE would implement an operating plan for helicopter use, in accordance with Title 14, Part 77 of the Code of Federal Regulations (CFR) and in coordination with and to be approved by the FAA Flight Standards District Office.

Helicopter-supported construction activities may occur at any of the staging yards listed in Table 4-8, Potential Staging Yard Locations. Factors for selecting yards suitable for helicopter activity include yard size, anticipated support activities occurring at the yard, and optimization of flight time to work locations. Additionally, helicopter operation crews, as well as fueling and maintenance trucks, may be based in the staging yards. In addition to airport bases and the staging yards, helicopters may use any of the designated helicopter landing zones (HLZs) situated throughout the project area along the 500 kV transmission lines. In emergency situations, when an HLZ or yard cannot be safely reached, they may land on any access or spur road.

4.7.1.5 Vegetation Clearance

The proposed Newberry Springs Series Capacitor and Ludlow Series Capacitor sites would require vegetation clearing (i.e., shrub and brush removal) within the respective 4.1- and 4.3-acre construction

work areas for installation of the capacitor equipment. The three proposed repeater sites would also require vegetation clearing similar to the mid-line series capacitor sites. Minor site preparation and grading may be required to allow construction of the repeater sites. Limited vegetation clearing (e.g., shrub and brush removal) would also be required in the transmission ROWs to accommodate construction work areas and to reduce the potential for fire during construction activities.

4.7.1.6 Erosion and Sediment Control and Pollution Prevention during Construction

Storm Water Pollution Prevention Plan

Construction of the Proposed Project would disturb a surface area of 1 acre or more. Therefore, SCE would be required to obtain SWPPP coverage under the Statewide Construction General Permit for Storm Water Discharges (Order No. 2009-0009-DWQ, as amended by 2010-0014-DWQ and 2012-0006-DWQ) from the State Water Resources Control Board and the Nevada Division of Environmental Protection (NDEP) 2014 Construction General Permit (NVR100000). As part of the permitting requirements, SCE would prepare a Storm Water Pollution Prevention Plan (SWPPP) that includes project information, design features, monitoring and reporting procedures, and Best Management Practices (BMPs).

Commonly used SWPPP BMPs are storm water runoff quality control measures (i.e., boundary protection, erosion and sediment controls, etc.), good housekeeping, dewatering procedures, and concrete waste management. The SWPPPs would be based on final engineering design and would include all Proposed Project components.

Dust Control

During construction, fugitive dust from the construction sites would be limited by control measures set forth by the Mojave Desert Air Quality Management District and Clark County Department of Air Quality. These measures may include the use of water trucks and other dust control measures. Additional discussion regarding dust control activities is provided in Section 5.3, Air Quality

Hazardous Materials

Construction of the Proposed Project would require the use of hazardous materials, such as fuels, lubricants, and cleaning solvents. All hazardous materials would be stored, handled, and used in accordance with applicable regulations. Safety Data Sheets would be made available at the construction site for all workers. A project-specific Hazardous Materials Management Plan (HMMP) would be prepared and implemented throughout construction of the Proposed Project. The HMMP would include safety information regarding the transport, use, and disposal of hazardous materials in compliance with applicable laws, rules, and regulations.

If the aggregate volume of hazardous liquid materials (e.g., mineral oil) at any one project facility exceeds 1,320 gallons, a Spill Prevention, Control, and Countermeasure Plan would be provided per facility in accordance with 40 CFR, Parts 112.1 to 112.7.

Reusable, Recyclable, and Waste Material Management

Construction of the Proposed Project would generate various waste materials, including wood, metal, soil, vegetation, and sanitation waste (from portable toilets). Material from existing infrastructure that would be removed as part of the Proposed Project (e.g., conductor, steel, concrete, and debris) would be temporarily stored in one or more staging yards as the material awaits salvage, recycling, and/or disposal.

Sanitation waste would be disposed of in accordance with applicable sanitation waste management practices and laws.

The existing wood poles removed for the Proposed Project would be returned to a staging yard and either reused by SCE, disposed of in a Class I hazardous waste landfill, and/or disposed of in the lined portion of a Regional Water Quality Control Board- (RWQCB-) certified municipal landfill.

Material excavated for the Proposed Project would be used as fill or backfill or disposed of off-site at an appropriately licensed waste facility. If contaminated material is encountered during excavation, work would stop at that location and SCE's Spill Response Coordinator would be called to the site to make an assessment and notify the proper authorities.

As required by BLM, excess excavated material on BLM land would be used in the ROW or would remain on site until it is sold. This excavated soil may also be made available for use by the BLM after proper testing or disposed of offsite at an appropriately licensed waste facility.

4.7.1.7 Cleanup and Post-Construction Restoration

SCE would clean up all areas that would be temporarily disturbed by construction of the Proposed Project (which may include the material staging yards, construction setup areas, stringing sites, and splicing sites) to as close to pre-construction conditions as feasible, or to the conditions agreed upon between the landowner and SCE following the completion of construction of the Proposed Project.

For restoration and/or revegetation within sensitive habitats, a habitat restoration and/or revegetation plan(s) would be developed by SCE with the appropriate resource agencies prior to construction for implementation after construction is complete.

4.7.2 Transmission Line Construction (Above Ground)

The following subsections describe the aboveground construction activities associated with modifications to the existing transmission, telecommunications, and distribution lines under the Proposed Project.

4.7.2.1 Pull and Tension Sites

Transmission Pull and Tension Sites

Pull and tension sites (also called stringing, wire pull, or wire setup sites) have been identified along the length of the transmission ROW. (See SCE 2018, Appendix E.) These would be used for equipment and materials needed for installing wire on the existing towers. Stringing activities for the Proposed Project would be primarily for OPGW installation. The existing OHGW installed at the peak of the lattice towers would be used to pull the new OPGW into position on the existing transmission structures. As the OPGW is pulled in, the replaced OHGW would be coiled around a drum at the puller. The coiled OHGW would be hauled away on a flat bed and recycled. Minor conductor work to modify the existing conductor would occur at the mid-line series capacitors sites in order to tie the 500-kV line into a new interconnect structure at each capacitor site. Excess wire length would be minimal and would be recycled.

The pull and tension sites associated with the Proposed Project would be temporary use areas and the land would be restored to its previous condition following completion of pulling and splicing activities. The locations require level areas to allow for setting up and maneuvering equipment. When possible, these sites would be located on existing roads and level areas to minimize the need for grading and restoration. Minor grading may be required at some sites to create level areas. Approximately 146 set-up locations are currently proposed along the ROWs. The final number and location of these sites will be

determined upon final engineering. The approximate area needed for stringing set-ups associated with wire installation is variable and depends upon terrain. Table 4-9, Typical Laydown/Work Area Dimensions, provides the approximate size of pulling, tensioning, and splicing equipment set-up areas and laydown dimensions.

A "wire pull" is the length of any continuous wire installation process (either for OPGW or conductor) between two selected points along the line. Wire pull sites are selected based on a variety of factors, including availability of dead-end structures, wire size, geometry of the line as affected by points of inflection, terrain, and suitability of stringing and splicing equipment set-up locations. On relatively straight alignments in flat terrain, typical wire pull and splice locations occur every 9,500 to 22,000 feet but may be more closely spaced in rugged terrain. When the line route alignment contains multiple deflections or is situated in rugged terrain, the length of the wire pull is typically shorter. Generally, pulling locations and equipment set-ups would be in a direct line with the direction of the overhead conductors and situated at a distance equal to approximately three times the height of the adjacent tower structure.

Each OPGW or conductor stringing operation consists of a puller set-up positioned at one end of the wire pull and a tensioner set-up with a wire reel stand truck positioned at the other end of the wire pull. Pulling and wire tensioning locations may also be used for splicing and field snubbing of the OPGW or conductor. Temporary splices, if required, may be necessary because permanent splices that join the OPGW or conductor together cannot travel through the rollers. Splicing set-up locations are used to remove temporary pulling splices and to install permanent splices once the conductor is strung through the rollers located on each structure. Field snubs (i.e., anchoring and dead-end hardware) would be temporarily installed to sag OPGW or conductor wire to the correct tension at locations where stringing equipment cannot be positioned in back of a dead-end structure.

Distribution Pull and Tension Sites

Installation of distribution lines would also require pull and tension sites. These pull and tension sites would be approximately 50 feet by 50 feet. The Proposed Project would require approximately three distribution pull and tension sites on SCE property and within and adjacent to existing ROWs. These would be at the series capacitor sites and the fiber optic repeater sites in the Mojave National Preserve. Pull and tension sites require level areas to allow for maneuvering of the equipment. When possible, existing level areas and existing roads would be used to minimize the need for grading and cleanup. The average distance between distribution pull and tension sites would be 750 feet to 7,500 feet. Equipment used to pull the distribution line would be similar to the equipment described previously for the transmission lines. Within an approximately 40-foot by 60-foot work area, two splice trucks with pulling equipment would be required to complete the splicing. When existing distribution cable is replaced, flatbed trucks would be used to haul the cable offsite for disposal or recycling.

Telecommunications Pull and Tension Sites

Telecommunications pull and tension sites would be approximately 60 feet by 30 feet. The Proposed Project would require the use of approximately 33 telecommunications pull and tension sites on SCE property and within and adjacent to existing ROWs. The pull and tension sites require a level area to allow for maneuvering of the equipment. Where possible, existing, level areas and existing access roads would be used to minimize the need for grading and restoration. Equipment used to pull the telecommunication line would be similar to the equipment described previously for the transmission lines. Within an approximately 60-foot by 30-foot work area, two splice trucks with pulling equipment would be required to complete the splicing. When existing telecommunications cable is replaced, flatbed trucks would be used to haul the cable off site for disposal or recycling.

Temporary Structures

During construction, including installation of OPGW, temporary guard structures would be installed for safety to prevent wires being removed or installed from dropping to the ground at road and railroad crossings, aqueducts, and utility line crossings. These typically are H-frame pole structures placed on either side of the facility being protected to intercept any wires that might be dropped during stringing. The temporary guard structures are removed once the overhead work is completed. Hi-lift trucks with appropriate attachments can also serve this purpose, depending on site conditions. Guard structure locations are indicated on the PEA Appendix E map book (SCE 2018).

4.7.2.2 Pole/Tower Removal and Installation

At Lugo Substation, two existing 500 kV TSPs would be removed and two new 500 kV TSPs would be installed. Construction crews and equipment would arrive at the substation using public roads and existing access roads. Work areas would be within the substation property. Where applicable, any existing transmission lines would be transferred to the new structures prior to removal of existing structures. Any remaining facilities that are not reused by SCE would be removed and delivered to a facility for disposal, as described in the Reusable, Recyclable, and Waste Material Management section.

Section 4.7.8, Construction Equipment and Workforce describes the anticipated equipment and work-force required for the Proposed Project. To get to and from the sites, the crews would use one or more of the construction vehicles listed in Attachment 4-C: Construction Equipment and Workforce Estimates for each construction activity on any given day. The numbers of anticipated trips are discussed in Section 5.16, Transportation.

Pole/Tower Removal

The Proposed Project would involve removing structures, conductor, OHGW, and associated hardware. The proposed work is provided in the following sequence:

- Road work – Existing access roads would be used to reach structures, but some rehabilitation and grading may be necessary before removal activities would begin to establish temporary crane pads for structure removal, etc.
- Wire-pulling locations – Pull and tension sites would be located at varying distances along the existing transmission corridors and would include locations at dead-end structures and turning points.
- Conductor removal – SCE would remove existing conductors in a method similar to reversing the conductor installation process and the OHGW would be removed as part of the OPGW installation process. The existing OHGW would be used as a sock line to pull the new OPGW. The old conductor and OHGW would be transported to a staging yard or existing SCE facility where it would be prepared for recycling.
- Structure removal – Where TSPs would be removed in substations, the structures would be dismantled down to the foundations and the materials would be transported to a construction yard where they would be prepared for recycling. For each removal, a crane truck or rough terrain crane would be used to support the structure during removal; an equipment pad of approximately 70 feet by 70 feet might be required to allow a removal crane to be set up at a distance of approximately 70 feet from the structure center line.
- Footing/foundation removal – Existing footings that are not needed would be removed to a depth of 1 to 3 feet below the adjacent ground surface. Holes would be filled with previously excavated soil and compacted, and the area would be smoothed to match the surrounding grade. If excavated soil is not

available, new soil would be imported from an approved vendor or source. Removed footing materials would be transported to a staging yard or SCE facility where they would be prepared for disposal.

Pole/Tower Installation

Tubular Steel Pole Foundation Installation. Each of the two TSP to be installed would require a drilled, poured-in-place, concrete footing that would form the structure foundation. The hole would be drilled using truck- or track-mounted excavators. Excavated material would be used as described within Section 4.7.1.6, Erosion and Sediment Control and Pollution Prevention during Construction. Following excavation of the foundation footings, steel-reinforced cages would be set, positioning would be survey-verified, and concrete would then be poured. Foundations in soft or loose soil or those that extend below the groundwater level may be stabilized with drilling mud slurry. In this instance, mud slurry would be placed in the hole during the drilling process to prevent the sidewalls from sloughing. Concrete would then be pumped to the bottom of the hole, displacing the mud slurry. Depending on site conditions, the mud slurry brought to the surface would typically be collected in a pit adjacent to the foundation or vacuumed directly into a truck to be reused or discarded at an appropriate off-site disposal facility. TSP foundations typically require an excavated hole 12 feet to 15 feet in diameter at approximately 30 feet to 50 feet deep. TSPs would require approximately 140 to 350 cubic yards of concrete delivered to each structure location.

During construction, existing concrete supply facilities would be used where feasible. If needed during construction, a temporary concrete batch plant may be set up in an established material staging yard. Equipment would include a central mixer unit (drum type); three silos for injecting concrete additives, fly ash, and cement; a water tank; portable pumps; a pneumatic injector; and a loader for handling concrete additives not in the silos. Dust emissions would be controlled by watering the area and by sealing the silos and transferring the fine particulates pneumatically between the silos and the mixers.

Lattice Steel Tower Foundation Installation. Structure foundations for any new LST (if needed) would consist of four poured-in-place concrete footings. Actual footing diameters and depths for each of the structure foundations would depend on the soil conditions and topography at each site and would be determined during final engineering.

The foundation process begins with the drilling of holes using truck- or track-mounted excavators with various diameter augers to match the diameter requirements of the structure type. LSTs typically require an excavated hole measuring 6 to 10 feet in diameter and 25 to 45 feet deep. On average, each footing for an LST structure would extend approximately 1 to 4 feet AGL.

The excavated material would be distributed at each structure site, used to backfill excavations from the removal of nearby structures (if any), and/or used in the rehabilitation of existing access roads. Alternatively, the excavated soil may be disposed of at an off-site disposal facility in accordance with the applicable laws described in Section 4.7.1.6, Erosion and Sediment Control and Pollution Prevention During Construction.

Following excavation of the foundation footings, steel reinforced rebar cages would be set, survey positioning would be verified, and concrete and stub angles would then be placed. Steel reinforced rebar cages and stub angles may be assembled at staging yards and delivered to each structure location by flatbed truck or assembled at the job site. Depending upon the LST structure, soil conditions, and the topography at each site, LSTs would require 50 to 335 cubic yards of concrete delivered to each location.

Potential caving in of excavation walls may occur during the drilling of the LST foundations due to the presence of loose soils or groundwater levels. The use of water, fluid stabilizers, drilling mud, and/or casings would be made available to control ground caving and to stabilize the sidewalls from sloughing. If

fluid stabilizers are used, mud slurry would be added in conjunction with the drilling. The concrete for the foundation is then pumped to the bottom of the hole, displacing the mud slurry. Mud slurry brought to the surface is typically collected in a pit adjacent to the foundation and/or vacuumed directly into a truck to be reused or discarded at an off-site disposal facility in accordance with all applicable laws.

Concrete samples would be drawn at the time of the pour and tested to ensure engineered strengths are achieved. A normally specified SCE concrete mix typically takes approximately 20 working days to cure to an engineered strength. This strength is verified by controlled testing of sampled concrete. Once this strength is achieved, crews would be permitted to commence erection of the structure.

Conventional construction techniques generally would be used as described previously for new foundation installation. Alternative foundation installation methods would be used where conventional methods are not practical. In certain cases, equipment and material may be deposited at structure sites using helicopters or by workers on foot, and crews may prepare the foundations using hand labor assisted by hydraulic or pneumatic equipment, or other methods.

As previously described, existing concrete supply facilities would be used where feasible and a temporary concrete batch plant may be set up in an established material staging yard. Prior to drilling for TSP foundations and LST footings, SCE or its contractor would contact Underground Service Alert to identify any existing underground utilities in the construction zone.

Lattice Steel Tower Installation. If new LSTs are needed they would be assembled within the construction areas at each tower site. Table 4-9, Typical Laydown/Work Area Dimensions, provides approximate laydown dimensions. Structure assembly begins with the hauling and stacking of steel bundles for tower work, per engineering drawing requirements, from a staging yard to each structure location. This activity requires use of several trucks with 40-foot trailers and a rough terrain forklift. After steel is delivered and stacked, crews would proceed with the assembly of leg extensions, body panels, boxed sections, and the cages/bridges. Assembled sections would be lifted into place with a crane and secured by a combined erection and torquing crew. When the steel work is completed, the construction crew may opt to install insulators and wire rollers (i.e., travelers).

When an LST requiring modification is located in terrain inaccessible by a crane, it is anticipated that a helicopter may be used. The use of helicopters for the modification of structures would be similar to methods detailed in IEEE 951-1996, *Guide to the Assembly and Erection of Metal Transmission Structures*, Section 9, Helicopter Methods of Construction. Section 4.7.1.4, Helicopter Access provides detailed information on helicopter usage.

Tubular Steel Pole Installation. TSPs typically consist of multiple sections. The pole sections would be placed in temporary laydown areas at each pole location. See Table 4-9, Typical Laydown/Work Area Dimensions, for approximate laydown dimensions. Depending on conditions at the time of construction, the top sections may come pre-configured, may be configured on the ground, or configured after pole installation with the necessary cross arms, insulators, and wire stringing hardware. A crane would then be used to set each steel pole base section on top of the previously prepared foundations. If existing terrain around the TSP location is not suitable to support crane activities, a temporary crane pad would be constructed within the laydown area. When the base section is secured, the subsequent section of the TSP would be slipped together into place onto the base section. The pole sections may also be spot welded together for additional stability. Depending on the terrain and available equipment, the pole sections could also be pre-assembled into a complete structure prior to setting the poles.

Wood Pole Installation. Each wood pole would require a hole to be excavated using an auger, backhoe, or hand tools. Excavated material would be reused or disposed of, as described in Section 4.7.1.6, Erosion

and Sediment Control and Pollution Prevention, during Construction. The wood poles would be placed in temporary laydown areas at each pole location. While on the ground, the wood poles may be configured (if not already preconfigured) with the necessary cross arms, insulators, and wire stringing hardware. The wood poles would then be installed in the holes, typically by a line truck with an attached boom, and the space around the poles would be backfilled.

Guys with a steel wire, known as a "down guy", would be used as needed. The down guy would attach to an approximately 1-inch-diameter anchor at ground level and would attach to the opposite side of the wood pole from the tension forces applied by the attached conductors.

Lattice Steel Tower Modification. Modification of existing LSTs typically involves raising towers. There are two methods that could be used to raise towers — tower body extensions or vertical leg extensions. SCE would use the tower body extension method which would include some member reinforcing and/or adding some new tower members for the Proposed Project. The body extension method would involve installing an extension in the body of the tower using a crane or hydraulic tower lifting system to hoist a tower. A level area of approximately 50 feet by 50 feet may need to be graded adjacent to the tower if a crane pad would be necessary. The conductors may be unclipped and put into travelers on towers adjacent to the one being modified to allow for movement of the conductor. After the tower extension is installed, the conductors would be clipped back in. Conductors may be added and, if used, the hydraulic lifting system would be taken down from the tower that was raised.

In order to accommodate dead-end OPGW hardware assembly and the associated loads, some of the existing suspension structures being used for splicing locations would require minor bracing reinforcement to the body of the tower.

Wood Pole Modification. Each wood pole may be reconfigured with the necessary cross arms, insulators, conductor, and wire stringing hardware at a lower position.

Transmission, Subtransmission, and Distribution Land Disturbance. The land disturbance from above-ground construction of the transmission, subtransmission, and distribution lines is provided in Table 4-10, Transmission, Subtransmission, and Distribution Approximate Land Disturbance.

Table 4-10. Transmission, Subtransmission, and Distribution Approximate Land Disturbance

Proposed Project Feature	Approximate Number of Structures	Typical Work Area (L x W) (feet)	Approximate Area Disturbed during Construction (acres)	Approximate Area to be Restored (acres)	Approximate Area Permanently Disturbed (acres)
500 kV LST (Raised)	9	100 x 100	2.1	2.1	0.0
500 kV LST (Tower body and peak modifications)	60	100 x 100	13.6	13.6	0.0
500 kV TSP (New)	2	220 x 150	0.2	N/A	N/A*
115 kV Wood Pole (Existing to be Modified)	2	150 x 75	0.5	0.5	0.0
16 kV Wood Pole (New)	22	40 x 60	1.2	1.2	<0.01
12 kV Wood Pole (New)	78	40 x 60	4.3	4.3	<0.01
12 kV Wood Pole (Existing to be Modified)	3	40 x 40	0.1	0.1	0.0

*Note: New TSPs at Lugo Substation would be located within the previously disturbed substation footprint; therefore, no permanent disturbance would result.

4.7.2.3 Conductor/Cable Installation

500 kV Transmission Conductor. Wire stringing activities for conductors or OPGW would be in accordance with SCE common practices and similar to process methods detailed in the IEEE Standard 524-2003, *Guide to the Installation of Overhead Transmission Line Conductors*. To ensure the safety of workers and the public, safety devices (e.g., traveling grounds), guard structures, radio-equipped public safety roving vehicles, and linemen would be in place prior to the initiation of wire stringing activities. Advanced planning is required to determine circuit outages, pulling times, and safety protocols to ensure that the safe installation of wire is accomplished.

Wire stringing includes all activities associated with the installation of the primary conductors or OPGW onto transmission line structures. These activities include the installation of conductor, ground wire, insulators, stringing sheaves (rollers or travelers), vibration dampeners, weights, suspension, and hardware assemblies.

The following five steps describe typical wire stringing activities:

- **Step 1 – Planning:** Develop a wire stringing plan to determine the sequence of wire pulls and the set-up locations for the wire pull/tensioning/splicing equipment.
- **Step 2 – Sock Line Threading:** A helicopter would fly a lightweight sock line from structure to structure, which would be threaded through rollers in order to engage a camlock device that would secure the pulling sock in the roller. This threading process would continue between all structures through the rollers of a particular set of spans selected for a wire pull.
- **Step 3 – Pulling:** The sock line would be used to pull in the conductor pulling rope and/or cable. The pulling rope or cable would be attached to the conductor using a special swivel joint to prevent damage to the wire and to allow the wire to rotate freely to prevent complications from twisting as the conductor unwinds off the reel.
- **Step 4 – Splicing, Sagging, and Dead-Ending:** Once the conductor is pulled in, if necessary, all mid-span splicing would be performed. Once the splicing has been completed, the conductor would be sagged to the proper tension and dead-ended to structures.
- **Step 5 – Clipping-In:** After the conductor is dead-ended, the conductors would be secured to all tangent structures — a process called clipping in. Once this is complete, spacers would be attached between the bundled conductors of each phase to keep uniform separation between each conductor.

Optical Ground Wire. Stringing includes all activities associated with the installation of the OPGW onto the LSTs, as well as the installation of suspension and dead-end hardware assemblies. The dimensions of the area needed for the stringing setups associated with wire installation would vary depending on structure height and terrain but would not extend beyond the limits of the ROW and approved temporary construction work areas. Vegetation may be removed where necessary to safely access the site and position the stringing equipment. To the extent possible, pull and tension sites would be located on level ground to minimize the need for grading. The following four steps describe the OPGW stringing activities:

- **Step 1 – Setup:** Helicopters would be used to transport equipment and workers to each tower location to begin setting up for the pulling. On average, the helicopter would operate approximately 10 hours per day during stringing operations.
- **Step 2 – Pulling:** The existing OHGW being removed would be used to pull new OPGW cable into position at the tower peaks. The OPGW would be pulled through a single span or through multiple spans that would involve multiple tower structures.

The pull site, located at one end of the OPGW pull, is where the pulling equipment would be located. The tension site would be located at the opposite end of the pulling site and would consist of several large pieces of equipment to support the wire stringing activities. Some of this equipment may include a rope machine; a tensioning machine, or "bull wheel" (used to provide tension on the OPGW as it is being pulled off the reel); several flatbed trailers with mounted reel stands; a rough terrain crane to remove/replace conductor reels off of the reel stands; and a sagging tractor or bulldozer.

The puller and tensioner are operated together during the pulling phase to ensure that the OPGW is installed in a controlled manner.

OPGW pull sites may occur every 9,500 to 20,000 feet on flat terrain and may be more closely spaced in rugged terrain. Wire pull locations would be selected, where possible, based on the geometry of the line as affected by changes in routing directions, changes in the terrain, and suitability of stringing and splicing equipment setups.

- **Step 3 – Splicing, Sagging, and Dead-Ending:** Once the OPGW is pulled through, OPGW splices may occur every 9,500 to 20,000 feet on flat terrain, or more closely in rugged terrain. Once the new OPGW has been installed, it would be pulled to a tighter tension that would be predetermined by engineering. This task would have the OPGW at a tension that is referred to as "initial sag." Once the OPGW has been sagged, this would allow the other crews to begin their work. The tower types in a pull would determine what task would be completed next. If there are dead-end-type structures, these would have to be completed prior to working on the tangent or clipping structures. This would vary from pull to pull. Both operations would use light-lift helicopters or boom trucks to move the workers, tools, and hardware assemblies to most of the structure sites.
- **Step 4 – Clipping-In:** After the OPGW is dead-ended, the OPGW would be attached to all tangent structures — a process called clipping-in.

Stringing would be conducted in accordance with SCE's specifications, which are similar to process methods detailed in IEEE Standard 524-2003, *Guide to the Installation of Overhead Transmission Line Conductors*. To protect the safety of workers and the public, safety devices (e.g., grounding, guard structures, and radio-equipped construction vehicles and equipment) would be in place prior to initiation of wire stringing activities.

Distribution Poles. Wooden distribution poles installed as part of the Proposed Project would support 12 kV or 16 kV distribution lines to provide power to new facilities. The distribution poles between the Newberry Springs and Ludlow capacitor sites also would support overhead All-Dielectric Self-Supporting (ADSS) fiber optic cable. Stringing of the distribution line and ADSS cable includes the installation of vibration dampeners, suspension, and dead-end hardware assemblies. Distribution line poles would be replaced or interset poles would be installed if the pole does not meet wind load or ground clearance requirements with the addition of fiber cable. An approximately 8-foot-deep hole would be drilled next to the existing pole and a new pole would be erected. The conductor would be transferred from the existing pole to the new pole and the old pole would be cut or removed.

Guard Structures. Guard structures are temporary facilities installed at transportation, flood control, and utility crossings during wire stringing/removal activities. Guard structures are designed to stop the movement of a wire should it momentarily drop below a conventional stringing height. SCE estimates that 95 guard structures may need to be constructed along the proposed OPGW installation route.

Typical guard structures are standard wood poles with cross members between them to catch wire should it descend below a certain height. Depending on the overall spacing of the wire being installed, two to four guard poles would be required on either side of a crossing. In some cases, the wood poles could be

substituted for by specifically equipped boom trucks or, at highway crossings, temporary netting would be installed if required. The guard structures would be removed after the OPGW (or conductor) is secured on adjacent tower structures.

For road, railroad, and aqueduct crossings, SCE would work closely with the applicable jurisdiction to secure the necessary permits to string OPGW or conductor over the existing infrastructure.

4.7.3 Below Ground Construction Related to Transmission Line ROW

The following subsections describe the below ground construction activities associated with installing the distribution and telecommunications line components of the Proposed Project.

4.7.3.1 Trenching

Fiber Optic Installation

Approximately 2.9 miles of underground fiber optic line would be installed near Mohave Substation. New underground conduit and associated structures typically are installed with a backhoe. The trench would be excavated to approximately 24 inches wide and a minimum of 36 inches deep. Conduit would be placed in the trench and covered with approximately 30 inches of concrete slurry before it is backfilled and compacted. For manholes and pull boxes, a hole would be excavated to be approximately 10 feet deep, 8 feet long, and 8 feet wide. The manhole or pull box would be lowered into place and connected to the conduits, and the hole around the structure would be backfilled with concrete slurry and a minimum of 24 inches of native soil cover.

The fiber optic cable would be installed throughout the length of the underground conduit and structures through an inner-duct within the conduit, providing protection and identification for the cable. First, the inner-duct would be pulled in the conduit using a pull rope and pulling machine or a truck-mounted hydraulic capstan. Then, the fiber optic cable would be pulled inside the inner-duct using the same procedure.

Distribution Installation

The Proposed Project includes approximately 0.2 miles of underground distribution lines. An approximately 2-foot-wide by 4-foot-deep trench would be required to place the distribution conduit underground.

4.7.3.2 Trenchless Techniques: Horizontal Directional Drilling

Duct banks for underground distribution line and fiber optic line installation would be constructed using open-cut trenching techniques, unless alternate methods are required to cross existing underground facilities or sensitive resources. If trenchless techniques are required, SCE would use the horizontal directional drilling (HDD) technique.

HDD technology is an underground boring technique that uses hydraulically powered, horizontal drilling equipment. It involves drilling along a vertical arc beneath a feature that is to be avoided. HDD technology uses lubrication containing water and bentonite clay (i.e., drilling mud) to aid the drilling, coat the walls of the bore hole, and maintain the open hole. 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 would be adjusted to the proper design angle for the particular drill being used. A 6- to 8-inch-diameter drill would typically be used.

The first step would be to drill a fluid-filled pilot bore. The first and smallest of the cutting heads would begin the pilot hole at the entry point. 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 would be added as the drill head bores under the crossing. The drill head would be adjusted by the operator to follow a designed path under the crossing and ascend upward toward the exit point. Once the pilot hole is completed, a succession of larger cutting heads and reamers would be pulled and pushed through the bore hole until the hole is the appropriate size for the steel casing to be installed. Once the steel casing is in place, ducts would be installed within the steel casing, with spacers used to maintain the needed separation between the ducts. The remaining space in the casing outside the ducts would be backfilled with a slurry mix.

The underground cable to be pulled through the casing would be strung on cable supports down the ROW or within temporary extra workspace areas.

As part of the drilling design process, geotechnical surveys of subsurface conditions would be 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 material. As the HDD passes under these locations, the high pressure of the drilling mud may fracture these strata, allowing drilling mud to rise to the surface. This situation is termed a "frac-out" and is usually resolved by reducing the mud system pressure or increasing the mud viscosity. If a frac-out occurs, the boring operation would be stopped immediately, and an established frac-out contingency plan (Horizontal Direction Drilling Fluid Management Plan) would be implemented to contain and remove the drilling mud.

4.7.3.3 Grading for Clearance Discrepancy Area

One potential clearance discrepancy area located between Towers M29-T3 and M30-T1 on the Lugo-Mohave 500 kV Transmission Line, would be graded to remove a minimum of 2 feet of berm in order to achieve a minimum transmission line clearance between the ground and the conductor in accordance with CPUC G.O. 95 and/or SCE's standard practices. A conceptual grading scheme has been developed by SCE to determine any problem areas and to understand the type of limitations the site may have as the final design progresses. Schematic grading analysis includes analyzing drainage patterns and calculating rough estimates of cut and fill quantities. Typical grading activities associated with clearance discrepancies include vegetation clearing, blade-grading, grubbing, earthwork (e.g., cut and fill transitions), drainage improvements, and slope stability improvements (e.g., geogrid reinforcement). Less than 0.1 acres would be graded, approximately 30 cubic yards of material would be excavated, and approximately 1 cubic yard of material would be added. The excavated material would be spread on site or disposed of offsite at an SCE-approved facility.

In addition, one potential clearance discrepancy area, located between Towers M4-T2 and M4-T3 on the Lugo-Mohave 500 kV Transmission Line, would require removal of a minimum of 3.5 feet of berm/concrete at an abandoned concrete foundation to provide minimum transmission line clearance in accordance with CPUC G.O. 95 and/or SCE's standard practices.

4.7.4 Mid-Line Series Capacitor Construction

The following subsections describe the construction activities associated with installing the components of the proposed Newberry Springs Series Capacitor and Ludlow Series Capacitor.

4.7.4.1 Site Preparation and Grading

The sites would be prepared by clearing existing vegetation within the boundaries of the proposed series capacitor sites. Once vegetation clearance is completed, the sites would be graded in accordance with approved grading plans, and a temporary chain-link fence would be installed around the site perimeter.

4.7.4.2 Ground Surface and Below Ground Improvements

Table 4-11, Mid-Line Series Capacitor Ground Surface Improvement Materials, provides a summary of the ground surface improvements at the proposed mid-line series capacitor sites. Table 4-12, Mid-Line Series Capacitor Estimated Land Disturbance, provides a summary of the land disturbance estimates associated with the construction of the proposed Newberry Springs Series Capacitor and Ludlow Series Capacitor. Improvements would also include any required grounding system, foundations, conduits, and drainage. Following site preparation, below grade systems (such as conduits, grounding, and foundation) would be installed and any asphalt, rock, or aggregate put in place.

Table 4-11. Mid-Line Series Capacitor Ground Surface Improvement Materials

Element	Material	Approximate Area (acres)	Approximate Volume (cubic yards)
Access Road Surface Areas[1]	Dirt	0.4	0
Mid-Line Series Capacitor Paved Areas[2]	Asphalt	0.8	282
Internal Road Surface Areas[3]	Aggregate Base	1.1	1,700
Gravel Surfacing[4]	Crushed Rock	2.5	1,199

1 - The acreage includes additional width for ditch and berm.
2 - This item includes 2 inches over rough grade. However, enough crushed rock needs to be added to cover a design that does not include asphalt.
3 - The 12-inch aggregate base includes the 24-foot wide entrance roads just outside the yard.
4 - This item includes all areas within the mid-line series capacitor sites, except for the areas paved with asphalt.

Table 4-12. Mid-Line Series Capacitor Estimated Land Disturbance

Proposed Project Feature	Quantity	Approximate Area Disturbed during Construction (acres)[1]	Approximate Area to be Restored (acres)	Approximate Area Permanently Disturbed (acres)
Newberry Springs Series Capacitor	1	3.8	0.6	3.2
Ludlow Series Capacitor	1	4.0	1.5	2.5

1 - Land disturbance acreage during construction is greater than the acreage associated with the permanent facility as described in Section 4.5.4 Mid-Line Series Capacitors.

4.7.4.3 Above-Grade Construction

above-grade installation of capacitor facilities (e.g., buses, capacitor banks, disconnect switches, steel support structures, perimeter fence, and the MEER) would commence after the below-grade structures are in place.

4.7.4.4 Telecommunications Equipment Installation

Both the proposed Newberry Springs Series Capacitor and Ludlow Series Capacitor would include a MEER, as described in Section 4.5.4.1, Mechanical and Electrical Equipment Room. The MEER would have a separate communication room to house telecommunications equipment. Each communication room

would be equipped with AC power, DC power system (including batteries and a battery charger), an overhead cable tray, redundant air conditioners, and diverse fiber entry conduits for connection to outside fiber optic cables. SCE would install fiber optic terminating shelves, fiber optic transport terminals, channel equipment, communications alarm/switch equipment, and data equipment in the communication room. The equipment would be transported to the site and installed by SCE technicians after the MEER structure is completed, but before the capacitors are placed in service.

4.7.5 Fiber Optic Repeater Construction

The following subsections describe the construction activities associated with installing the components of the Barstow, Kelbaker, and Lanfair Fiber Optic Repeaters.

4.7.5.1 Site Preparation and Grading

Existing vegetation within the boundaries of the Barstow, Kelbaker, and Lanfair Fiber Optic Repeater sites would be cleared. Once vegetation clearance is completed, a temporary chain-link fence would be installed around the site perimeter. Minor grading would be required inside the fence and for the access roads at each location. The maximum amount of grading at each repeater site is as follows:

- Barstow Fiber Optic Repeater site: 16 cubic yards
- Kelbaker Fiber Optic Repeater site: 30 cubic yards
- Lanfair Fiber Optic Repeater site: 24 cubic yards

4.7.5.2 Ground Surface Improvements

Table 4-13, Fiber Optic Repeater Ground Surface Improvement Materials, provides a summary of the ground surface improvements at the fiber optic repeater sites. Table 4-14, Fiber Optic Repeater Estimated Land Disturbance, provides a summary of the land disturbance estimates associated with the construction of the proposed fiber optic repeaters.

Table 4-13. Fiber Optic Repeater Ground Surface Improvement Materials

Element	Material	Approximate Area (acres)[1]	Approximate Volume (cubic yards)[2]
Access Road Surface Area	Dirt	0.1	85.0
Gravel Surfacing	Crushed Gravel	0.1	66.0

1 - The approximate area includes all three repeater sites.
2 - The approximate volume includes all three repeater sites

Table 4-14. Fiber Optic Repeater Estimated Land Disturbance

Fiber Optic Repeater	Quantity	Approximate Area Disturbed during Construction (acres)	Approximate Area to be Restored (acres)	Approximate Area Permanently Disturbed (acres)
Barstow	1	0.43	0.3	0.13
Kelbaker	1	1.0	0.9	0.1
Lanfair	1	1.5	1.5	0.1

4.7.5.3 Below-Grade Construction

After the site is prepared, below-grade facilities would be installed. Below-grade facilities include telecommunications and distribution conduits, duct banks, and vaults.

4.7.5.4 Above-Grade Construction

Above-grade installation for the fiber optic repeater facilities (e.g., communication building, emergency generator, and an above-grade 499-gallon propane fuel tank) would commence after the below-grade structures are in place. A typical communication building would either be a block wall-type building to be constructed on site or a prefabricated building delivered to the site. Prefabricated buildings are set on a concrete foundation using a crane. The typical building size is approximately 36 feet by 12 feet; the building consists of a generator room and an equipment room. The generator room houses an emergency backup generator and manual/automatic AC switch equipment. An 8-foot high chain link fence with barbed wire would be installed around the facility and would include an access gate.

4.7.6 Modifications at Other Facilities

As described in Section 4.5.5, Modifications to Existing Substations, minor internal modifications (e.g., circuit breaker replacement, etc.) would be necessary at SCE's Lugo, Mohave, and Eldorado Substations ~~and LADWP's McCullough Substation~~.

4.7.7 Land Disturbance Summary

Land disturbance includes all areas affected by construction of the Proposed Project. Approximately ~~378.1~~380.4 acres of land would be disturbed. Total permanent land disturbance for the Proposed Project would be approximately 7.0 acres. The balance of the land disturbed by project activities (~~371.1~~373.5 acres) includes ~~125.5~~126.2 acres of previously disturbed land and ~~245.6~~247.3 acres of undisturbed land that would be restored after construction. The estimated amount of land disturbance for each Proposed Project component is summarized in Table 4-15, Proposed Project Estimated Land Disturbance.

Grading is proposed at eight locations. Two locations would involve grading to reduce the clearance discrepancies between existing land surface contours and the overhead Lugo-Mohave 500kV Transmission Line at towers M4-T2 to M4-T3 and M29-T3 to M30-T1. No new facilities will be constructed in these areas. The remaining six locations that would be graded would be for the installation of the new Newberry Springs and Ludlow mid-line series capacitors; a replacement series capacitor at Mohave Substation; and the Barstow, Kelbaker, and Lanfair fiber optic repeaters. The proposed graded areas are identified as permanent impacts. These areas are on relatively flat terrain and would require minimal additional area for grading beyond the pad edge. Included in the permanent disturbance are short access roads required between existing access roads and some of the facilities.

In addition to these areas proposed to be graded to accommodate new facilities or to address clearance discrepancies, some work areas and staging yards may involve driving over and crushing vegetation (drive and crush), vegetation clearing, grubbing, mowing, blade-grading, and/or re-compacting surfaces to remove potholes, ruts, and other surface irregularities in order to provide leveled working areas.

Trenching for underground telecommunication and distribution lines is anticipated to yield approximately 6,800 cubic yards of soil. The excavated soil will be used as backfill and compacted over the trenches. Excess soil would be used to improve adjacent access roads by smoothing and removing ruts. If excess material is not disposed of onsite, it would be transported to an SCE-approved facility. In the event contaminated soils are encounter, they would be stockpiled on plastic sheeting and covered to prevent

Table 4-15. Proposed Project Estimated Land Disturbance

Proposed Project Feature	Quantity	Total Approximate Area Disturbed during Construction (acres)	Temporary Disturbance		Approximate Area Permanently Disturbed (acres)
			Approximate Area Previously Disturbed (acres)	Approximate Area to be Restored (acres)	
Mid-Line Series Capacitors					
Newberry Springs Series Capacitor	1	3.8	0.0	0.6	3.2
Ludlow Series Capacitor	1	4.0	0.0	1.5	2.5
Total Estimate for Mid-Line Series Capacitors		7.7	0.0	2.1	5.6
Transmission					
Guard Structures	92	7.4	0.0	7.4	0.0
Pull and Tension Sites	198	~~58.3~~58.1	0.0	~~58.1~~57.9	0.2
Discrepancy Work Areas	14	3.6	3.5	0.1	0.0
OPGW/Tower Work	92	20.8	20.6	0.2	0.0
Total Estimated for Transmission		~~90.2~~89.9	24.1	~~65.9~~65.6	0.2
Subtransmission					
Discrepancy Work Area	1	1.7	0.0	1.7	0.0
Total Estimated for Subtransmission		1.7	0.0	1.7	0.0
Distribution					
Mid-Line Series Capacitor Work Areas (includes Joint Distribution/ Telecommunications Route between Capacitors)	4	~~21.2~~20.8	0.0	~~21.2~~20.8	0.0
Fiber Optic Repeater Work Areas	3	2.7	0.0	2.7	0.0
Total Estimated for Distribution		~~23.9~~23.6	0.0	~~23.9~~23.6	0.0
Telecommunications					
Fiber Optic Repeaters	3	0.2	0.0	0.0	0.2
Telecommunications Work Areas (Mohave Substation, Mid-Line Series Capacitors, Fiber Optic Repeaters, and Pull and Tension Sites)	38	32.0	0.9	31.1	0.0
Total Estimated for Telecommunications		32.2	0.9	31.1	0.2

Table 4-15. Proposed Project Estimated Land Disturbance

Proposed Project Feature	Quantity	Total Approximate Area Disturbed during Construction (acres)	Temporary Disturbance		Approximate Area Permanently Disturbed (acres)
			Approximate Area Previously Disturbed (acres)	Approximate Area to be Restored (acres)	
Substations					
Lugo Substation	1	~~22.9~~23.0	~~22.9~~23.0	0.0	0.0
Mohave Substation	1	21.5	21.5	0.0	0.0
Eldorado Substation	1	11.0	11.0	0.0	0.0
~~McCullough Substation~~	~~5~~	~~0.4~~	~~0.4~~	~~0.0~~	~~0.0~~
Total Estimated for Substations[1]		~~55.8~~55.5	~~55.8~~55.5	0.0	0.0
Staging Areas					
Staging Areas	17	~~98.3~~99.5	34.4	~~63.9~~65.1	0.0
Landing Zones	201	~~50.0~~51.4	~~0.1~~0.7	~~49.9~~50.7	0.0
Parking Areas	4	15.5	9.8	5.6	0.0
Total Estimated for Staging Areas		~~163.8~~166.4	~~44.3~~45	~~119.4~~121.4	0.0
Access Roads and/or Spur Roads					
Access Roads and/or Spur Roads	11	1.4	0.3	0.2	0.9
Footpaths	40	1.6	0.0	1.6	0.0
Total Area Estimated for Access Roads and/or Spur Roads and Footpaths		3.0	0.3	1.8	0.9
Total Estimated for Proposed Project		~~378.1~~380	~~125.5~~125.8	~~245.6~~247.3	7.0

Notes:
Work areas at substations are previously disturbed, and do not contribute to the new, permanent disturbance acreage associated with the Proposed Project.
Work area acreages are based on preliminary planning and may be adjusted due to final engineering.
Disturbance areas have been rounded to the nearest tenth of an acre; therefore, they may not match the totals presented in Table 4-14, Fiber Optic Repeater Estimated Land Disturbance.
Portions of the permanently disturbed areas associated with access or spur roads are located within areas that have been previously disturbed.
The footprint of the staging yards overlaps with other work areas that will be used for the Proposed Project. This overlap was attributed to non-staging yard workspaces when calculating the total disturbance area. As a result, the disturbance associated with the staging yards in Table 4-15 is less than the total staging yard footprint reported in Table 4-8.

contact with stormwater or becoming air borne. If the contamination is determined to be non-hazardous, the soil would be disposed of at an SCE-approved facility. If hazardous, it would be transported to an SCE-approved facility authorized to accept such material.

4.7.8 Construction Equipment and Workforce

The estimated construction equipment and workforce required for construction of the Proposed Project are summarized in Attachment 4-C: Construction Equipment and Workforce Estimates.

Construction would be performed by either SCE construction crews or contractors. If SCE construction crews are used, they typically would be based at SCE's local facilities (e.g., service centers and substations) or a temporary material staging yard set up for the Proposed Project. Contractor construction personnel would be managed by SCE construction management personnel and based out of the Contractor's existing yard or temporary material staging yards established for the Proposed Project. Based on activities being conducted, SCE anticipates a total of 15 to 346 (or an average of 159) construction personnel working on any given day. SCE anticipates that multiple crews would work concurrently when possible; however, the estimated deployment and number of crew members would vary depending on factors such as material and equipment availability, weather, and construction scheduling.

4.7.8.1 Equipment Description

Table 4-16, Construction Equipment Description, lists the equipment SCE expects to use during construction and a brief description of the use of that equipment.

Table 4-16. Construction Equipment Description

Equipment Type	Use Description
1-Ton Crew Cab	Transport and support construction personnel
¾-Ton Truck/Foreman's Truck	Transport and support construction personnel
Backhoe	Excavate and load materials
Bobcat	Excavate, move, and load materials
Bucket Truck	Lift and transport workers; and frame and string overhead cable lines
Bullwheel Puller	Install underground components
Compactor	Compact soil
Compressor Trailer	Provide compressed air for pneumatic tools
Concrete Mixer Truck	Deliver and mix concrete
Crane/Boom Truck	Lift and place materials
Digger Derrick	Dig holes, hoist, and set utility poles
Ditch Witch	Dig trenches
Dozer	Grade pads and access roads
Drill Rig	Drill subsurface holes
Dump Truck	Transport import/export material
Excavator	Excavate materials
Fiber Tensioner	Remove and install OPGW
Flatbed Truck	Deliver poles and hardware
Forklift	Lift and move materials
Foundation Auger	Drill foundation holes

Table 4-16. Construction Equipment Description

Equipment Type	Use Description
Generator	Provide power to the work area
Grader	Grade substation site, pads, and access roads; ROW clearing; and restoration
V-Groove Puller	Remove and install OPGW
Helicopter	Install conductor/OPGW
Helicopter Support Truck	Install conductor/OPGW
Hydraulic Crane	Lift and place materials
Hydraulic Rewind Puller	Pull conductor/OPGW
LoDrill	Drill foundation holes
Low Bed Hauler	Transport equipment
Low Side End Dump	Transport import/export material
Manlift	Set steel and install equipment
Motor Grader	Grade terrain
Paving Machine	Lay asphalt
Reach Lift	Install equipment
Rock Crusher	Process and crush oversized rocks
Scissor Lift	Provide access to elevated work areas
Scraper	Grade pads and access roads
Semi-Tractor Truck	Transport materials
Skid Steer Loader	Move materials
Skip Loader	Move or load materials
Static Truck/Tensioner	Provide tension during conductor/OPGW during installation
Splicing Lab/Truck	Splice conductor/OPGW
Storage Trailer	Storage
Test Truck (less than 1-ton truck)	Transport workers and test equipment to site
Tool Truck	Transport tools
Trencher	Dig trenches
Utility Cart	Support construction activities
Van (Cargo)	Transport telecommunications personnel and equipment
Water Buffalo	Transport/store water
Water Pull	Suppress dust and condition soil for compaction
Water Truck	Suppress dust and condition soil for compaction
Wire Truck/Trailer	Transport and hold conductor/OPGW during stringing operations

4.7.9 Construction Schedule

SCE anticipates that construction of the Proposed Project would take approximately 16 months, as shown in Table 4-17, Proposed Construction Schedule.[15] Construction would commence following approval by

[15] The proposed construction schedule does not account for unforeseen Proposed Project delays, including but not limited to those due to inclement weather and/or stoppage necessary to protect biological resources (e.g., nesting birds).

responsible agencies, final engineering, procurement activities, land rights acquisition, and receipt of all applicable permits.

Table 4-17. Proposed Construction Schedule

Proposed Project Activity	Approximate Duration (months)	Approximate Start Date
CPUC CPCN	N/A	February 2020
BLM Record of Decision	N/A	February 2020
Final Engineering	N/A	December 2019
ROW/Property Acquisition	N/A	February 2020
Acquisition of Required Permits	N/A	February 2020
Mid-Line Series Capacitor Construction	13	March 2020
Substation Modifications	10	March 2020
OPGW Construction	9	March 2020
500 kV Transmission (Discrepancy) Construction	6	March 2020
Telecommunications Construction	11	July 2020
Distribution Construction	5	October 2020
Proposed Project In-Service	N/A	June 2021
Cleanup	6	December 2021

4.8 Operation and Maintenance

Operation and maintenance (O&M) of the Proposed Project facilities require no new full-time staffing; the facilities would be operated and maintained by staff based at Lugo and/or Eldorado Substations. Ongoing O&M activities ensure reliable service, as well as the safety of utility workers and the general public, as mandated by the CPUC. SCE facilities are subject to Federal Energy Regulatory Commission (FERC) jurisdiction. SCE transmission facilities are under operational control of the CAISO.

4.8.1 Proposed Mid-Line Series Capacitors

The proposed Newberry Springs Series Capacitor and Ludlow Series Capacitor would require minimal O&M. Typical routine inspection and maintenance activities would include the following:

- Monthly inspections to check and record pressure gauge readings, operation counter readings, battery voltage and current readings, mimic display, and fence conditions (e.g., any damage to the fences).
- Annual inspection of platform structures, capacitor equipment, metal oxide varistors, damping reactors, instrument transformers, fiber optics, triggered air gaps/fast bypass devices, insulators, bus-work and fitting, protection and control systems, internal bypass switch(es), external bypass switch, and isolating disconnect switches with ground attachments.
- Periodic testing on instrument transformers, triggered air gaps/fast bypass devices, protection and control systems, and internal bypass switches; the frequency of the tests ranges from once per year to once every five years, depending on the types of equipment and types of tests.

Routine O&M activities would typically involve two to four operators, electricians, and testmen over a period of two to five days. A manlift is required for all activities on mid-line series capacitor platforms, which typically are 19 to 20 feet above the ground.

4.8.2 Existing Substations

The existing Mohave Substation is unstaffed; electrical equipment within the substation is remotely monitored and controlled from SCE's Eldorado Substation Switching Center. SCE maintains an Energy Management System that allows it to monitor and respond to alarms as the system status changes.

The existing Lugo and Eldorado Substations are both manned facilities that function as Switching Centers manned by System Operators acting under the direction of the Grid Control Center to operate the portion of the system under their respective substation jurisdiction~~. McCullough Substation is maintained by LADWP~~.

Substation personnel perform station inspections in both manned and unmanned substations when there is an indication of trouble or to perform routine maintenance. Routine circuit breaker and disconnect switching operations at remotely controlled stations would normally be performed by remote control on orders by the responsible switching center.

4.8.3 Transmission, Subtransmission, and Distribution Lines

The existing transmission, subtransmission, and distribution lines would continue to be maintained in a manner consistent with CPUC G.O. 95 and G.O. 128, as applicable, for circuits in California, and the NESC for circuits outside of California. Normal operation of the lines would be controlled remotely through SCE control systems and manually in the field as required. Consistent with CPUC G.O. 165, SCE inspects the transmission, subtransmission, and distribution overhead facilities a minimum of once per year via ground and/or aerial observation; however, inspections usually occur more frequently based on system reliability. Maintenance would occur as needed and could include activities such as repairing or replacing conductors, washing or replacing insulators, repairing or replacing other hardware components, repairing or replacing poles and towers, tree trimming, brush and weed control, and maintenance of access roads. Most regular O&M activities of overhead facilities are performed from existing access roads with no surface disturbance. Repairs done to existing facilities, such as repairing or replacing existing poles and towers, could occur in undisturbed areas. Existing conductors could require re-stringing to repair damage. Some pulling site locations could be in previously undisturbed areas, and at times, conductors could be passed through existing vegetation en route to their destination.

Routine access road maintenance is conducted on an annual and/or as-needed basis. Road maintenance includes maintaining a vegetation-free corridor to facilitate access and for fire prevention and blading to smooth over washouts, eroded areas, and washboard surfaces. Access road maintenance can include brushing (i.e., trimming or removal of shrubs) 2 to 5 feet beyond berms or road edges when necessary to keep vegetation from intruding into the roadway. Road maintenance also would include cleaning ditches, moving and establishing berms, clearing and making functional drain inlets to culverts, culvert repair, clearing and establishing water bars, and cleaning and repairing over-side drains. This maintenance also includes the repair, replacement, and installation of storm water diversion devices.

Insulators could require periodic washing with water to prevent the buildup of contaminants (e.g., dust, salts, droppings, smog, condensation) and reduce the possibility of electrical arcing, which can result in circuit outages and potential fire. Frequency of insulator washing is region specific and based on local conditions and the build-up of contaminants. Replacement of insulators, hardware, and other components is performed as needed to maintain circuit reliability.

Some tower or pole locations and/or laydown areas could be in previously undisturbed areas and could result in ground and/or vegetation disturbance, though attempts would be made to use previously dis-

turbed areas to the greatest extent possible. Roads and trails are used for access to poles. In some cases, new access is created to remove and replace an existing tower or pole. Wood pole testing and treating is conducted to evaluate the condition of wood structures both above and below ground level. Intrusive inspections require the temporary removal of soil around the base of the pole, usually to a depth of 12 to 18 inches, to check for signs of deterioration. All soil removed for intrusive inspections would be reinstalled and compacted at completion of the testing.

Existing conductors could require re-stringing to repair damages. Some pulling site locations could be in previously undisturbed areas, and at times, conductors could be passed through existing vegetation en route to their destination.

Regular tree pruning must be performed to comply with existing State and federal laws, rules, and regulations and is crucial for maintaining reliable service, especially during severe weather or disasters. Tree pruning standards for distances from overhead lines have been set by the CPUC (G.O. 95, Rule 35); California Public Resources Code Section 4293; California Code of Regulations Title 14, Article 4; and other government and regulatory agencies. SCE's standard approach to tree pruning is to remove at least the minimum required by law plus one year's growth, depending on the species.

In addition to maintaining vegetation-free access roads, helipads, and clearances around electrical lines, clearing of brush and weeds around poles and/or transmission tower pads may be required by applicable regulations on fee-owned ROWs, as necessary for fire protection. A 10-foot radial clearance around non-exempt poles (as defined by California Code of Regulations Title 14, Article 4) and a 25- to 50-foot radial clearance around non-exempt towers (as defined by California Code of Regulations Title 14, Article 4) are maintained in accordance with California Public Resources Code Section 4292.

In some cases, towers or poles do not have existing access roads and are accessed on foot, by helicopter, or by creating temporary access areas. O&M-related helicopter activities could include transportation of workers, delivery of equipment and materials to structure sites, structure placement, hardware installation, and OPGW stringing operations. Helicopter landing areas could occur where access by road is infeasible. SCE has identified potential landing zones across the project area. In addition, in the event of an emergency helicopters would be able to land within SCE ROWs, which could include landing on access or spur roads.

In addition to regular O&M activities, SCE conducts a wide variety of emergency repairs, such as those required to address damage from high winds, storms, fires, and other natural disasters, and accidents. Such repairs could include replacement of downed poles, transmission towers, or lines or re-stringing conductors. Emergency repairs could be needed at any time.

4.8.4 Telecommunications Facilities

The telecommunications equipment would be subject to maintenance and repair activities on an as-needed or emergency basis. Activities would include testing the equipment and replacing defective circuit boards, damaged radio antennas, or feedlines. Telecommunications equipment would also be subject to routine inspection and preventative maintenance, including filter change-outs or software and hardware upgrades. Most regular O&M activities for telecommunications equipment are performed at substation or communication sites and inside the equipment rooms. These are accessed from existing access roads with no surface disturbance. Helicopter transportation may be required to access remote communications sites for routine or emergency maintenance activities.

Telecommunications cables would be maintained on an as-needed or emergency basis. Maintenance activities would include patrolling, testing, repairing, and replacing damaged cable and hardware. Most regular maintenance activities of overhead facilities are performed from existing access roads with no surface disturbance. Repairs done to existing facilities, such as repairing or replacing existing cables and re-stringing cables, could occur in undisturbed areas. Access and habitat restoration may be required for routine or emergency maintenance activities, as mentioned previously in Section 4.8.3, Transmission, Subtransmission, and Distribution Lines.

4.8.4.1 Fiber Optic Repeater Sites

The fiber optic repeater sites would require the following site maintenance/inspection schedule:

- Generator – once per year
- Fuel tank – once per year; refuel as required by usage
- Site vegetation clearance – once per year, or as required
- Building inspection – once per year

4.9 Applicant-Proposed Measures and Standard Practices

As part of the Proposed Project, SCE has identified 19 applicant-proposed measures (APMs) that it would implement during construction and/or O&M of the Proposed Project to reduce or avoid impacts. SCE would conduct the design, construction, and O&M of the Proposed Project in accordance with the APMs. SCE's proposed APMs are listed in Table 4-18, Applicant-Proposed Measures. However, if analysis reveals that an APM may be insufficient, it may be superseded by a specific mitigation measure. Typically, when an APM is superseded by a mitigation measure it is because more detail on mitigation is required than is stated in the APM or to add requirements not found in the APM.

In addition to the APMs, SCE has identified its standard practices for environmental surveys, worker environmental awareness training, and traffic control that would apply to the ELM project. These are discussed following Table 4-18.

Environmental Surveys

SCE has conducted initial biological, cultural, and paleontological resource evaluations and would conduct further focused environmental surveys after approval of the Proposed Project, but prior to the start of construction. These surveys would identify and/or address any potential sensitive biological, cultural, and paleontological resources that may be affected by the Proposed Project. The information gathered from these surveys may be used to finalize the Proposed Project design in order to avoid sensitive resources or to minimize the potential impact to sensitive resources from Proposed Project-related activities. The results of these surveys would also help determine the extent to which environmental specialist construction monitors would be required.

Table 4-18. Applicant-Proposed Measures

APM	Description
APM-AIR-01: Fugitive Dust	During construction, fugitive dust would be controlled by implementing the following measures: ▪ Surfaces disturbed by construction activities would be covered or treated with a dust suppressant or water until the completion of activities at each site of disturbance. ▪ Inactive disturbed (e.g., excavated or graded areas) soil and soil piles would be sufficiently watered or sprayed with a soil stabilizer to create a surface crust or would be covered. ▪ Drop heights from excavators and loaders would be minimized to a distance of no more than 5 feet. Vehicles hauling soil and other loose material would be covered with tarps or maintain at least 6 inches of freeboard. ▪ Within Nevada, vehicle speeds on unpaved traffic and parking areas would be restricted to 15 miles per hour. In California, vehicle speeds on unpaved roadways would adhere to all posted speed limits. ▪ Within Nevada, unpaved non-public traffic and parking areas designated for utilization during Proposed Project construction would be effectively stabilized to control dust emissions (e.g., using water or chemical stabilizer/suppressant). In California, unpaved non-public traffic and parking areas designated for utilization during Proposed Project construction would be effectively stabilized to control dust emissions with a chemical stabilizer/suppressant.
APM-AIR-02: Tier 4 Engines	Off-road diesel construction equipment with a rating between 100 and 750 horsepower would be required to use engines compliant with the U.S. Environmental Protection Agency's final Tier 4 non-road engine standards. In the event that a Tier 4 engine is not available, the equipment would be equipped with a Tier 3 engine and documentation would be provided from a local rental company stating that the rental company does not currently have the required diesel-fueled, off-road construction equipment, or that the vehicle is specialized and is not available to rent. Similarly, if a Tier 3 engine is not available, that equipment would be equipped with a Tier 2 or 1 engine, and documentation of unavailability would be provided.
APM-AIR-03: Idling	Equipment would not be left idling in excess of five minutes, except when idling is required for the equipment to perform its task or has a California clean-idle- sticker.
APM-AIR-04: Equipment Maintenance	Diesel engines would be maintained in good working order and according to manufacturer's specifications to reduce emissions.
APM-AIR-05: Ridesharing	Workers would be encouraged to carpool to work sites, and/or utilize public transportation for employee commutes.
APM-BIO-01:	To the extent feasible, SCE would minimize temporary impacts and permanent loss to sensitive natural vegetation communities and special-status plants. Impacts would be minimized at construction sites by clearly demarcating work areas and flagging resources to be avoided. If unable to avoid impacts to sensitive natural vegetation communities and special-status plants, a revegetation plan would be prepared in coordination with the applicable agencies. The revegetation plan would describe, at a minimum, which vegetation restoration method (e.g., natural revegetation, planting, or reseeding with native seed stock in compliance with the Proposed Project's SWPPPs) would be implemented in the Proposed Project area. The revegetation plan would also include the plant species or habitats to be restored or revegetated, the replacement or restoration ratios (as appropriate), the restoration methods and techniques, and the monitoring periods and success criteria.
APM-BIO-02: Special-Status Plant Species Protection	Prior to construction and during the appropriate phenological (i.e., blooming) periods, a qualified biologist would flag the locations of any special-status plants present within a work area. These flagged areas would be avoided to the extent possible and monitored by a qualified biologist during construction activities. Where disturbance to these areas cannot be avoided, SCE would develop and implement a revegetation plan (APM-BIO-01). Weed species would be removed, where necessary, from areas to be revegetated to ensure successful revegetation to pre-construction conditions.

Table 4-18. Applicant-Proposed Measures

APM	Description
APM-BIO-03: Noxious and Invasive Weed Management Plan	Prior to construction, SCE would prepare a Noxious and Invasive Weed Management Plan (NIWMP) that is intended to minimize the spread of noxious and invasive weeds during construction. The NIWMP would include, but would not be limited to, ensuring that construction (earth-moving or ground-disturbing) vehicles arrive to work sites clean and weed-free prior to entering the ROW in cross-country areas, ensuring straw wattles used to contain storm water runoff are weed-free, and documenting the extent of noxious weeds within the construction areas prior to construction. Noxious weeds are defined as species rated as High on the California Invasive Plant Inventory Database, published by the California Invasive Plant Council. Construction within urban/developed areas and intensive agricultural areas would be exempt from the NIWMP requirements.
APM-BIO-04: Desert Tortoise Protection	The following list of measures is designed to avoid and minimize impacts to desert tortoise and would apply to all construction activities in areas with the potential to support the species: 1. Pre-activity Surveys: No more than seven days prior to the onset of ground-disturbing activities, an agency-approved biologist — with experience monitoring and handling desert tortoise — would conduct a pre-activity survey in all work areas within potential desert tortoise habitat, plus an approximately 300-foot buffer. All desert tortoise burrows within the pre-activity survey area (including desert tortoise pallets) would be prominently flagged at that time so that they may be avoided during work activities. Proposed actions would avoid disturbing desert tortoise burrows to the extent possible. However, burrows would be excavated if they would be impacted by construction activities. If a potential tortoise burrow must be excavated, the biologist would proceed according to the Desert Tortoise Council's Guidelines for Handling Desert Tortoise during Construction Projects. 2. Monitoring: The approved tortoise biologist would be available on site to monitor any work areas for desert tortoise, as needed. The approved tortoise biologist would be responsible for performing surveys prior to Proposed Project activities in suitable desert tortoise habitat. The approved tortoise biologist would have the authority to halt all non-emergency actions (as soon as safely possible) that may result in harm to desert tortoise, and would assist in the overall implementation of APMs for the tortoise. 3. Desert Tortoise in Work Area: In the event that a desert tortoise is encountered in the work area, all work would cease and the approved biologist would be contacted. Work would not commence until the animal has voluntarily moved to a safe distance away from the work area. Desert tortoises may be moved by an agency-approved biologist if necessary to move them out of harm's way. Encounters with desert tortoise would be reported to an approved biologist. Encounters with desert tortoise would be documented and provided to the California Department of Fish and Wildlife (CDFW), BLM, and U.S. Fish and Wildlife Service (USFWS). In the event that a dead or injured desert tortoise is observed, the approved biologist would be responsible for notifying SCE's herpetologist and reporting the incident to the CDFW, BLM, and USFWS. 4. Under Vehicle Checks: Desert tortoises commonly seek shade during the hottest times of the day. Employees working within the geographic range of this species would be required to check under their equipment or vehicles before they are moved. If desert tortoises are encountered, the vehicle is not to be moved until the animals have voluntarily moved to a safe distance away from the parked vehicle. Desert tortoises may be moved by the approved biologist, if necessary, to move them out of harm's way. 5. Handling Desert Tortoise: Only an agency-approved biologist may move or handle desert tortoises. When a desert tortoise is moved, the approved biologist would be responsible for taking appropriate measures to ensure that the animal is not exposed to harmful temperature extremes. The approved biologist would follow the appropriate protocols outlined in the Desert Tortoise Council's *Guidelines for Handling Desert Tortoises During Construction Projects* when handling desert tortoises or excavating their burrows. 6. Excavation of Desert Tortoise Burrows: Should it prove necessary to excavate a desert tortoise from its burrow to move it out of harm's way, excavation would be done using hand tools, either by or under the direct supervision of an approved biologist. Excavation of desert tortoise burrows would occur no more than seven days before the onset of construction or O&M activities. All desert tortoises removed from burrows would be placed in an unoccupied burrow that is approximately the same size as the one from which it was removed. If an existing burrow is unavailable, the approved biologist would construct or direct the construction of a burrow of similar shape, size, depth, and orientation as the original burrow. To ensure their safety, desert tortoises moved during inactive periods would be

Table 4-18. Applicant-Proposed Measures

APM	Description
	monitored for at least two days after placement in the new burrows or until the end of the construction activity. If desert tortoises need to be moved at a time of day when ambient temperatures could harm them (i.e., at temperatures lower than 40 degrees Fahrenheit (°F) or higher than 90°F), they would be held overnight in a clean cardboard box. These desert tortoises would be kept in the care of the approved biologist under appropriate controlled temperatures and released the following day when temperatures are favorable. All cardboard boxes would be appropriately discarded after one use. 7. Disposal of Trash: Trash and food items would be contained in closed containers and removed daily to reduce attractiveness to opportunistic predators, such as common ravens (*Corvus corax*), coyotes (*Canis latrans*), and feral dogs (*Canis lupus familiaris*). 8. Pets Prohibited: Employees would not bring pets to the Proposed Project area. 9. Vehicle Travel: Motor vehicles would be limited to maintained roads and designated routes. If additional routes are needed, they would be surveyed by the approved biologist. 10. Raven Management: SCE would implement a Raven Management Plan (RMP) to minimize avian predation of desert tortoise for the Proposed Project. The purpose of the RMP is to utilize methods that deter raven depredation of juvenile desert tortoises, and other wildlife species. The RMP is not intended to eliminate or control raven populations, but would target offending ravens that have been found to prey upon desert tortoises. The RMP would incorporate an adaptive management strategy for immediate implementation following construction of the Proposed Project. The RMP would be evaluated after three years of implementation, or as needed, if avian predation becomes apparent. The following activities may be implemented as part of the RMP: (1) Common raven nest/power line monitoring, (2) Funding of offending raven control via contract with the U.S. Department of Agriculture, and (3) Alternative control strategies developed in coordination with USFWS (e.g. egg-oiling, laser deterrents, etc.). Mutual and timely cooperation between SCE and the BLM, USFWS, and CDFW is central to effective implementation of the RMP.
APM-BIO-05: Compensation for Impacts to Desert Tortoise Critical Habitat	Compensation for temporary and permanent impacts to desert tortoise habitat disturbance is proposed at the following ratios: ▪ A 5-to-1 ratio for impacts to desert tortoise critical habitat. ▪ A 1-to-1 ratio for impacts to desert tortoise habitat, excluding critical habitat. No compensatory mitigation is required for disturbed areas (i.e., totally denuded, mostly denuded with scattered shrub-like vegetation, active agricultural, residential, and urban) that provide no habitat value to the species. Although much of the desert tortoise habitat disturbance resulting from Proposed Project activities would be temporary, compensatory mitigation would be provided at a permanent ratio due to the slow recovery time of habitats in desert ecosystems. No mitigation would occur for impacts to developed land within the Proposed Project area.
APM-BIO-06: Nesting Birds	SCE would conduct pre-construction clearance surveys no more than seven days prior to construction to determine the location of nesting birds and territories, during the nesting bird season (typically February 1 to August 31, or earlier for species such as raptors). An avian biologist would establish a buffer area around active nest(s) and would monitor the effects of construction activities to prevent failure of the active nest. The buffer would be established based on construction activities, potential noise disturbance levels, and behavior of the species. Monitoring of construction activities that have the potential to affect active nest(s) would continue until the adjacent construction activities are completed or until the nest is no longer active.
APM-BIO-07: Western Burrowing Owl Protection	Pre-construction burrowing owl surveys would be conducted within suitable habitat in accordance with Appendix D of the Staff Report on Burrowing Owl Mitigation (CDFW 2012). Prior to construction activities SCE would prepare a survey report in accordance with the requirements of the staff report. If a breeding territory or nest is confirmed, the CDFW would be notified and SCE would avoid impacts to burrowing owl to the extent feasible. If unavoidable impacts to western burrowing owl are anticipated, SCE would implement mitigation methods as outlined in the staff report and in coordination with the CDFW.

Table 4-18. Applicant-Proposed Measures

APM	Description
APM-BIO-08: Compensation for Permanent Impacts to Jurisdictional Water Resources	All necessary authorizations must be obtained from the applicable jurisdictional agencies for impacts to aquatic resources. Permanent impacts to all jurisdictional water resources would be compensated for at a one-to-one ratio, or as agreed upon with the U.S. Army Corps of Engineers, State Water Resources Control Board, NDEP, and CDFW.
APM CUL-01: Environmentally Sensitive Areas	Where operationally feasible, all National Register of Historic Places- (NRHP-) and California Register of Historic Resources- (CRHR-) eligible resources would be protected from direct impacts by Proposed Project redesign (i.e., relocation of the line, ancillary facilities, or temporary facilities or work areas). Avoidance mechanisms would include fencing off areas such as Environmentally Sensitive Areas (ESAs) for the duration of the Proposed Project or as outlined in the Cultural Resources Management Plan (CRMP). If avoidance of NRHP- or CRHR-eligible resources is not feasible, SCE would prepare and submit a Historic Properties Treatment Plan (HPTP) to outline the treatment of cultural resources that cannot be avoided. The HPTP would be submitted to the appropriate agencies for review and approval. All treatment measures outlined in the HPTP would be implemented at least 30 days before the start of construction.
APM-CUL-02: Cultural Resources Survey	SCE would perform surveys prior to construction for any Proposed Project areas not yet surveyed (e.g., new or modified staging areas, pull sites, or other work areas). Resources discovered during the surveys would be subject to APM-CUL-03.
APM-CUL-03: CRMP	SCE would prepare and submit for approval a CRMP to guide all cultural resource management activities during Proposed Project construction. Management of cultural resources would follow the standards and guidelines established by the NPS for implementing Section 106 of the National Historic Preservation Act ("Archeology and Historic Preservation; Secretary of the Interior's Standards and Guidelines," 48 Federal Register 190 [29 September 1983], pp. 44716-44742). The CRMP would be submitted to the BLM for review and approval at least 30 days before the start of construction. The CRMP would define and map all known or assumed eligible NRHP and CRHR properties in or within 100 feet of the Proposed Project Area of Potential Effect and would identify the cultural values that contribute to their NRHP and CRHR eligibility. A cultural resources protection plan would be included that details how NRHP- and CRHR-eligible properties would be avoided and protected during construction. Measures would include, at a minimum, designation and marking of ESAs, archaeological monitoring, personnel training, and effectiveness reporting. The plan would detail the measures to be used; how, when, and where they would be implemented; and how protective measures and enforcement would be coordinated with construction personnel. The CRMP would also define any additional areas that are considered to be of high sensitivity for the discovery of buried NRHP- and CRHR-eligible cultural resources, including burials, cremations, or sacred features. The CRMP would detail provisions for monitoring construction in these high-sensitivity areas. It would also detail procedures for halting construction; making appropriate notifications to agencies, officials, and Native Americans; and assessing NRHP and CRHR eligibility in the event that unknown cultural resources are discovered during construction. For all unanticipated cultural resource discoveries, the CRMP would detail the methods, the consultation procedures, and the timelines for assessing NRHP and CRHR eligibility, formulating a mitigation plan, and implementing treatment. Mitigation and treatment plans for unanticipated discoveries would be reviewed by the appropriate Native Americans and approved by the BLM, and the Office of Historic Preservation (OHP) prior to implementation. The CRMP would include provisions for analysis of data in a regional context, reporting of results within one year of the completion of field studies, curation of artifacts (except from private land) and data (e.g., maps, field notes, archival materials, recordings, reports, photographs, and analysts' data) at a facility that is approved by the BLM, and dissemination of reports to local and State repositories, libraries, and interested professionals. The BLM would retain ownership of artifacts collected from BLM-managed lands. SCE would attempt to gain permission for artifacts from privately held land to be curated with the other project collections. The CRMP would specify that archaeologists and other discipline specialists conducting the studies must meet the Professional Qualifications Standards mandated by the OHP.
APM-CUL-04: Paleontological Resource Mitigation and Monitoring Plan	SCE would prepare and submit to the BLM for review and approval a Paleontological Resources Mitigation and Monitoring Plan (PRMMP) that is consistent with the following requirements: ▪ The PRMMP would be prepared by a qualified paleontologist, would be based on Society of Vertebrate Paleontology guidelines, and would meet all regulatory requirements. The qualified paleontologist

Table 4-18. Applicant-Proposed Measures

APM	Description
	would have a master's degree or a Doctor of Philosophy in paleontology, would have knowledge of the local paleontology, and would be familiar with paleontological procedures and techniques. ▪ The PRMMP would include a site-specific investigation to identify construction impact areas of moderate (Potential Fossil Yield Classification [PFYC] 3a) to very high (PFYC 5) sensitivity for encountering significant resources and the approximate depths where those resources are likely to be encountered for each Proposed Project component. ▪ The PRMMP would require the qualified paleontological monitor to monitor all construction-related ground disturbance in sediments determined to have a moderate (PFYC 3a) to very high (PFYC 5) sensitivity. ▪ The PRMMP would define monitoring procedures and methodology and would specify that sediments of undetermined sensitivity must be monitored on a part-time basis (as determined by the qualified paleontologist). Sediments with very low or low sensitivity would not require paleontological monitoring. The qualified paleontological monitor would have at least a Bachelor of Science degree in geology or paleontology, as well as demonstrated field experience in the collection and identification of fossil material. ▪ The PRMMP would state which resources would be avoided and which would be recovered for their data potential. Where possible, recovery is preferred over avoidance in order to mitigate the potential for looting of paleontological resources. The PRMMP would also detail methods of recovery, preparation and analysis of specimens, final curation of specimens at a federally accredited repository, data analysis, and reporting. ▪ The PRMMP would specify that all paleontological work undertaken by SCE on public lands managed by the BLM would be carried out by qualified, permitted paleontologists with the appropriate current paleontological resources use permit.
APM-NOI-01: Duration of Helicopter Use	Active helicopter operation at landing zones within 700 feet of occupied residences would be limited to 2 hours per day. Helicopter use may be extended if required to ensure that electrical service is maintained for customers or for safety reasons.
APM-NOI-02: Helicopter Use in Residential Areas	Helicopters would be required to maintain a height of at least 500 feet when passing over residential areas, except at temporary construction areas or when actively assisting with conductor stringing. All helicopters would be required to maintain a lateral distance of at least 500 feet from all schools.
APM-TCR-01: Tribal Monitoring	An archaeological monitor, and tribal monitor that is culturally affiliated with the project area, may be present for all ground-disturbing activities within or directly adjacent to previously identified TCR(s) and prehistoric resources as outlined in the CRMP. The archaeological and tribal monitors will consult the CRMP to determine when to increase or decrease the monitoring effort should the monitoring results indicate a change is warranted. Monitoring reports shall be prepared and submitted to the BLM and CPUC on a monthly basis.
APM-TCR-02: Tribal Engagement Plan	A tribal engagement plan shall be prepared, which will detail how Native American tribes will be engaged and informed throughout the proposed project. The tribal engagement plan will be included in the CRMP (APM CUL-1).

Biological resources in the vicinity of the Proposed Project are presented in detail in Section 5.4, Biological Resources. The following biological surveys would occur prior to construction:

- Nesting bird surveys
- Burrowing owl surveys
- Desert tortoise surveys

A clearance field survey would be conducted by a qualified botanist and wildlife biologist no more than 30 days prior to the start of construction in a particular area to identify potential plant and animal species that may be affected by construction activities. Clearance surveys would be limited to areas directly impacted by construction activities.

Cultural resources in the vicinity of the Proposed Project are presented in detail in Section 5.5, Cultural Resources.

Worker Environmental Awareness Training

Prior to construction, a Worker Environmental Awareness Program (WEAP) would be developed for agency approval. A presentation would be prepared by SCE and used to train all site personnel prior to the commencement of work. A record of all trained personnel would be kept. In addition to instruction on compliance with any additional APMs and Proposed Project mitigation measures, all construction personnel would also receive the following:

- A list of phone numbers of SCE environmental specialist personnel associated with the Proposed Project (e.g., archaeologist, biologist, environmental coordinator, and regional spill response coordinator)
- Instruction on the Mojave Desert Air Quality Management District and Clark County Department of Air Quality fugitive dust rules
- A description of applicable noise construction time and/or noise level limits
- A review of applicable local, State, and federal ordinances; laws and regulations pertaining to historic and paleontological preservation; a discussion of disciplinary and other actions that could be taken against persons violating historic and paleontological preservation laws and SCE policies; a review of paleontology, archaeology, history, prehistory, and Native American cultures associated with historical and paleontological resources in the Proposed Project vicinity, inclusive of instruction on what typical cultural and paleontological resources look like; and instruction that if discovered during construction, work is to be suspended in the vicinity of any find, and the site foreman and SCE Project Archaeologist or environmental compliance coordinator are to be contacted for further direction
- Instruction on the roles of environmental monitors (i.e., biological, cultural, and paleontological), if present, and the appropriate treatment by on-site personnel of areas designated as Environmentally Sensitive Areas
- Instruction on the importance of maintaining the construction site inclusive of ensuring all food scraps, wrappers, food containers, cans, bottles, and other trash from the Proposed Project area would be deposited in closed trash containers; trash containers would be removed from the Proposed Project as required and would not be permitted to overfill
- Instruction on the individual responsibilities under the Clean Water Act, the Proposed Project SWPPPs, site-specific BMPs, and the location of Safety Data Sheets for the Proposed Project
- Instructions to notify the foreman and regional spill response coordinator in case of a hazardous materials spill or leak from equipment, or upon the discovery of soil or groundwater contamination
- Instructions to cover all holes/trenches at the end of each day
- A copy of the truck routes to be used for material delivery
- Instruction that non-compliance with any laws, rules, regulations, or mitigation measures could result in being barred from participating in any remaining construction activities associated with the Proposed Project

Traffic Control

Construction activities completed within public street ROWs would require the use of a traffic control service, and all lane closures would be conducted in accordance with applicable requirements. These traffic control measures would be consistent with those published in the *California Joint Utility Traffic Control Manual* (California Inter-Utility Coordinating Committee, 2010).

4.10 Electric and Magnetic Fields

The CPUC recognizes that there is public interest and concern regarding potential health effects that could result from exposure to electric and magnetic fields (EMF) from power lines; therefore, this subsection provides information regarding EMF associated with electric utility facilities and the potential effects of the Proposed Project related to public health and safety. Potential health effects from exposure to ***electric fields*** from power lines (produced by the existence of an electric charge, such as an electron, ion, or proton, in the volume of space or medium that surrounds it) are typically not of concern since electric fields are effectively shielded by materials such as trees, walls, etc. Therefore, the majority of the following information related to EMF focuses primarily on exposure to ***magnetic fields*** (invisible fields created by moving charges) from power lines.

Magnetic fields can be reduced either by cancellation or by increasing distance from the source. Cancellation is achieved in two ways. A transmission line circuit consists of three "phases" associated with three separate wires (conductors), usually on an overhead tower. The configuration of these three conductors can directly influence the strength of the magnetic field. When the configuration places the three conductors closer together, the interference or cancellation of the fields from each wire is enhanced, and the magnetic field is reduced. This technique has practical limitations because of the potential for short circuits if the wires are placed too close together. Close conductor spacing can also create worker safety concerns because there is a risk of workers contacting energized conductors during maintenance.

This environmental document does not consider magnetic fields in the context of CEQA and a determination of environmental impact. This is because (a) there is no agreement among scientists that EMF does create a potential health risk, and therefore, (b) there are no defined or adopted CEQA standards for defining health risk from EMF. As a result, EMF information is presented for the benefit of the public and decisionmakers.

After several decades of study regarding potential public health risks from exposure to power line EMF, research results remain inconclusive. Several national and international panels have conducted reviews of data from multiple studies and state that there is not sufficient evidence to conclude that EMF causes cancer. The International Agency for Research on Cancer (IARC), an agency of the World Health Organization (WHO), and the California Department of Health Services (DHS) both classify EMF as a possible carcinogen (WHO, 2001; DHS, 2002).

In addition, the 2007 WHO [Environmental Health Criteria (EHC) 238] report concluded that:

- Evidence for a link between Extremely Low Frequency (ELF, 50–60 Hz) magnetic fields and health risks is based on epidemiological studies demonstrating a consistent pattern of increased risk for childhood leukemia. However, "…virtually all of the laboratory evidence and the mechanistic evidence fail to support a relationship between low-level ELF magnetic fields and changes in biological function or disease status.... the evidence is not strong enough to be considered causal but sufficiently strong to remain a concern."
- "For other diseases, there is inadequate or no evidence of health effects at low exposure levels."

Currently, there are no applicable regulations related to EMF levels from power lines or substations. However, following a California Public Utilities Commission (CPUC) decision from 1993 (Decision [D.]93-11-013) that was reaffirmed by the CPUC on January 27, 2006 (D.06-01-042), the CPUC requires utilities to incorporate "low-cost" or "no-cost" measures to mitigate EMF from new or **upgraded electrical utility facilities** up to approximately 4 percent of total project cost. To comply with this requirement, SCE developed and included a Field Management Plan as part of the application for the Proposed Project to reduce magnetic field levels in the vicinity of the transmission lines and other Proposed Project components.

EMF in the Proposed Project Area

Magnetic field strength is a function of both the electric current carried by the wires, and the configuration and design of the three conductors that together form a single circuit of an electric transmission line. Magnetic field strengths for typical transmission power line loads at the edge of an *overhead* transmission system right-of-way generally range from 10 to 30 milligauss (mG) (NIEHS, 2002). Exposure to EMF occurs in the community from sources other than electric transmission lines. Research on ambient magnetic fields in homes indicates that levels below 0.6 mG could be found in half of the studied homes in the centers of rooms, and that the average levels in the homes away from electrical appliances was 0.9 mG. Immediately adjacent to appliances (within 12 inches), field values are much higher, for example: 4 to 8 mG near electric ovens and ranges, 20 mG for portable heaters, or 60 mG for vacuum cleaners (NIEHS, 2002). Outside of the home, the public also experiences EMF exposure from the electric distribution system that is located throughout all areas of the community.

Existing EMF levels along SCE's existing 500 kilovolt (kV) transmission and 115 kV subtransmission corridors vary with loading conditions, which vary with time of the day, season of the year, and operating conditions. The stated purpose of the series capacitors to be constructed as part of the Proposed Project is to increase the power flow over the existing transmission lines. Therefore, the magnetic field would increase in the project area.

Field Management Plan for the Proposed Project

This section discusses SCE's general practices regarding EMF and the specific EMF reduction measures proposed by SCE for the Proposed Project. SCE's Field Management Plan is included with the application as Appendix F. The amended application for a CPCN, including Appendix F, is available on line at http://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M283/K484/283484103.PDF

SCE's Field Management Plan includes the reasons for adopting or not adopting each of the "no cost" and "low cost" design options available for components of the Proposed Project, see Appendix F of the application.

In its present form, SCE's Field Management Plan does not quantitatively or qualitatively address the increase in magnetic field that would occur all along the three segments of existing 500 kV transmission line due to the installation and use of the proposed series capacitors.

SCE's EMF Design Guidelines. In accordance with Section X(A) of CPUC General Order 131-D, Decision No. D.06-01-042, and SCE's EMF Design Guidelines prepared in accordance with the EMF Decision, SCE would implement certain "no cost" magnetic field reduction design options with the Proposed Project, identified in SCE's Field Management Plan.

SCE's guidelines (2006) call for implementation of measures to reduce magnetic fields based on the land uses surrounding each project, in the following priority:

- Schools, day care centers, hospitals
- Residential properties
- Commercial/industrial land uses
- Recreational sites
- Agricultural lands
- Undeveloped land

Common magnetic field reduction options SCE utilizes to comply with the CPUC EMF Policy include the following measures, any or all of which may be selected to reduce the magnetic field strength levels from the proposed transmission line:

- Increasing the distance from electrical facilities by:
  - Increasing pole (structure) height,
  - Increasing the width of right-of-way, and/or
  - Locating power lines closer to the centerline of the corridor.
- Reducing conductor (phase) spacing.
- Arranging conductors to reduce magnetic field.
- Converting single-phase circuits to split-phase circuits.

Proposed EMF Reduction Measures. The Field Management Plan SCE prepared for the Proposed Project (Provided in SCE's Application as Appendix F) includes the following "no cost" magnetic field reduction options:

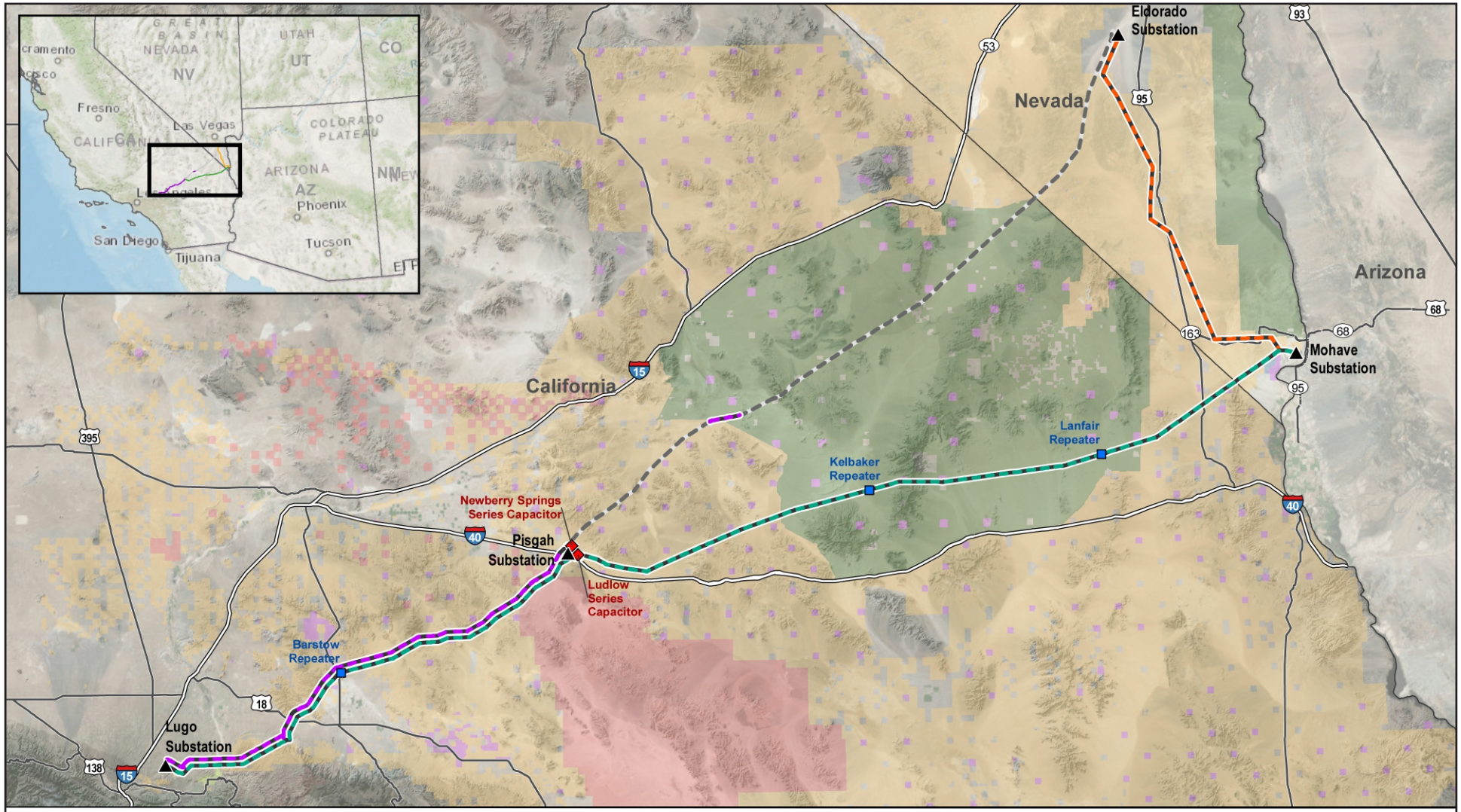
- Proposed substation and mid-line capacitors work:
  - Install mid-line series capacitors in undeveloped areas.
  - Place substation series capacitors away from the substation property lines.
- Proposed 500 kV transmission line work:
  - Utilize taller structure heights in areas with potential overhead discrepancies.
  - Relocate underbuilt distribution circuits on 115 kV structures.
  - Increase conductor ground clearance.
- Proposed 115 kV subtransmission line work:
  - No Proposed Project components would occur near population.

Additional information regarding EMF and the Proposed Project can be found in Appendix F of SCE's Application (A.18-05-007). If the project or an alternative that is approved by the CPUC differs from the preliminary engineering represented in the application, then SCE would prepare and submit to the CPUC an Addendum to the Field Management Plan containing the precise EMF measures to be employed for the project.

4.11 References

SCE (Southern California Edison). 2018. Eldorado-Lugo-Mohave Series Capacitor Project: Proponent's Environmental Assessment (PEA). Volumes 1 through 8. April. http://www.cpuc.ca.gov/environment/info/aspen/elm/toc-pea.htm.

SoCalGas (Southern California Gas). 2019a. Gas Transmission Pipeline Interactive Map – San Bernardino, Pipeline locations in San Bernardino County. http://socalgas.maps.arcgis.com/apps/webappviewer/index.html?id=faeed481312f4e5fb056f739ff169e02. Accessed May 6, 2019.



Source: SCE, 2017.

0 25 50

Scale in Miles

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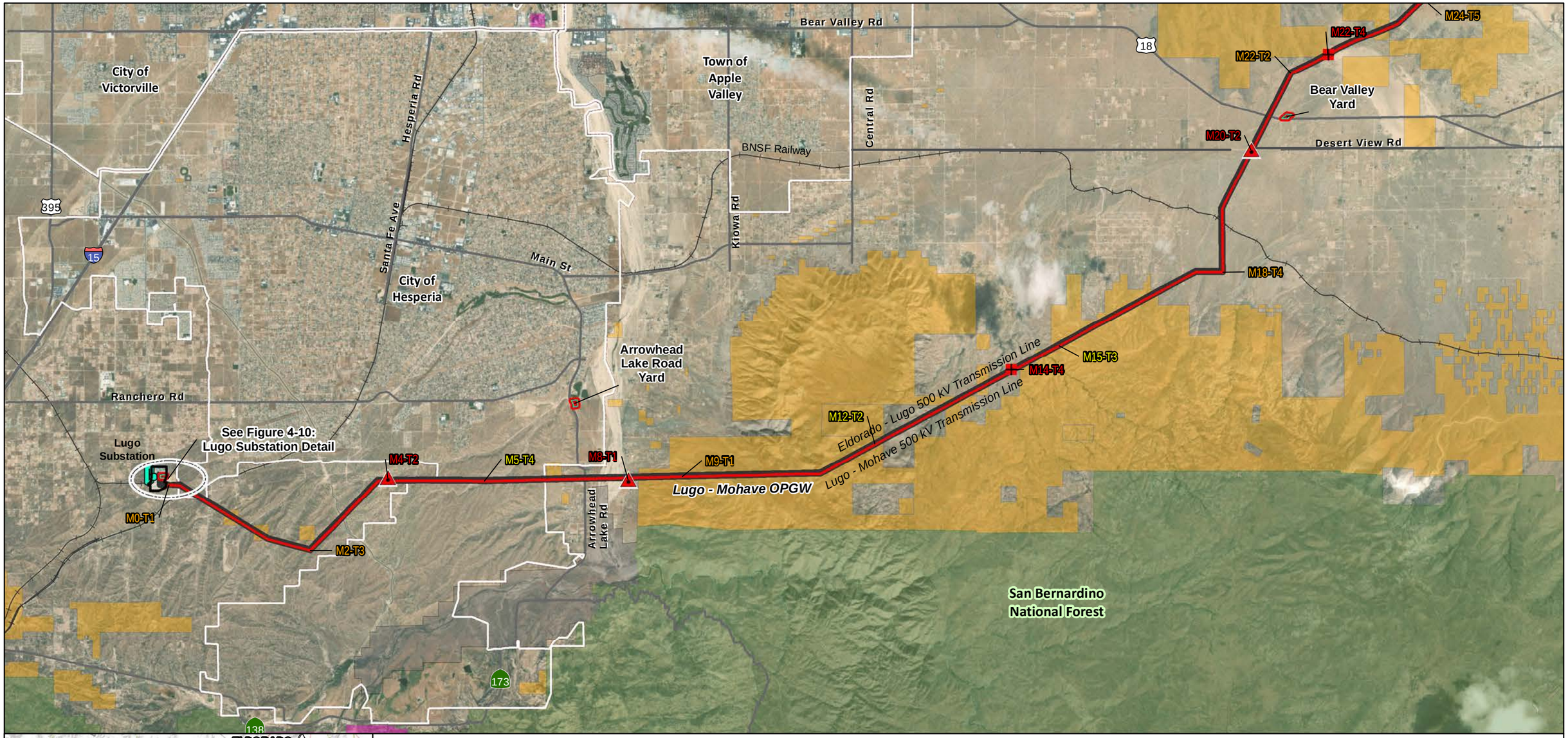
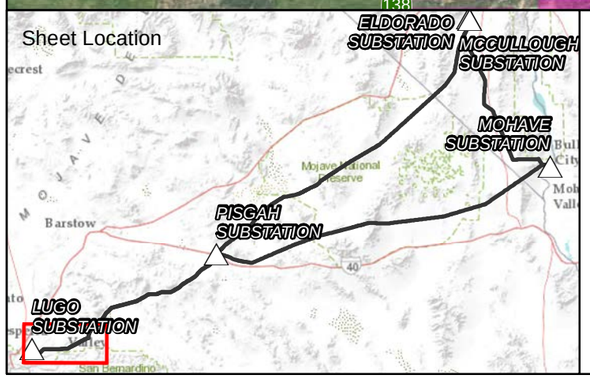
Figure 4-1.

Proposed Project Regional Overview Map





Existing Transmission Line
Existing Yard
Temporary Yard
New OPGW

Discrepancy Work
Raise Tower
Other

Jurisdiction
Bureau of Land Management
State Lands
Dept. of Defense
US Forest Service

Source: SCE, 2018

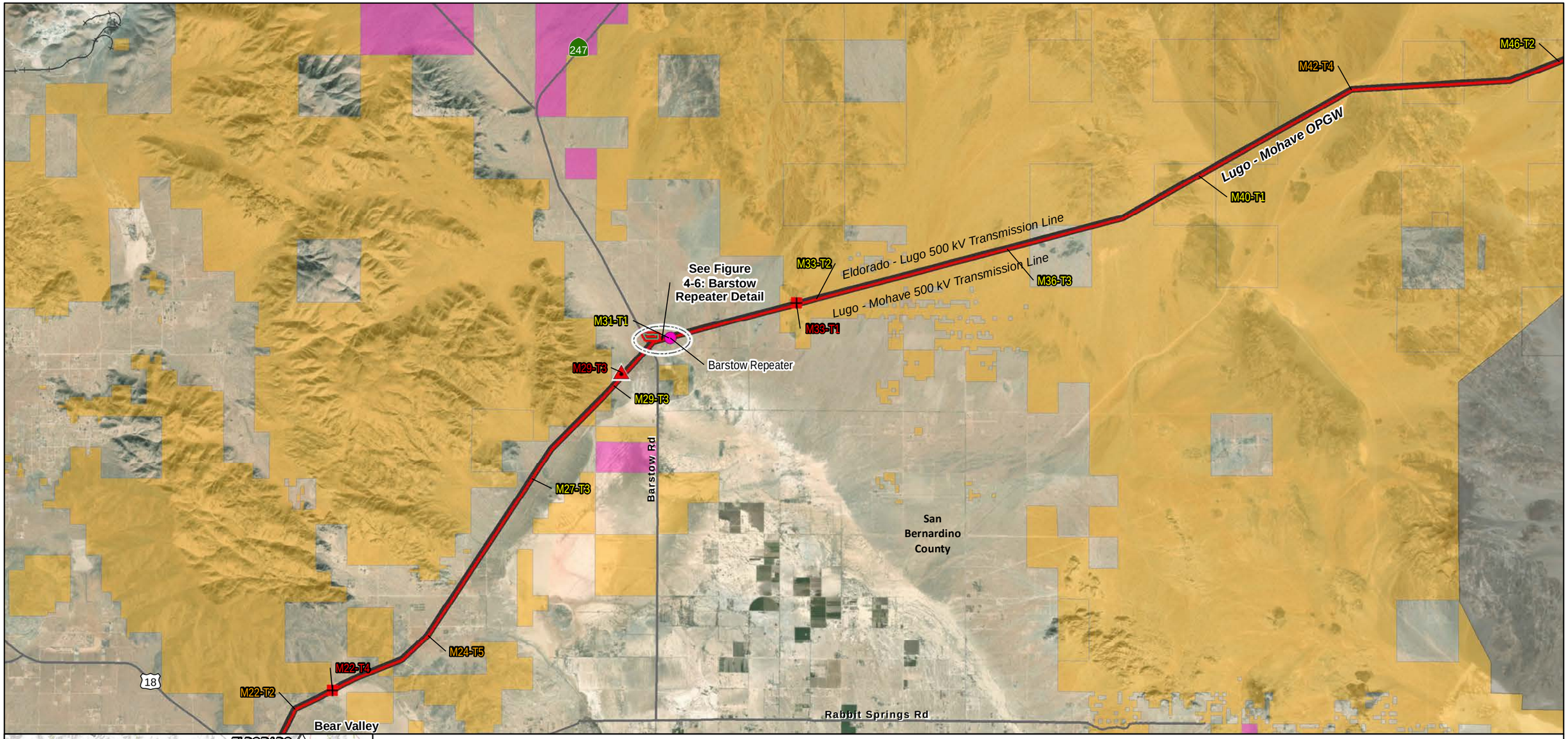
Figure 4-2.

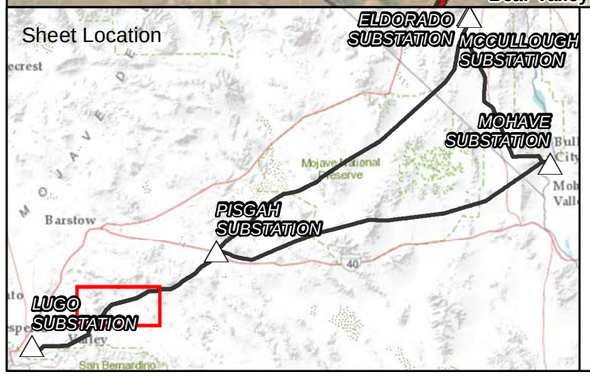
Project Overview

Sheet 1

N

0 1 2
Scale in Miles





Existing Transmission Line
Temporary Yard
Repeater Site
New OPGW

Discrepancy Work
Raise Tower
Other

Jurisdiction
Bureau of Land Management
State Lands
Dept. of Defense

Source: SCE, 2018

Figure 4-2.

Project Overview

Sheet 2

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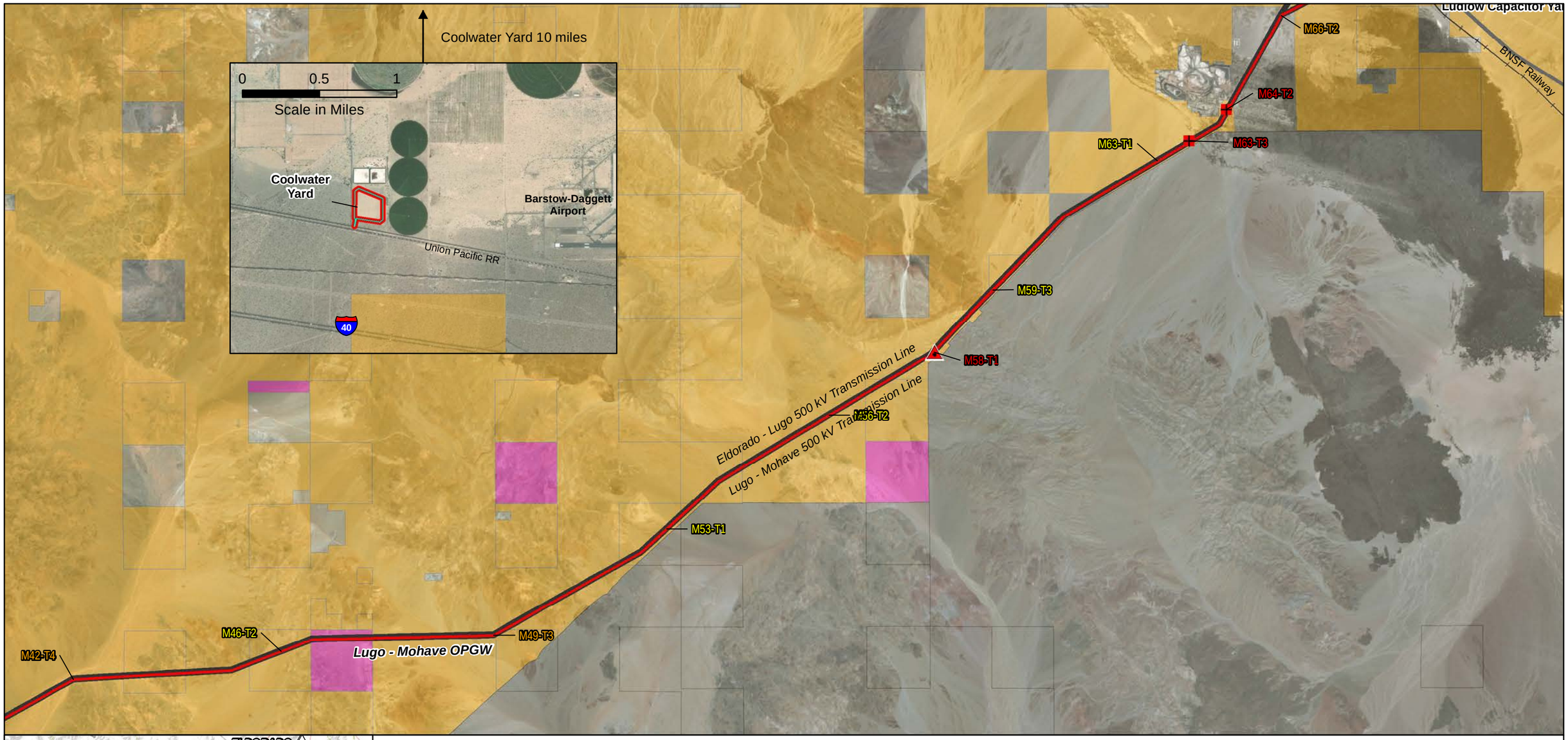
Scale in Miles



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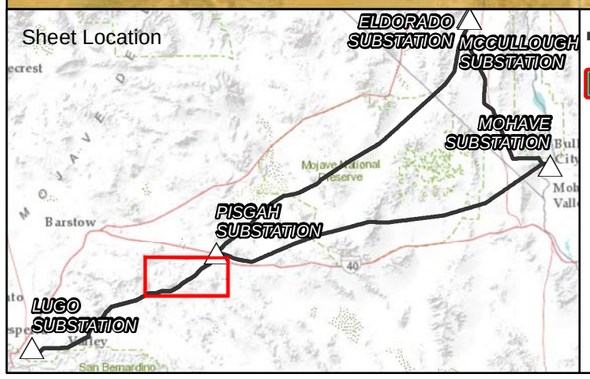


Existing Transmission Line

Temporary Yard

OPGW Work

- OPGW Modification and Splicing Tower
- OPGW Splicing Only Tower
- New OPGW

Discrepancy Work

- Raise Tower
- Other

M58-T1: Modify Conductor

Jurisdiction

- Bureau of Land Management
- State Lands
- Dept. of Defense

Source: SCE, 2018

Figure 4-2.

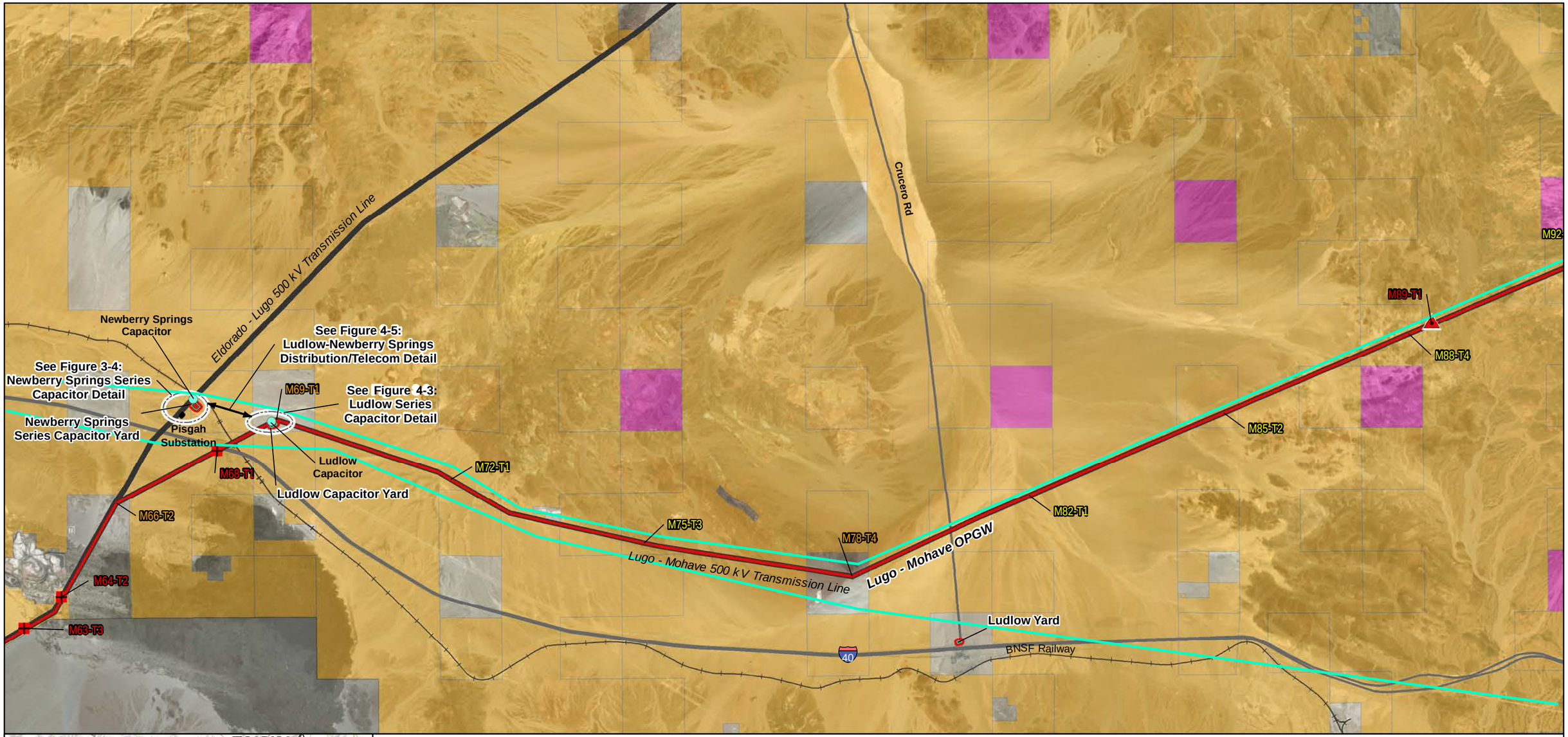
Project Overview

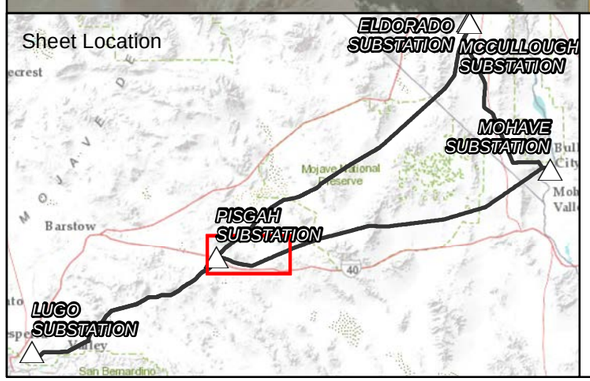
Sheet 3

N

0 1 2

Scale in Miles





Existing Transmission Line
Capacitor
Temporary Yard
New OPGW

Discrepancy Work

Raise Tower
Other

Jurisdiction

Bureau of Land Management
State Lands
Dept. of Defense

Approximate Location of Natural Gas Pipeline

Sources: SCE, 2018 and SoCalGas, 2019

Figure 4-2.

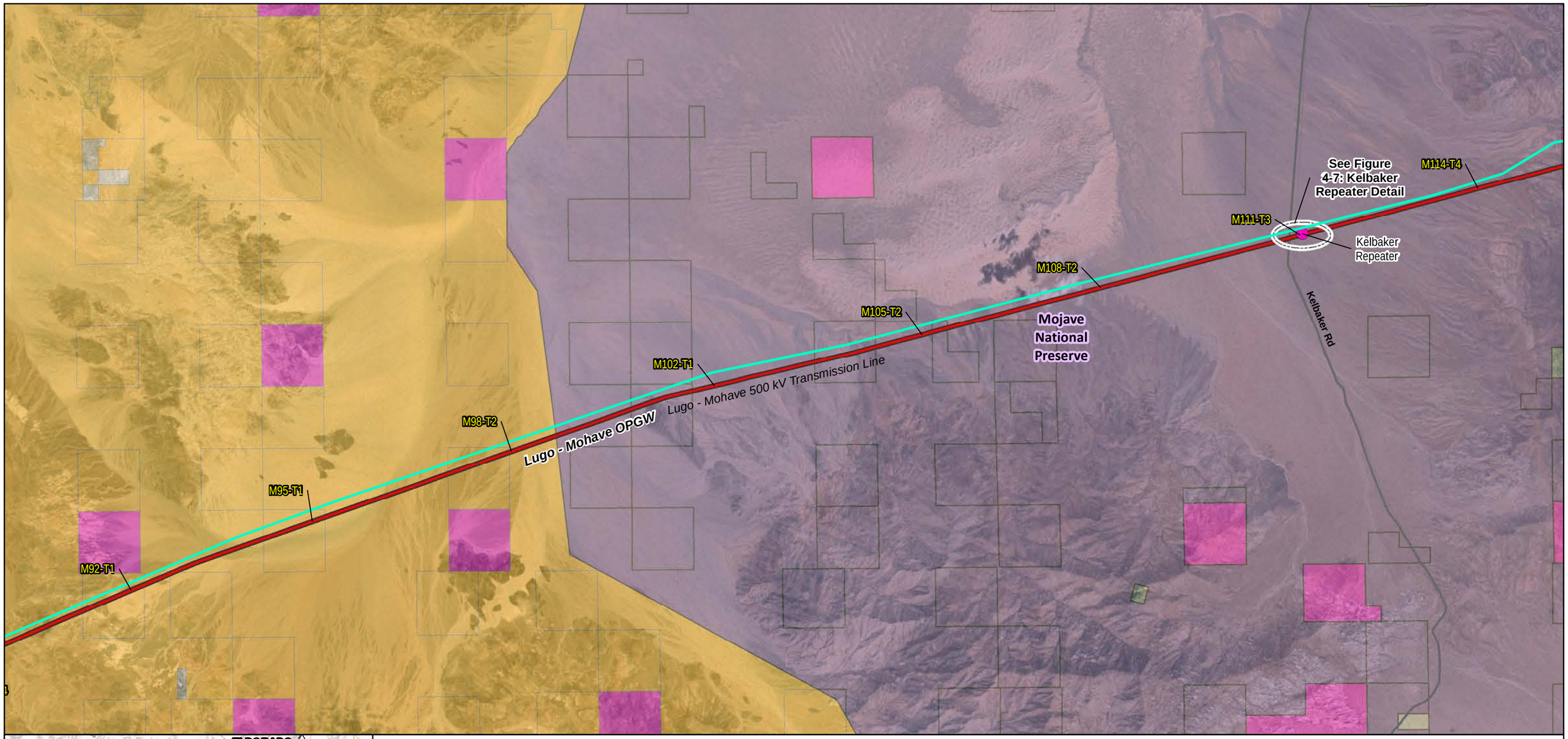
Project Overview

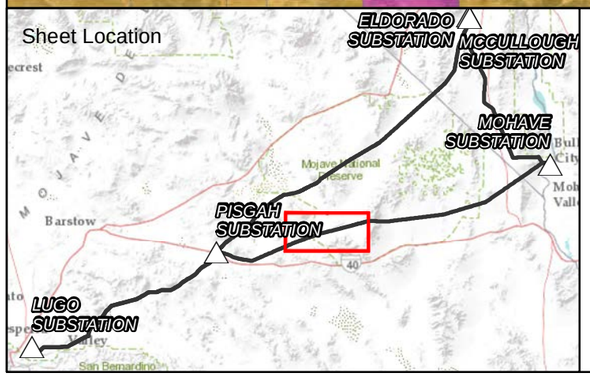
Sheet 4

N

0 1 2

Scale in Miles





Existing Transmission Line
Repeater Site
New OPGW

Jurisdiction

Bureau of Land Management
State Lands
National Park Service

Approximate Location of Natural Gas Pipeline

Sources: SCE, 2018 and SoCalGas, 2019

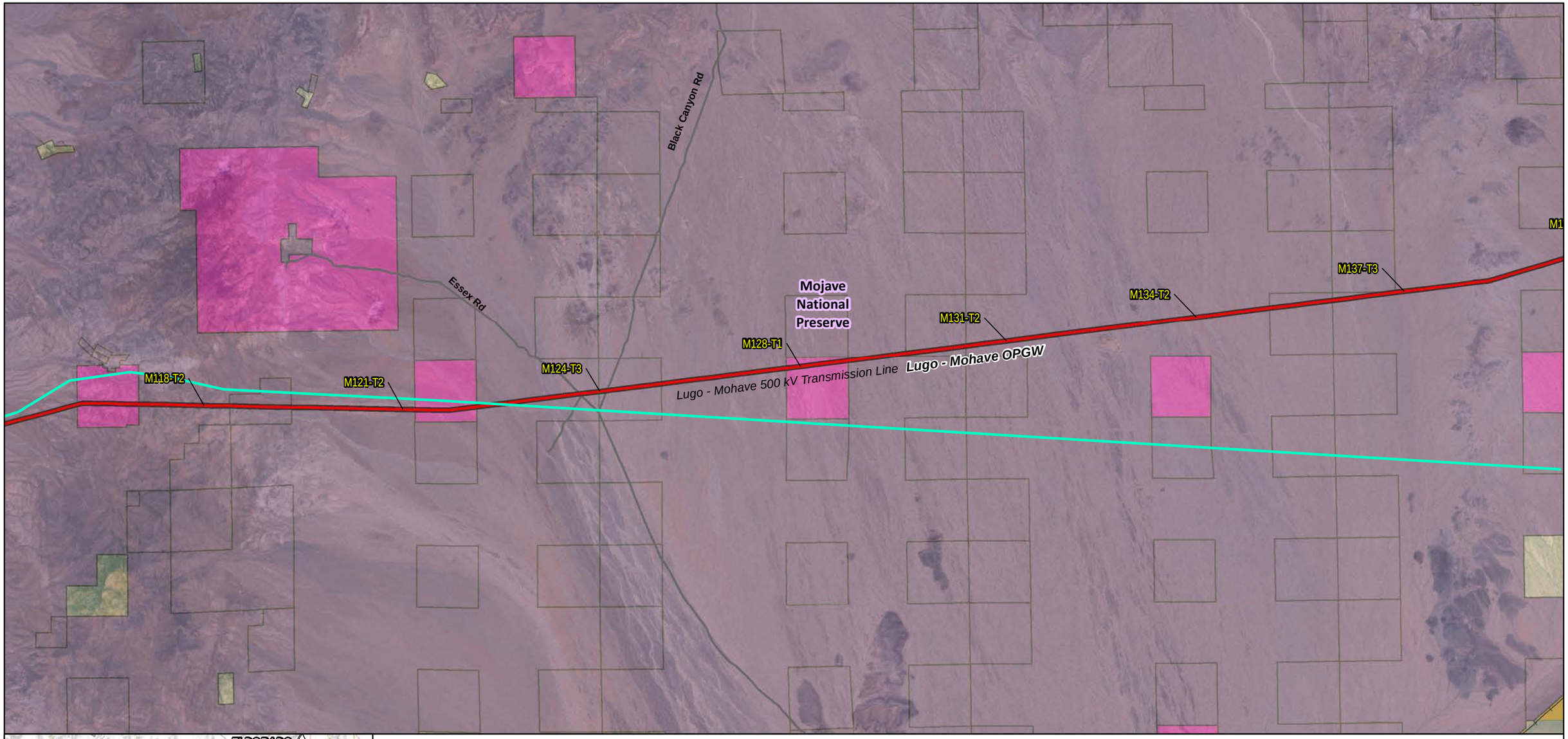
N

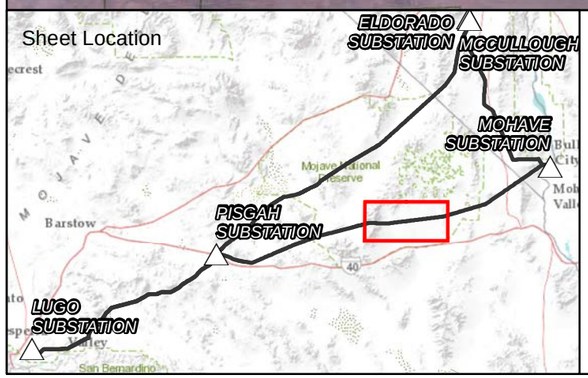
0 1 2
Scale in Miles

Figure 4-2.

Project Overview

Sheet 5





Existing Transmission Line

New OPGW

Jurisdiction

Bureau of Land Management

State Lands

National Park Service

Approximate Location of Natural Gas Pipeline

Sources: SCE, 2018 and SoCalGas, 2019

N

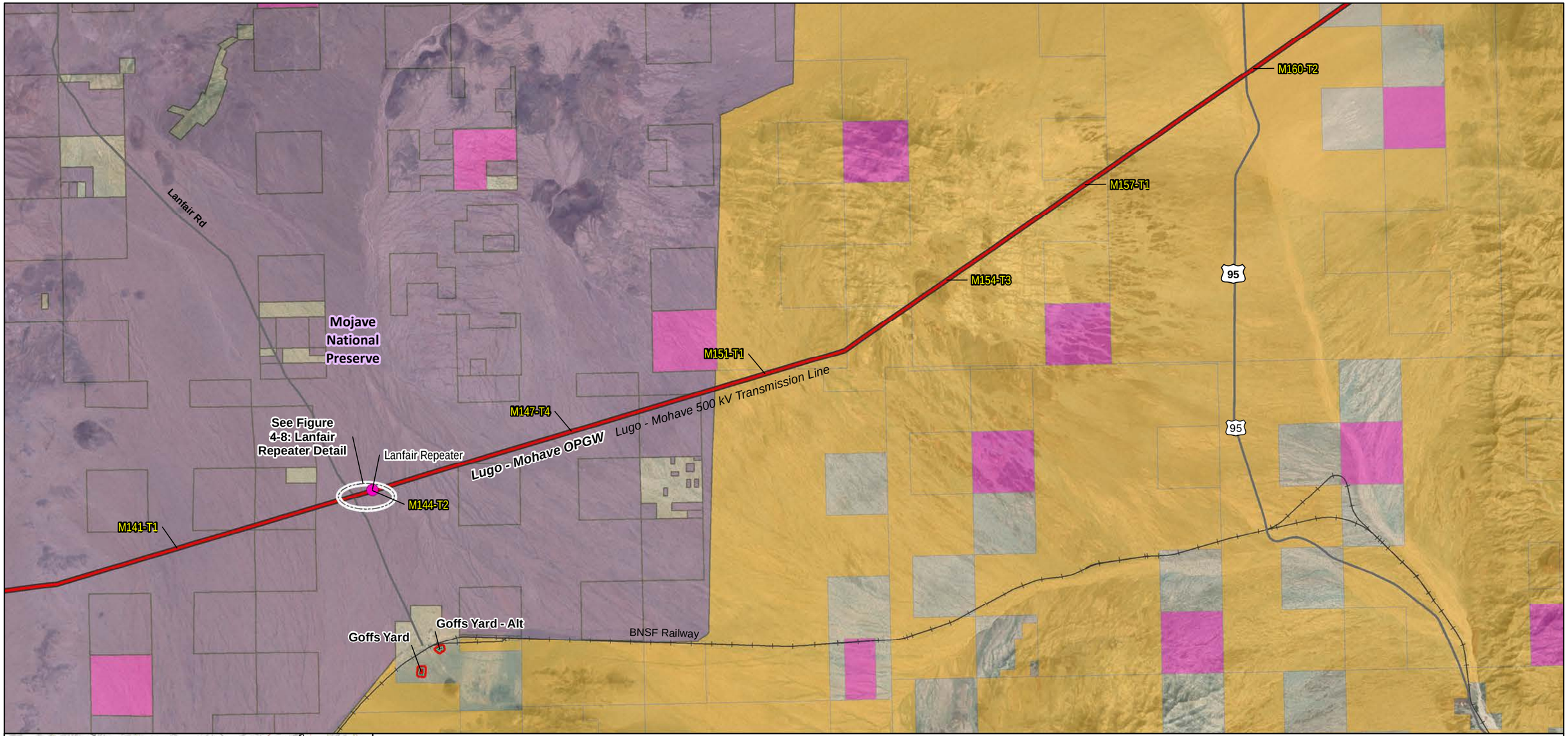
0 1 2

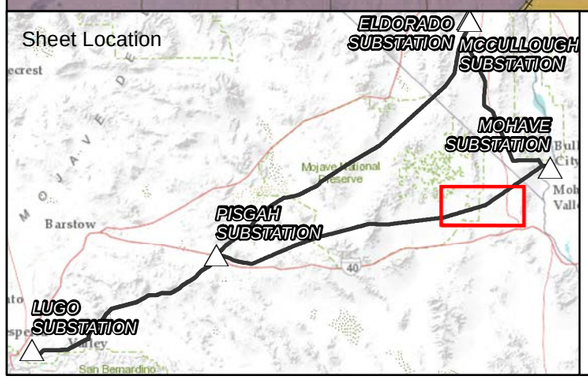
Scale in Miles

Figure 4-2.

Project Overview

Sheet 6





Existing Transmission Line
Temporary Yard
Repeater Site
New OPGW

Jurisdiction

Bureau of Land Management
State Lands
National Park Service

Source: SCE, 2018

Figure 4-2.

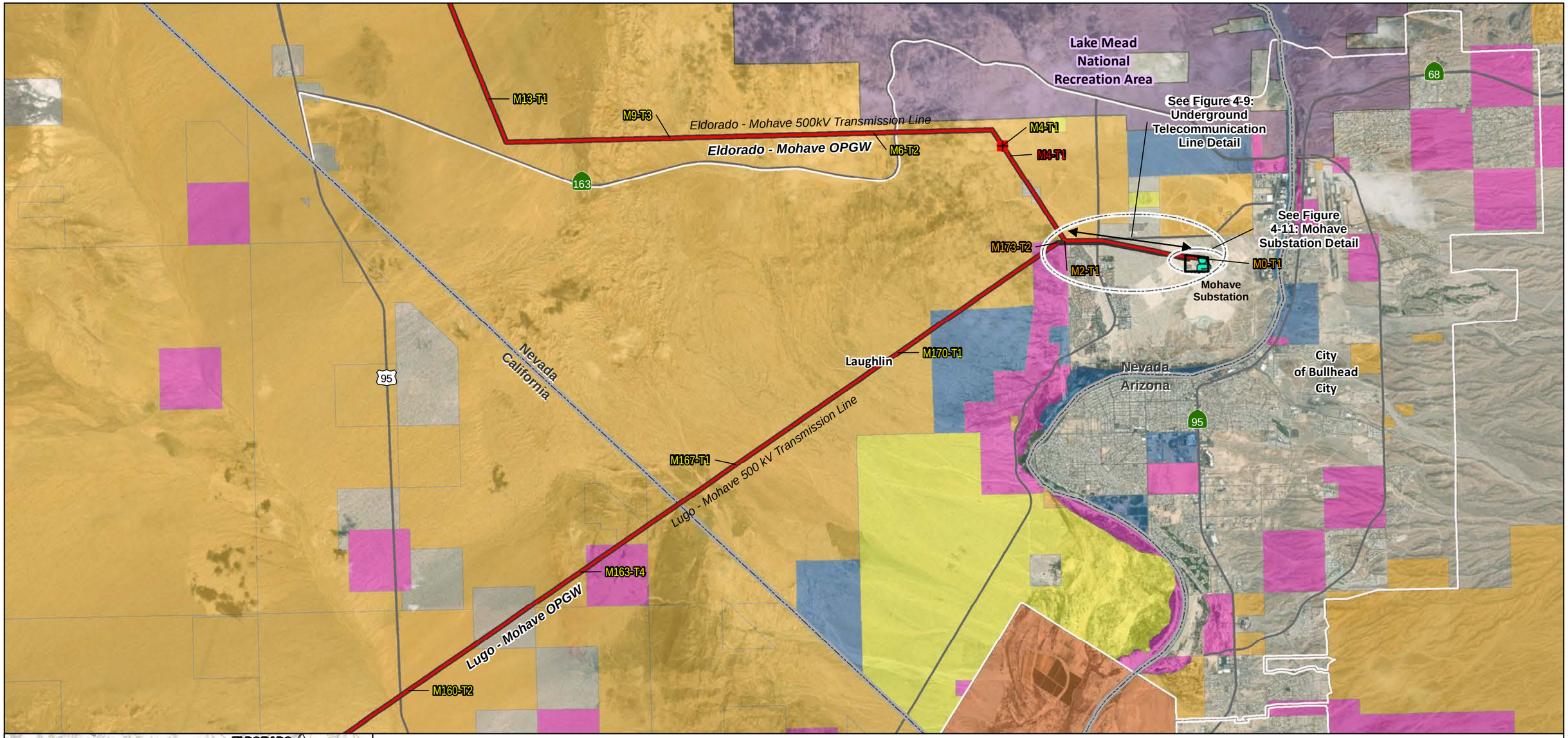
Project Overview

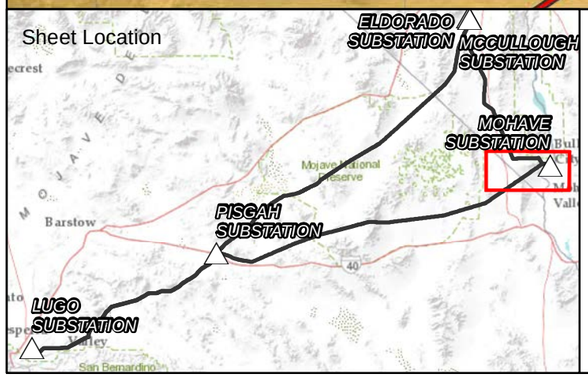
Sheet 7

N

0 1 2

Scale in Miles





Existing Transmission Line
Existing Yard
New OPGW

Discrepancy Work

Raise Tower

Jurisdiction

Bureau of Indian Affairs
Bureau of Land Management
Bureau of Reclamation
State Lands
County
National Park Service

Source: SCE, 2018

Figure 4-2.

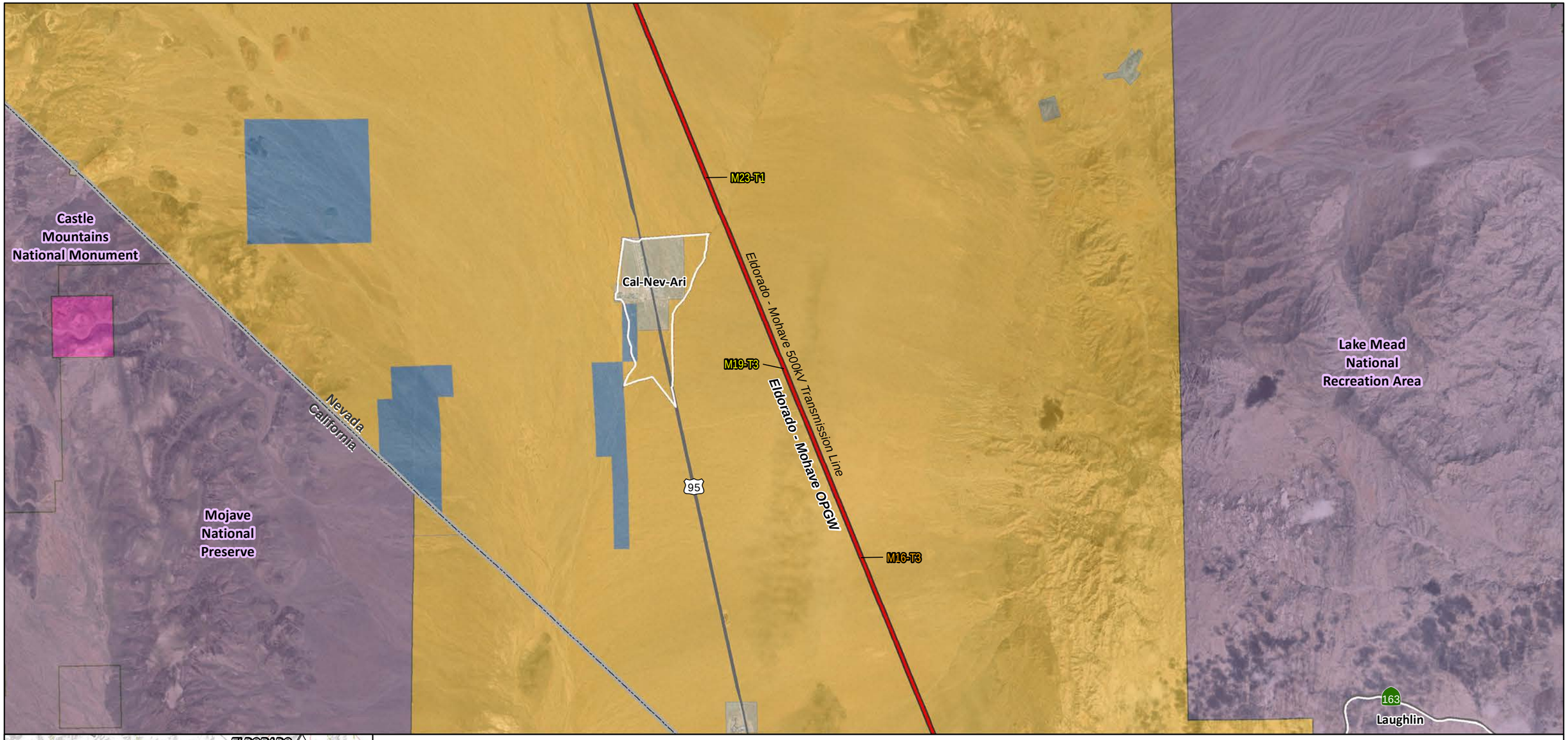
Project Overview

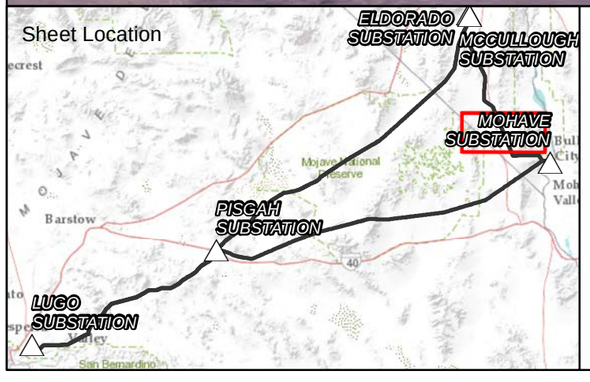
Sheet 8

N

0 1 2

Scale in Miles





Existing Transmission Line

New OPGW

Jurisdiction

- Bureau of Land Management
- Bureau of Reclamation
- State Lands
- National Park Service

Source: SCE, 2018

Figure 4-2.

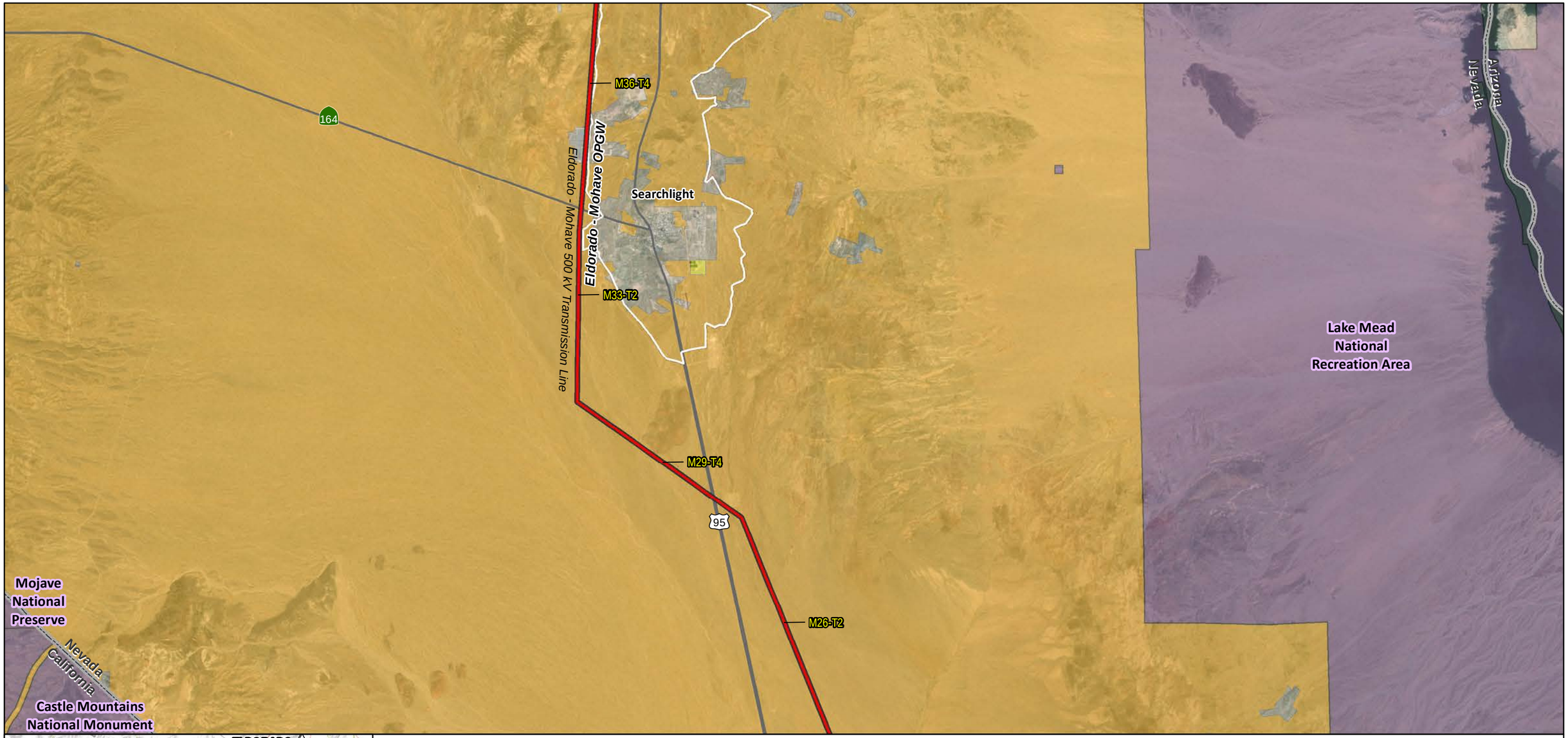
Project Overview

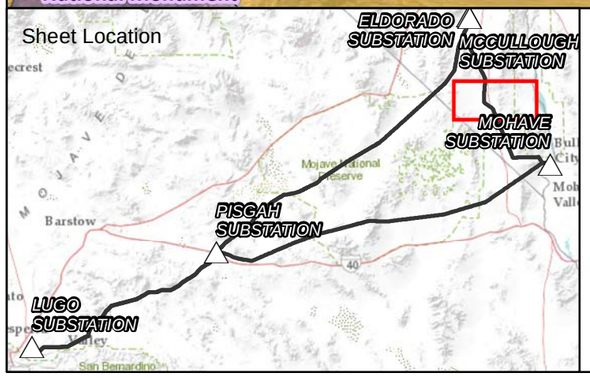
Sheet 9

N

0 1 2

Scale in Miles





Existing Transmission Line

New OPGW

Jurisdiction

Bureau of Land Management

County

National Park Service

Source: SCE, 2018

Figure 4-2.

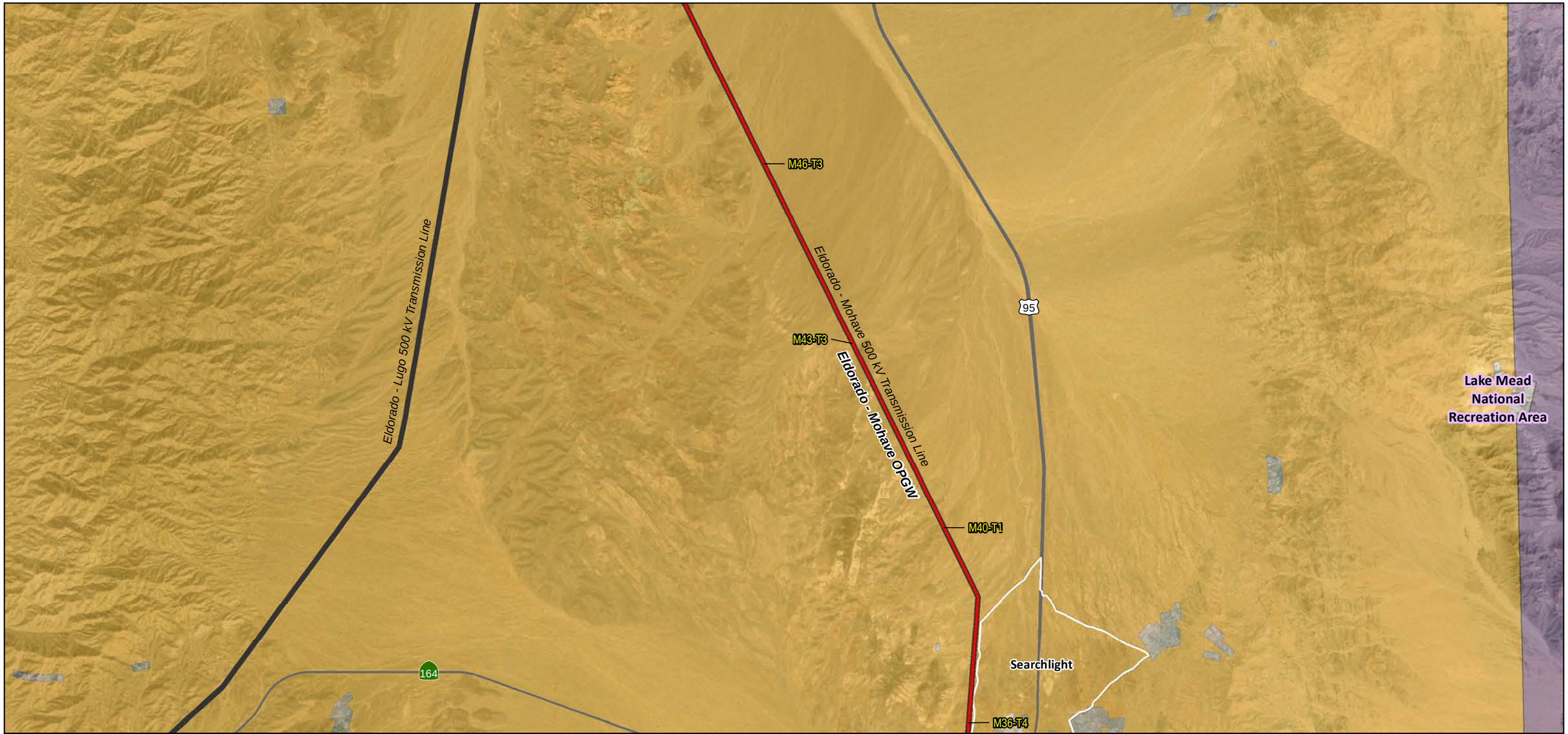
Project Overview

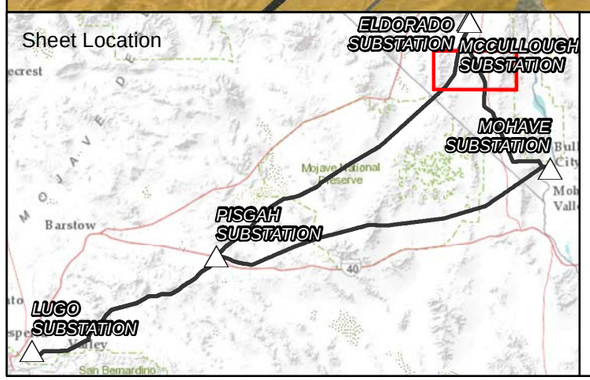
Sheet 10

N

0 1 2

Scale in Miles





Existing Transmission Line

New OPGW

Jurisdiction

Bureau of Land Management

National Park Service

Source: SCE, 2018

Figure 4-2.

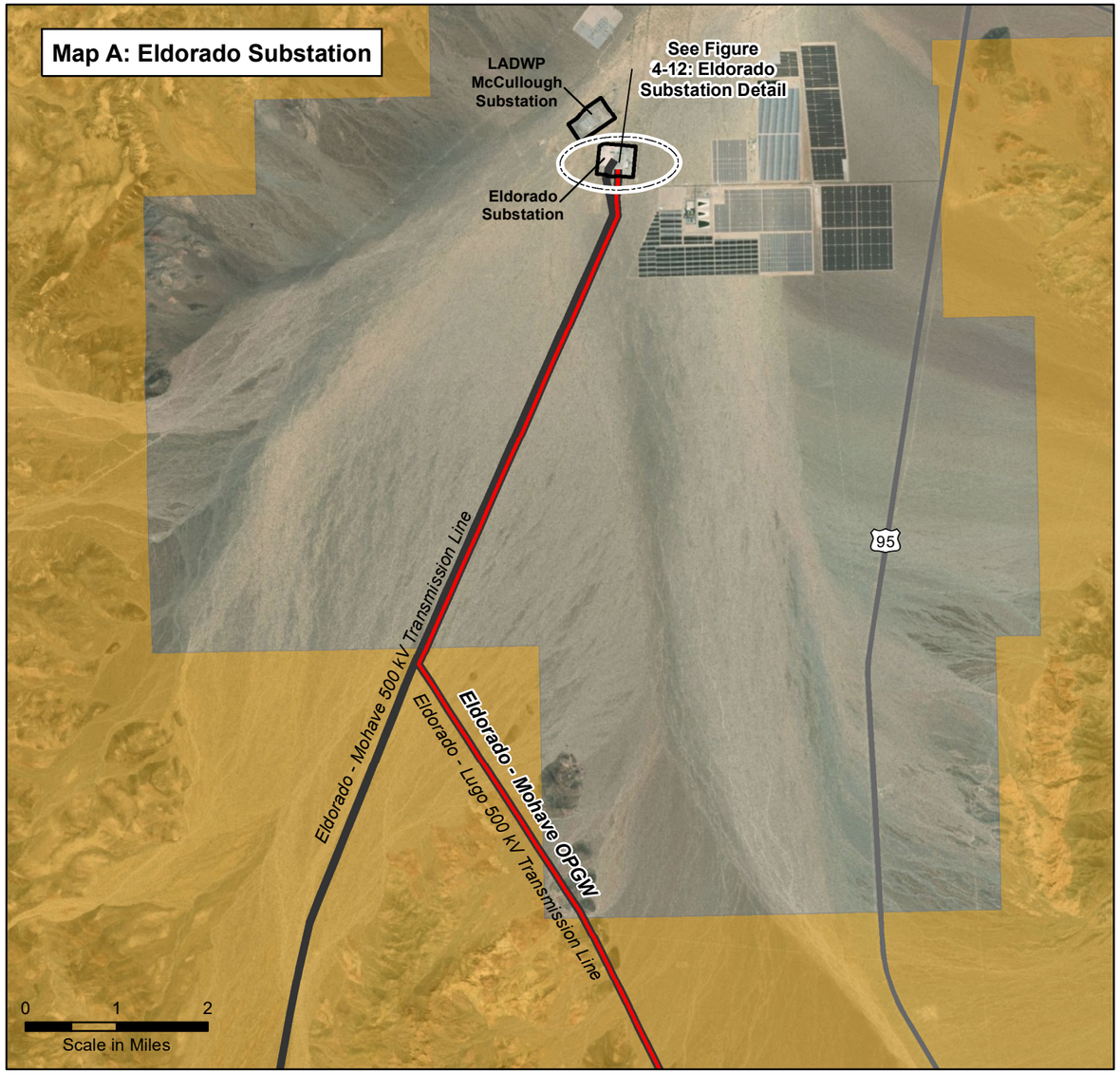
Project Overview

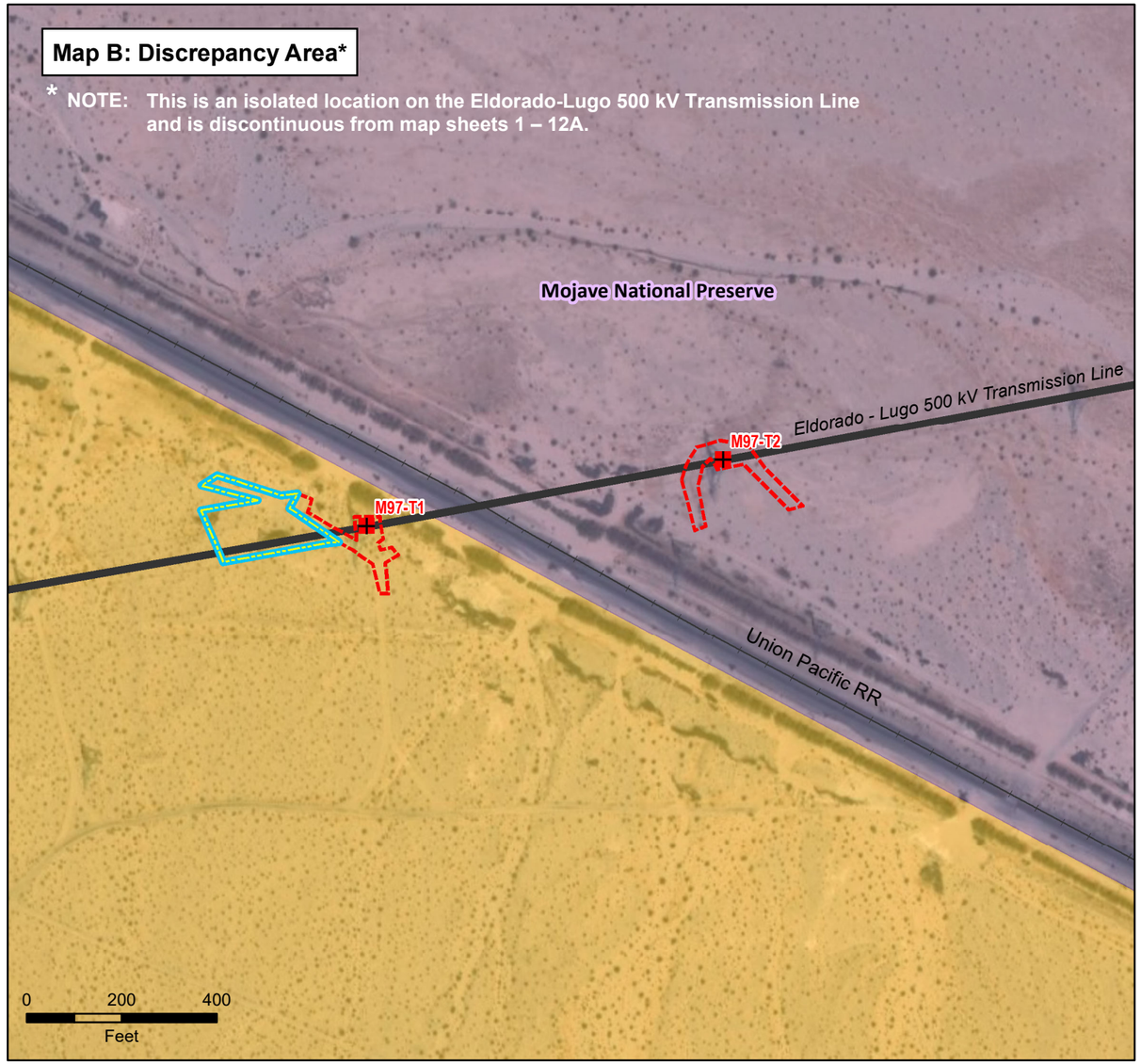
Sheet 11

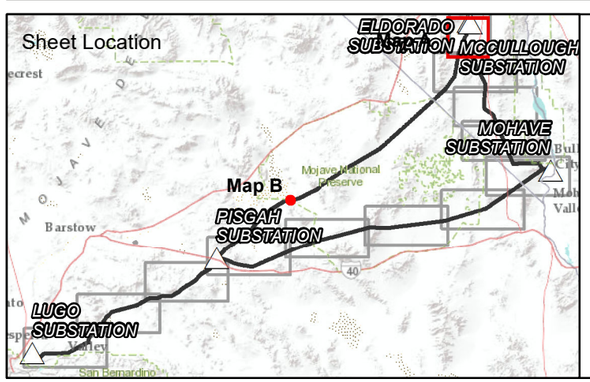
N

0 1 2

Scale in Miles







Existing Substation
Existing Transmission Line
Helicopter Landing Zone
Structure Work Area

OPGW Work

OPGW Modification and Splicing Tower
OPGW Splicing Only Tower
New OPGW

Discrepancy Work

Raise Tower

Jurisdiction

Bureau of Land Management
National Park Service

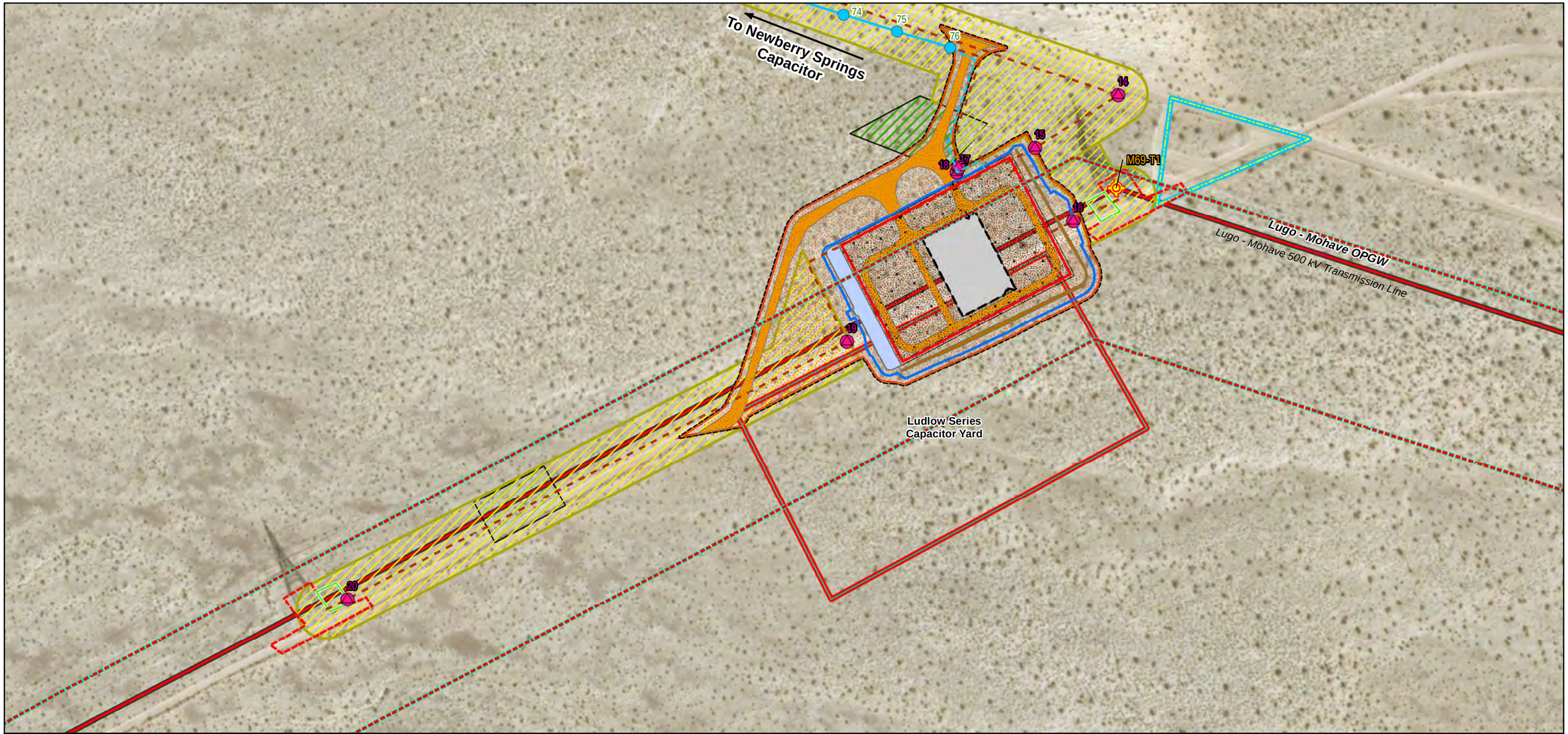
Sources: SCE, 2018

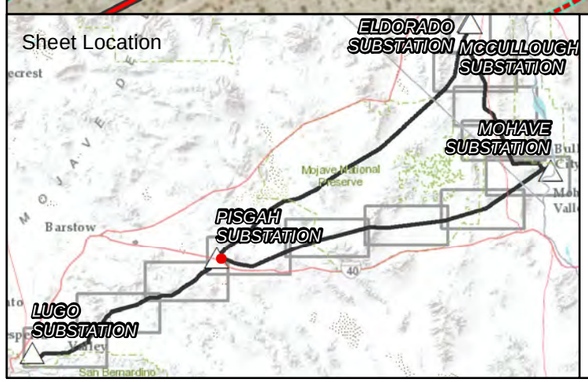
Figure 4-2.

Project Overview

Sheet 12

N





- Proposed Capacitor
- Existing Transmission Line
- Right-of-Way
- Temporary Yard

OPGW Work

- OPGW Splicing Location Only Tower
- New OPGW

Distribution

- New Distribution Pole
- New Overhead Line
- New Underground Line

Telecommunication

- New Manhole
- Underground Telecom Line

Civil Access Roads

- Permanent Access Road

Civil Disturbance

- Permanent Fence
- Permanent Grading Limit
- Permanent Gravel Surfacing
- Permanent Retention Basin
- Permanent Rip Rap
- Permanent Series Cap - Asphalt
- Temporary Ground Disturbance Area

Construction Areas

- Series Capacitor Work Area
- Equipment Setup Area
- OPGW Pull Site
- Helicopter Landing Zone
- Structure Work Area
- Potential Work Areas

Source: SCE, 2018

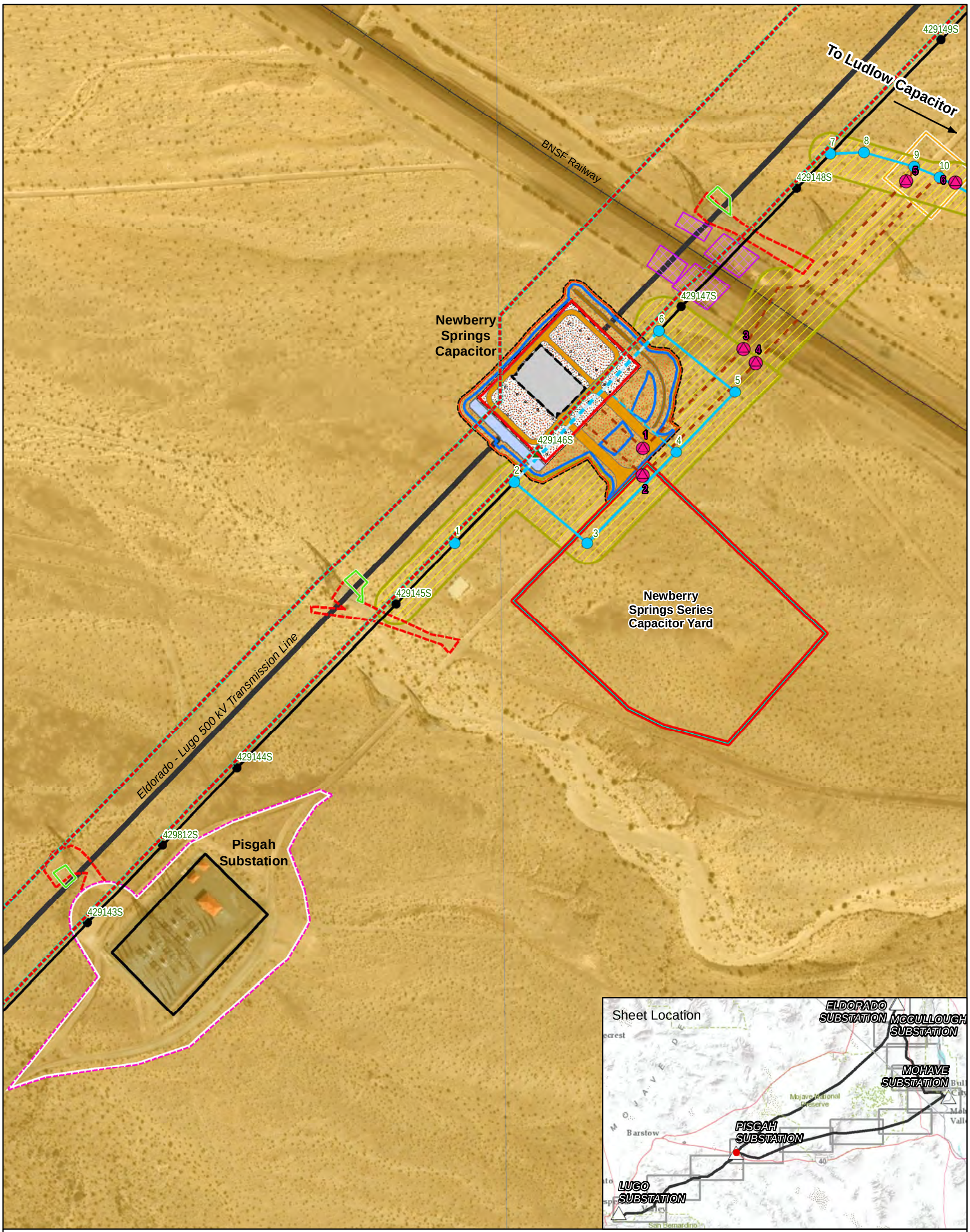
N

0 125 250

Scale in Feet

Figure 4-3

Ludlow Series Capacitor Detail



Existing Substation
Proposed Capacitor
Existing Transmission Lines
Right-of-Way
Temporary Yard

Telecommunication

New Manhole
Overhead Telecom Line
Underground Telecom Line

Distribution

Existing Pole
New Pole
Remove Pole
Existing Overhead
New Overhead
New Underground
Remove Overhead

Civil Disturbance

Permanent Fence
Permanent Grading Limit
Permanent Gravel Surfacing
Permanent Retention Basin
Permanent Rip Rap
Permanent Series Cap - Asphalt
Temporary Ground Disturbance Area
Permanent Access Road

Construction Areas

Series Capacitor Work Area
Equipment Setup Area
Parking Area
Guard Structure Site
Structure Work Area
Potential Work Areas
Pulling/Tensioning/ Splicing

Jurisdiction

Bureau of Land Management

Source: SCE, 2018

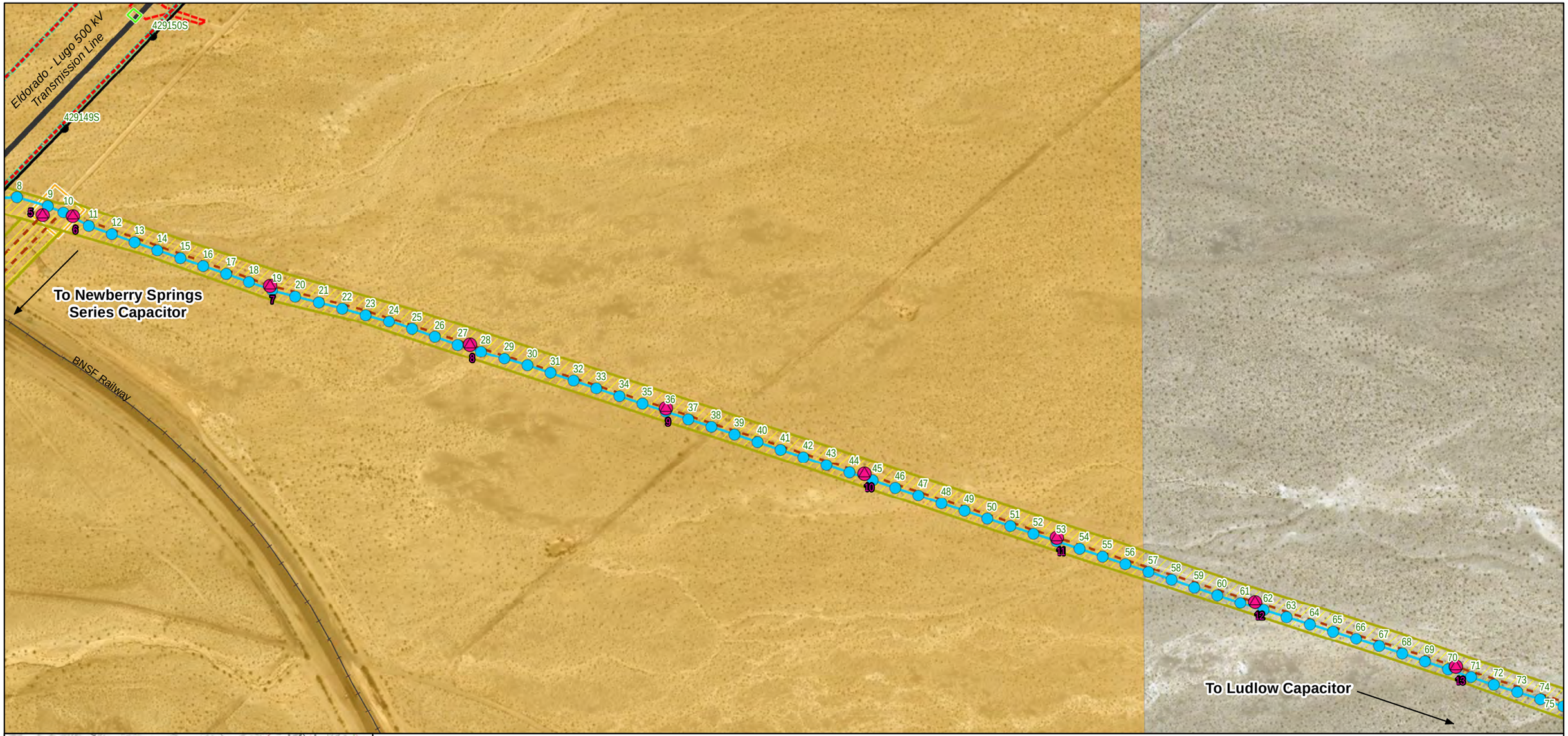
Figure 4-4.

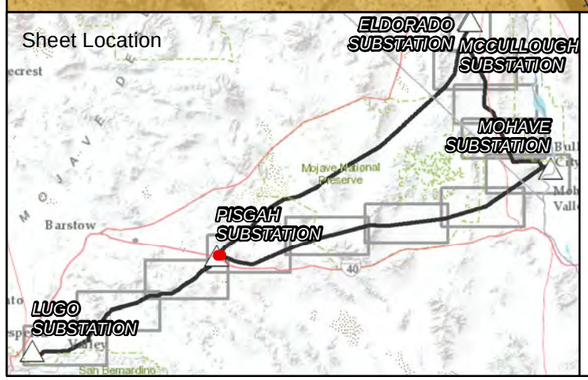
Newberry Springs Series Capacitor Detail

N

0 250 500

Scale in Feet





Existing Transmission Line
Right-of-Way

Telecommunication
New Manhole
Underground Telecom Line

Distribution
Existing Pole
New Pole
Existing Overhead
New Overhead

Construction Areas
Equipment Setup Area
Structure Work Area
Potential Work Areas
Pulling/Tensioning/Splicing

Jurisdiction
Bureau of Land Management

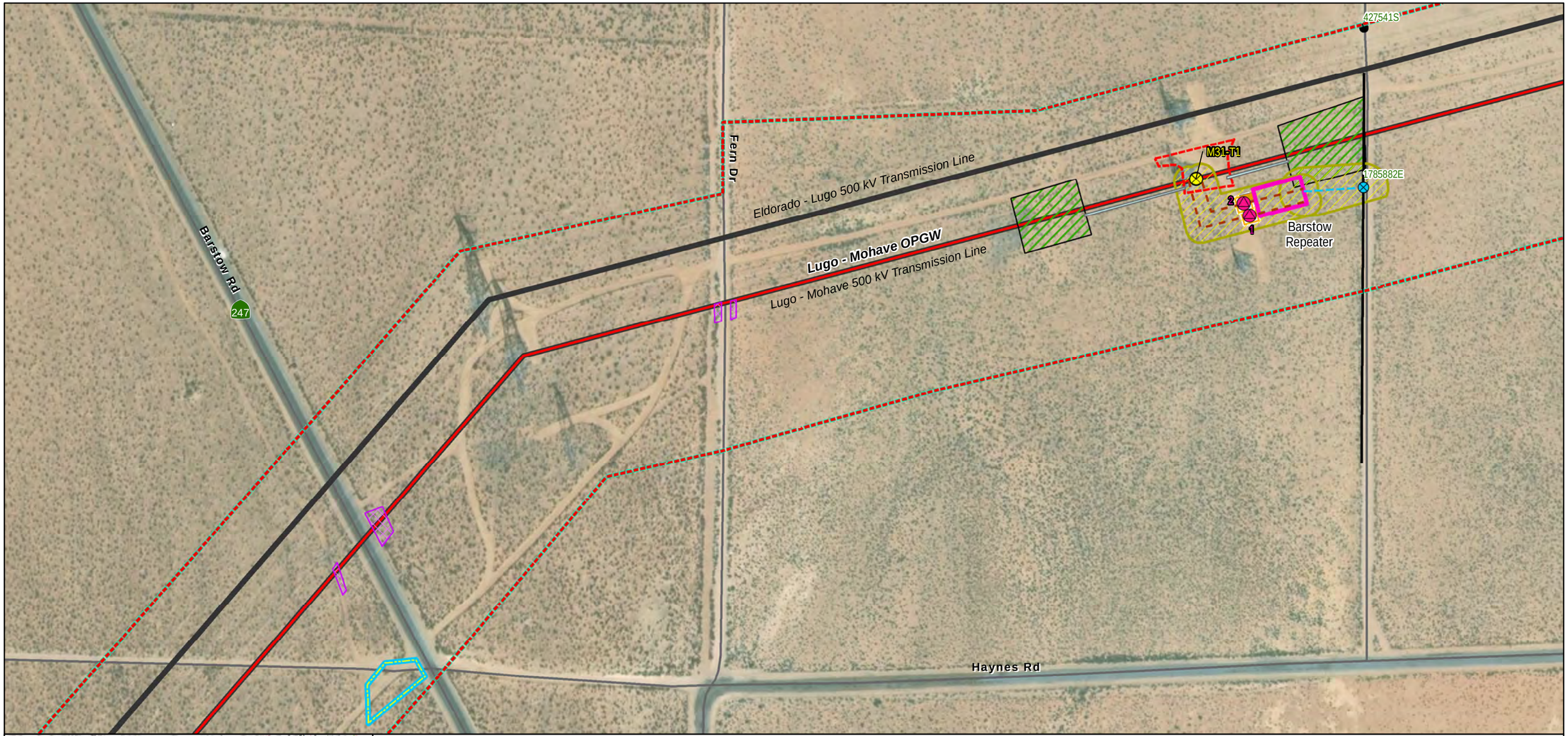
Source: SCE, 2018

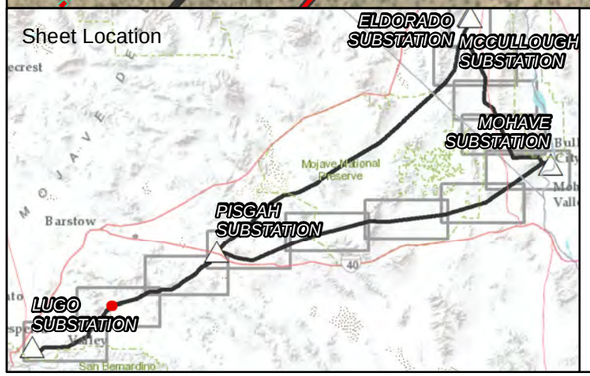
Figure 4-5

Ludlow-Newberry Springs Distribution/Telecom Detail

N

0 250 500
Scale in Feet





Existing Transmission Line

Right-of-Way

OPGW Work

OPGW Modification and Splicing Tower

New OPGW

Distribution

Existing Pole

Modify

Existing Overhead

New Underground

Telecommunication

New Manhole

Underground Telecom Line

Repeater Site

Civil Access Roads

Permanent Access Road

Temporary Travel Path

Construction Areas

OPGW Pull Site

Guard Site

Helicopter Landing Zone

Structure Work Area

Potential Work Areas

Pulling/Tensioning/Splicing

Source: SCE, 2018

Figure 4-6

Barstow Repeater Detail

N

0 250 500

Scale in Feet

Kelbaker Rd

Lugo - Mohave OPGW

Lugo - Mohave 500 kV Transmission Line

M111-T3

1532264E

K-1

K-2

K-3

K-4

K-5

K-6

Mojave National Preserve

Sheet Location

ELDORADO SUBSTATION

MCCULLOUGH SUBSTATION

MOHAVE SUBSTATION

PISGAH SUBSTATION

LUGO SUBSTATION

Barstow

Existing Transmission Line

Right-of-Way

OPGW Work

OPGW Modification and Splicing Tower

New OPGW

Telecommunication

New Manhole

Underground Telecom Line

Repeater Site

Distribution

Existing Pole

New Pole

Existing Overhead

New Overhead

New Underground

Civil Access Roads

Permanent Access Road

Construction Areas

OPGW Pull Site

Guard Structure Site

Helicopter Landing Zone

Structure Work Area

Potential Work Areas

Pulling/Tensioning/Splicing

Jurisdiction

National Park Service

Figure 4-7

Kelbaker Repeater Detail

Source: SCE, 2018

N

0 250 500

Scale in Feet

Mojave National Preserve

Lanfair Rd

Lugo - Mohave OPGW

Lugo - Mohave 500 kV Transmission Line

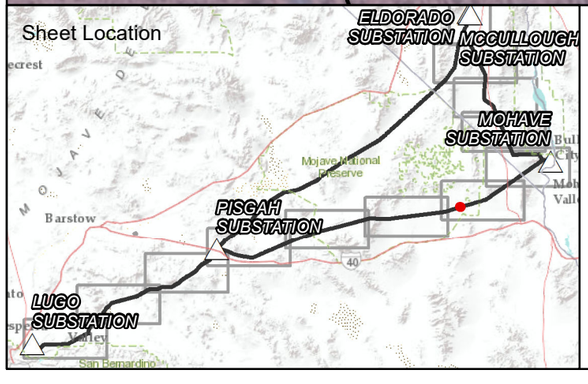
M144-T2

2086648E

L-1 L-2 L-3 L-4 L-5 L-6 L-7 L-8 L-9 L-10 L-11 L-12 L-13 L-14 L-15 L-16

1 2

Sheet Location



Existing Transmission Line
Right-of-Way

OPGW Work

OPGW Modification and Splicing Tower
New OPGW

Telecommunication

New Manhole
Underground Telecom Line
Repeater Site

Distribution

Existing Pole
New Pole
Existing Overhead
New Overhead
New Underground

Civil Access Roads

Permanent Access Road

Construction Areas

OPGW Pull Site
Guard Structure Site
Structure Work Area
Potential Work Areas
Pulling/Tensioning/Splicing

Jurisdiction

National Park Service

Figure 4-8

Lanfair Repeater Detail

Source: SCE, 2018

N

0 250 500

Scale in Feet

Map A

Laughlin

Cougar Dr

Bruce Woodbury Dr

Needles Hwy

Eldorado - Mohave OPGW

Eldorado - Mohave 500 kV Transmission Line

Lugo - Mohave 500 kV Transmission Line

Lugo - Mohave OPGW

M2-T1

M173-T2

8 9 10 11 12 13 14

Continued on Map B below

Continued from Map A above

Map B

Cougar Dr

Bruce Woodbury Dr

Laughlin

Eldorado - Mohave 500 kV Transmission Line

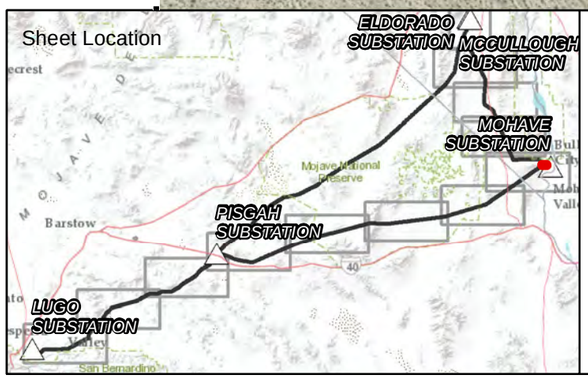
Lugo - Mohave 500 kV Transmission Line

Eldorado - Mohave OPGW

To Mohave Substation

4 5 6 7 8

Sheet Location



Existing Transmission Line

OPGW Work

OPGW Splicing Location Only Tower

New OPGW

Telecommunication

New Manhole

Underground Telecom Line

Civil Access Roads

Temporary Travel Path

Construction Areas

Contractor Work Limit

OPGW Pull Site

Guard Structure Site

Helicopter Landing Zone

Structure Work Area

Land Owner

Bureau of Land Management

State Lands

Source: SCE, 2018

Figure 4-9.

Underground Telecommunication Line Detail

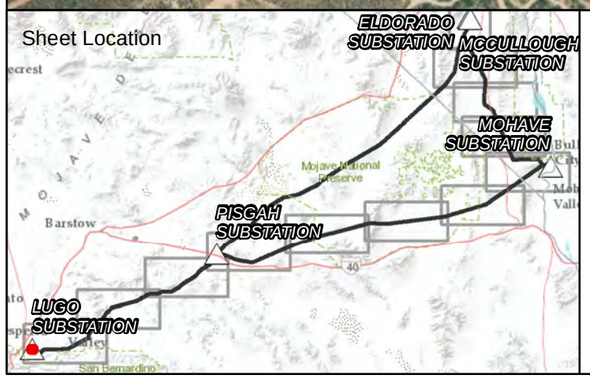
N

0 500 1,000

Scale in Feet

Whitehaven St
Mirasol Ct
Tamarisk Rd
Belmont Rd
Tower Rd
Prairie Trl
Escondido Ave
Lugo Substation
Lugo Substation III Yard
Lugo Substation II Yard
Power Line S Rd
Fuente Ave
City of Hesperia
M0-T1
M0-T1
1
Eldorado - Lugo 500 kV Transmission Line
Lugo - Mohave OPGW
Lugo - Mohave 500 kV Transmission Line
Summit Valley Rd
BNSF Railway
San Bernardino County
Lookout Trl

Sheet Location



- Existing Substation
- Existing Transmission Line
- Right-of-Way
- Existing Yard
- Temporary Yard
- New Tubular Steel Pole at Lugo Substation
- Remove Tubular Steel Pole at Lugo Substation

OPGW Work

- OPGW Splicing Location OnlyTower
- New OPGW

Telecommunication

- Existing Manhole
- New Manhole
- Underground Telecom Line

Civil Disturbance

- Permanent Series Cap - Asphalt

Construction Areas

- Parking Area
- OPGW Pull Site
- Guard Site
- Helicopter Landing Zone
- Pulling/Tensioning/Splicing
- General Disturbance Area

Figure 4-10

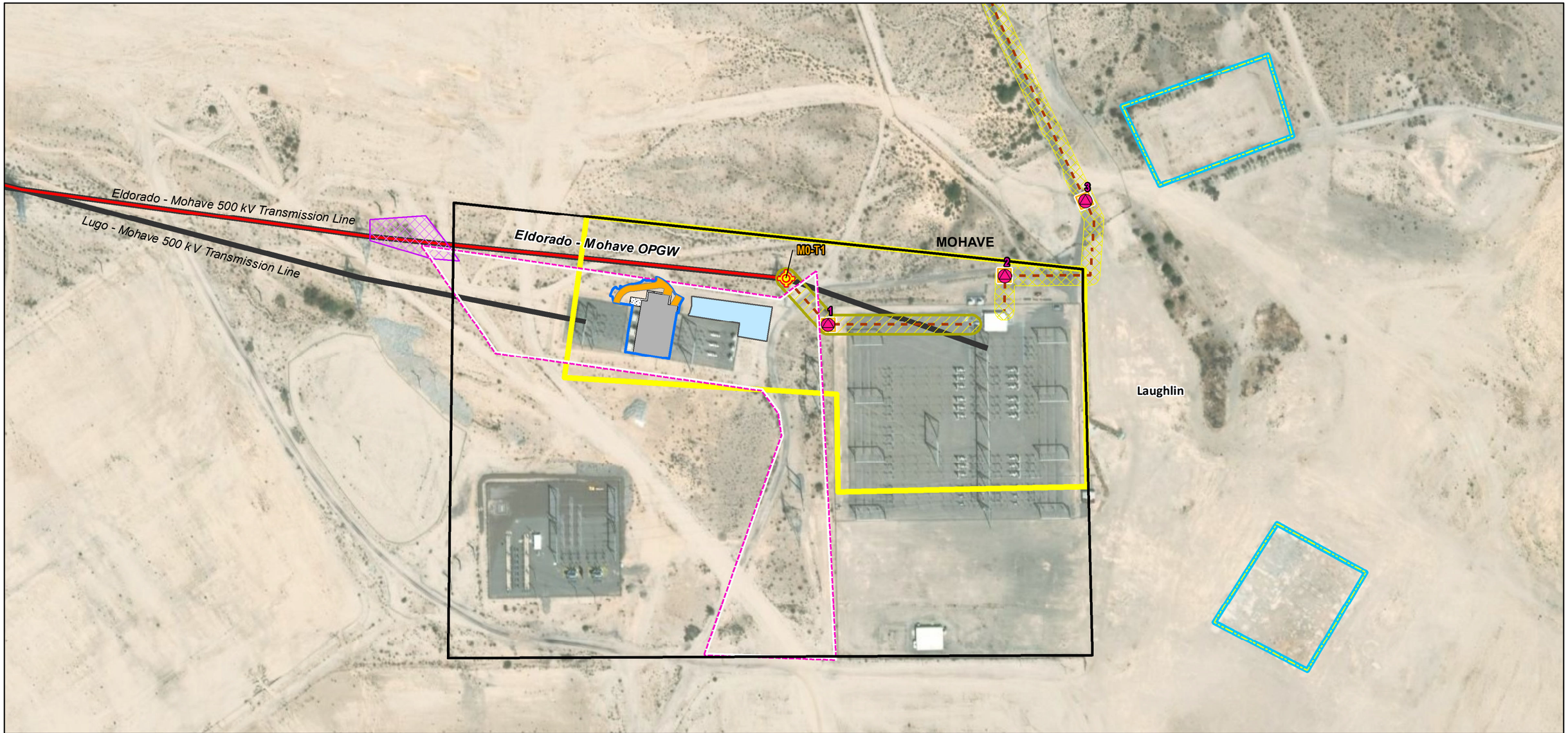
Lugo Substation Detail

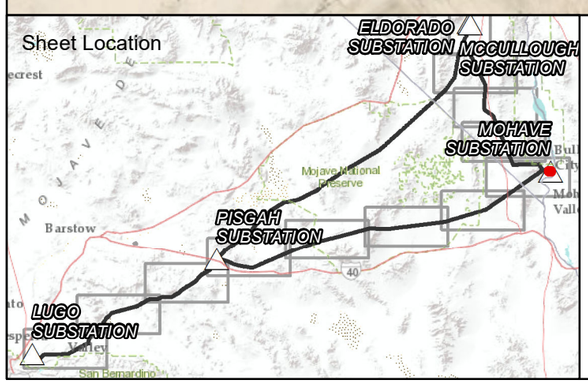
Source: SCE, 2018

N

0 250 500

Scale in Feet





Existing Substation
Existing Transmission Line

OPGW Work

OPGW Splicing Location Only Tower
New OPGW

Telecommunication

New Manhole
Underground Line

Source: SCE, 2018

Civil Disturbance

Permanent Grading Limit
Permanent Gravel Surfacing
Permanent Retention Basin
Permanent Series Cap - Asphalt

Civil Access Roads

Permanent Access Road

Construction Areas

Contractor Work Limit
Parking Area
Guard Structure Site
Helicopter Landing Zone
Potential Work Areas
Pulling/Tensioning/Splicing Site
General Disturbance Area

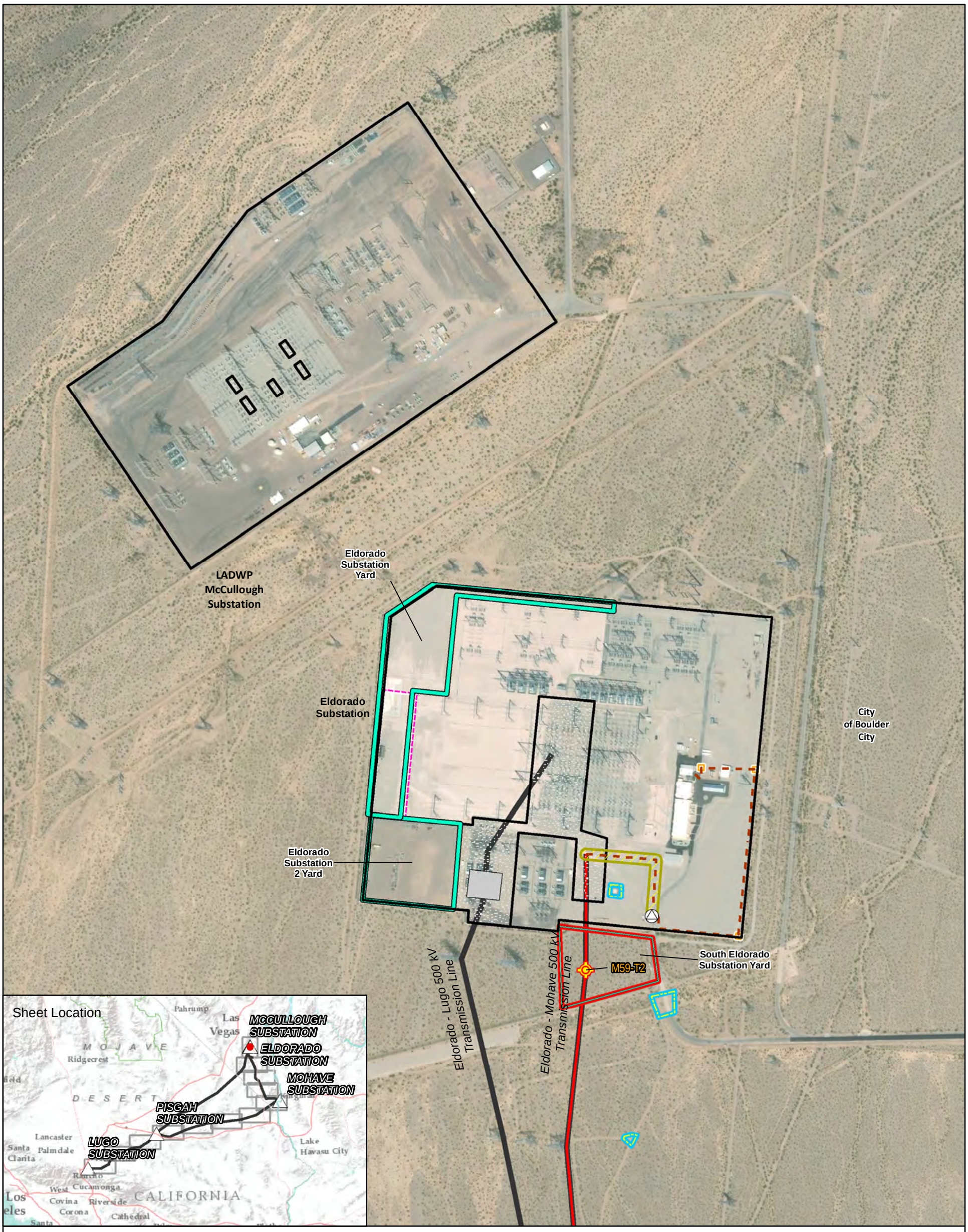
Figure 4-11

Mohave Substation Detail

N

0 250 500

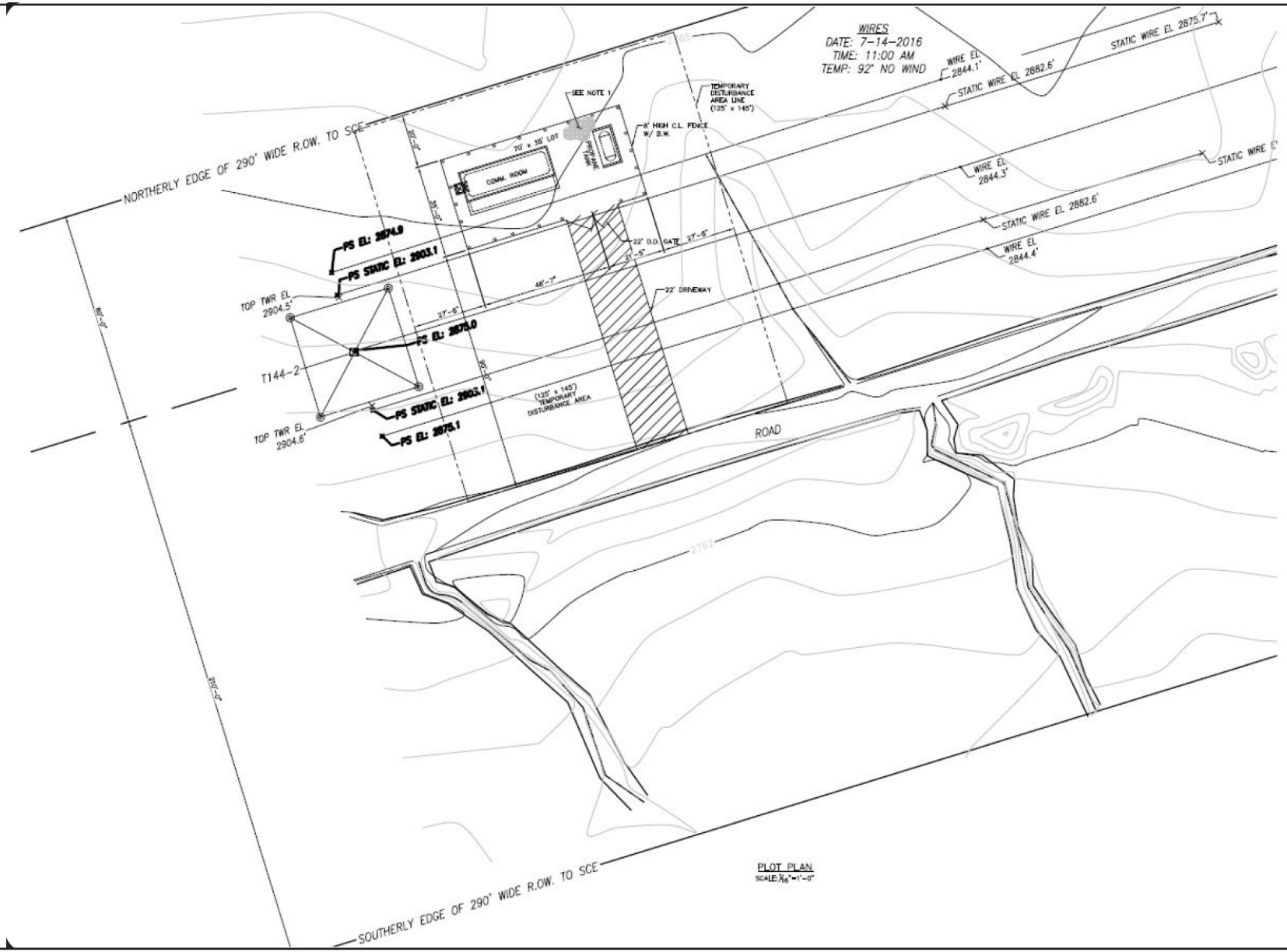
Scale in Feet



Sources: SCE, 2018

Figure 4-12.

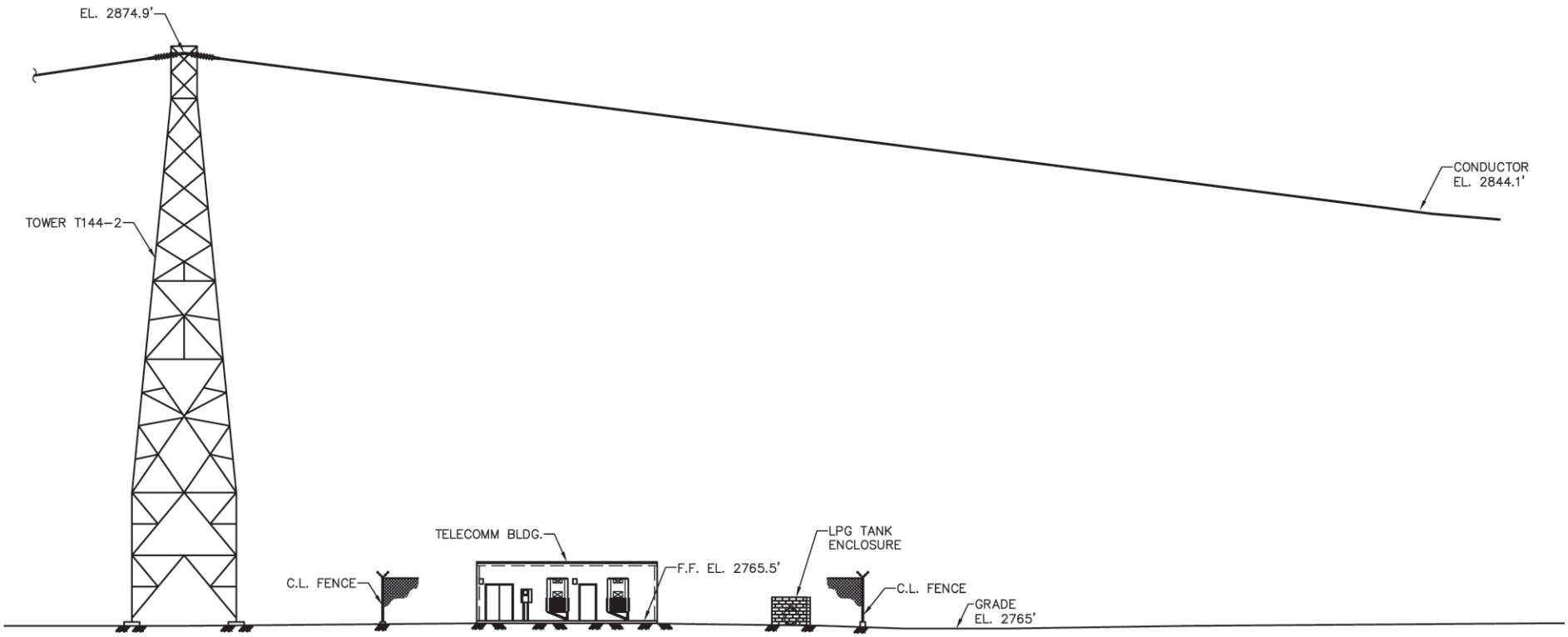
Eldorado Substation Detail



Source: SCE, 2017.

Figure 4-13.

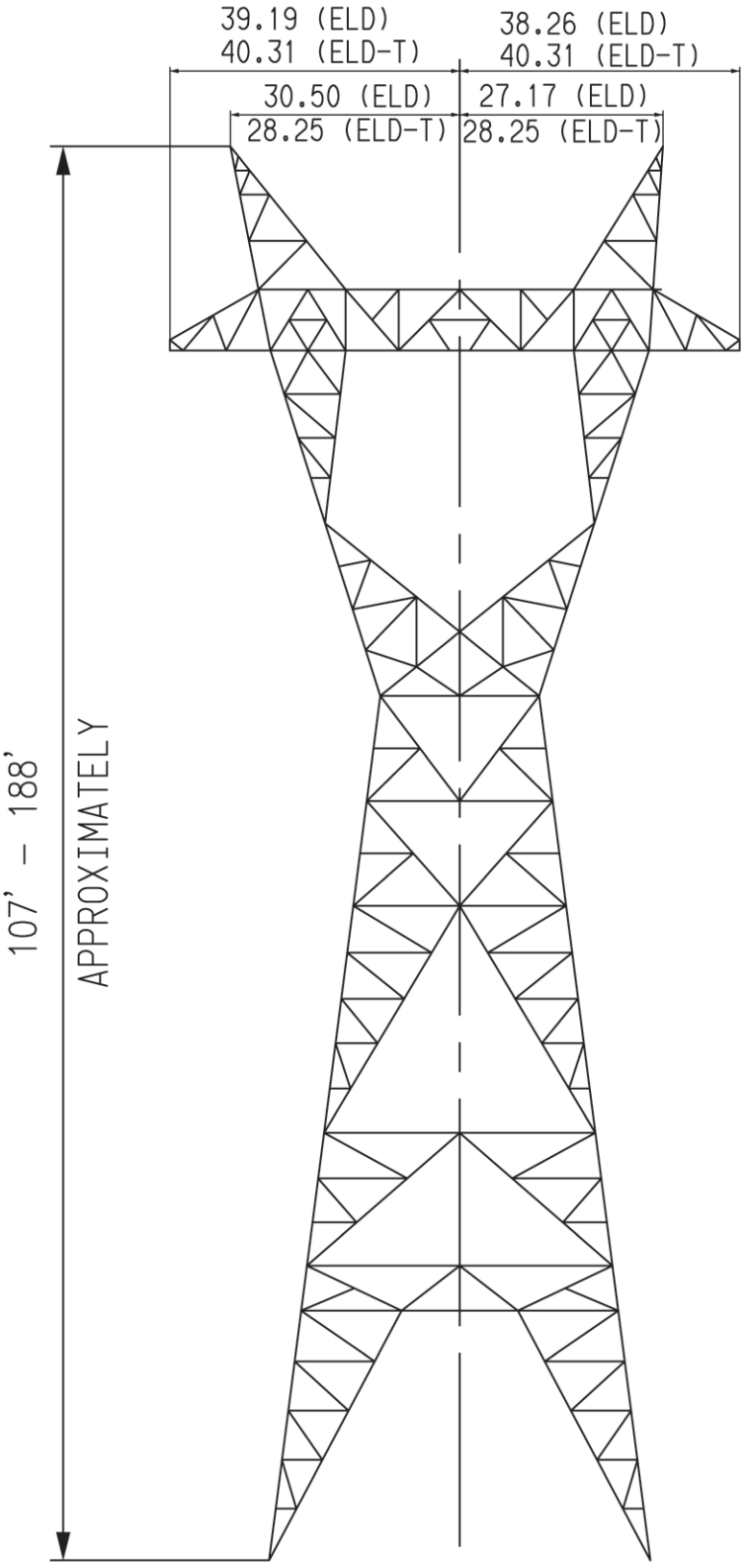
Typical Site Plan for the Fiber Optic Repeater Sites



Source: SCE, 2017.

Figure 4-14.

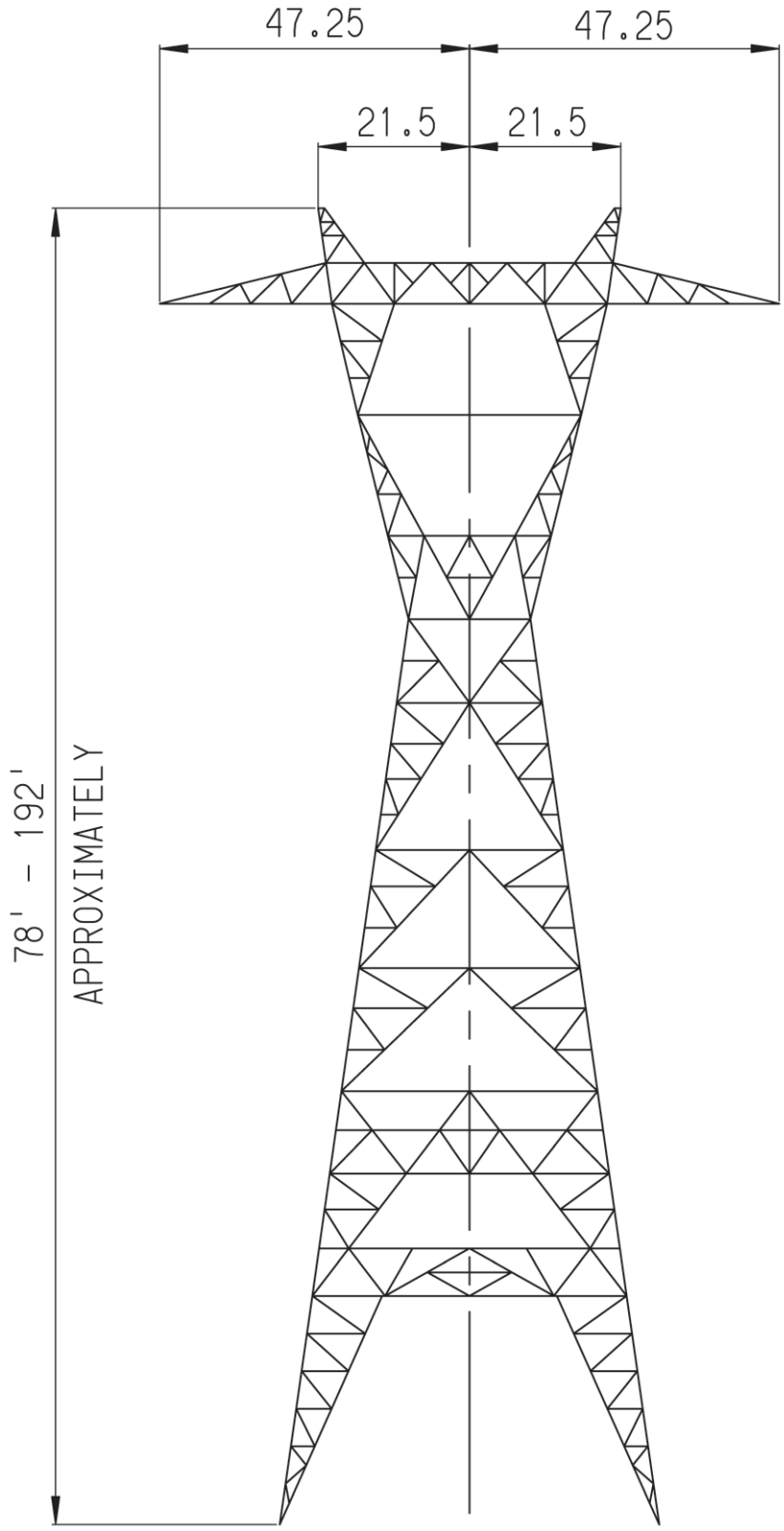
Typical Elevation for the Fiber Optic Repeater Sites



Source: SCE, 2017.

Figure 4-15.

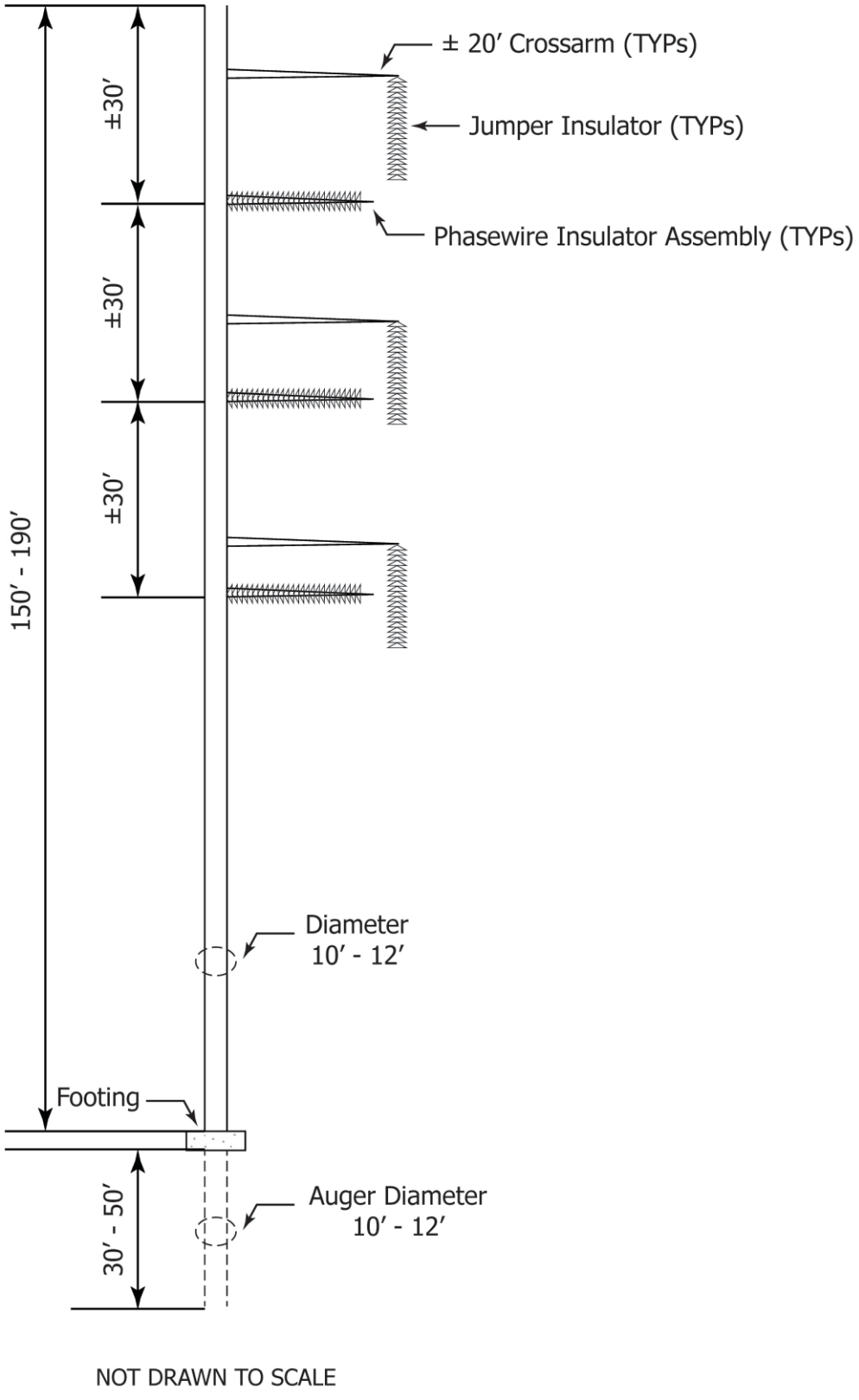
Typical Single-Circuit 500 kV Dead-End Tower



Source: SCE, 2017.

Figure 4-16.

Typical Single-Circuit 500 kV Suspension Tower



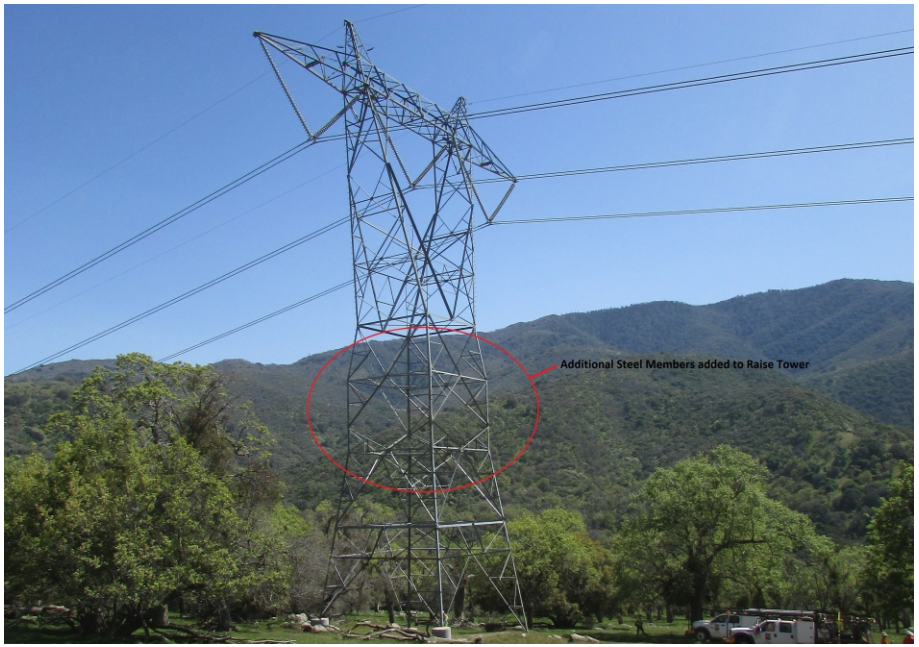
Source: SCE, 2017.

Figure 4-17.

Typical Tubular Steel Pole

BEFORE

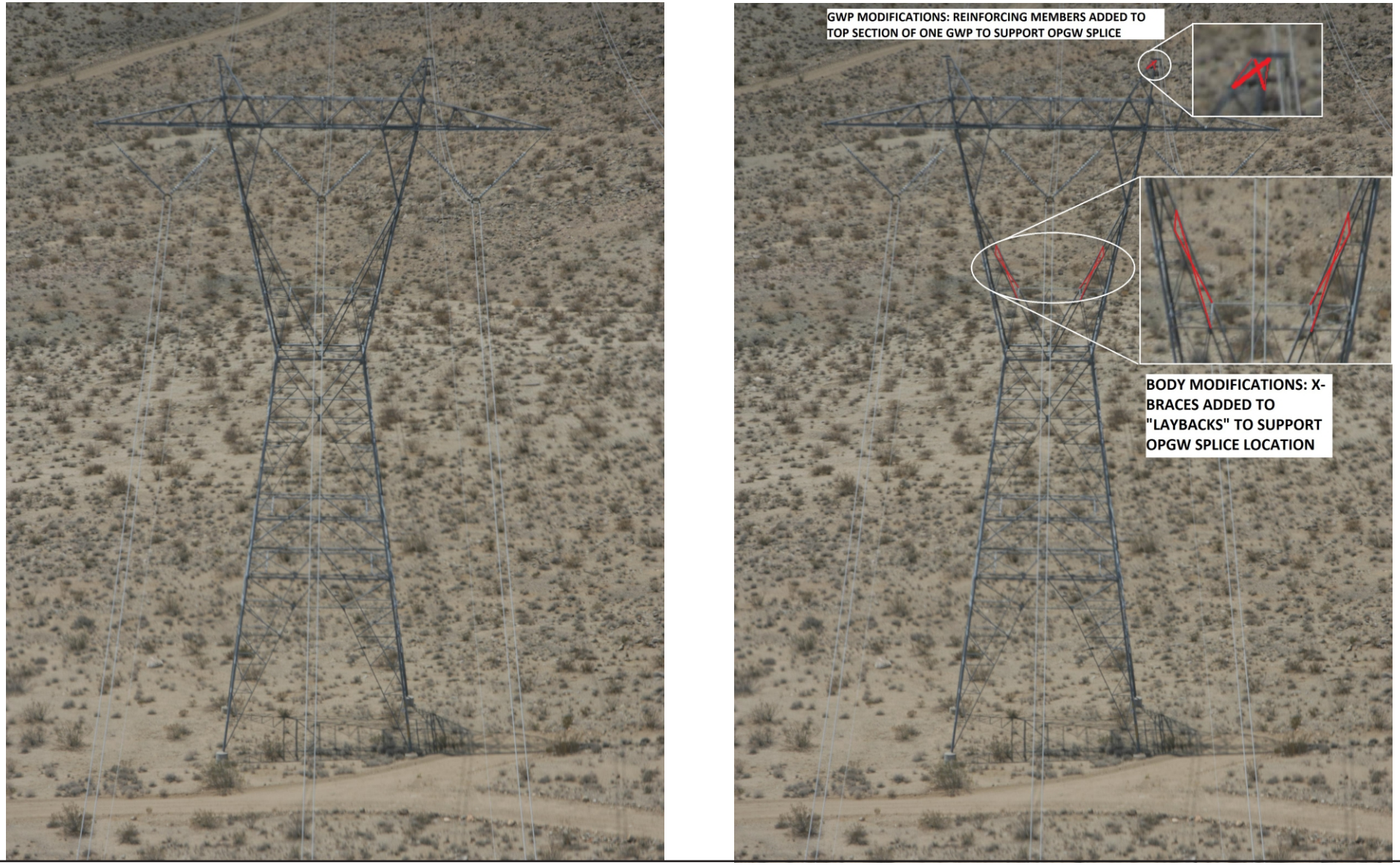
AFTER



Source: SCE, 2018.

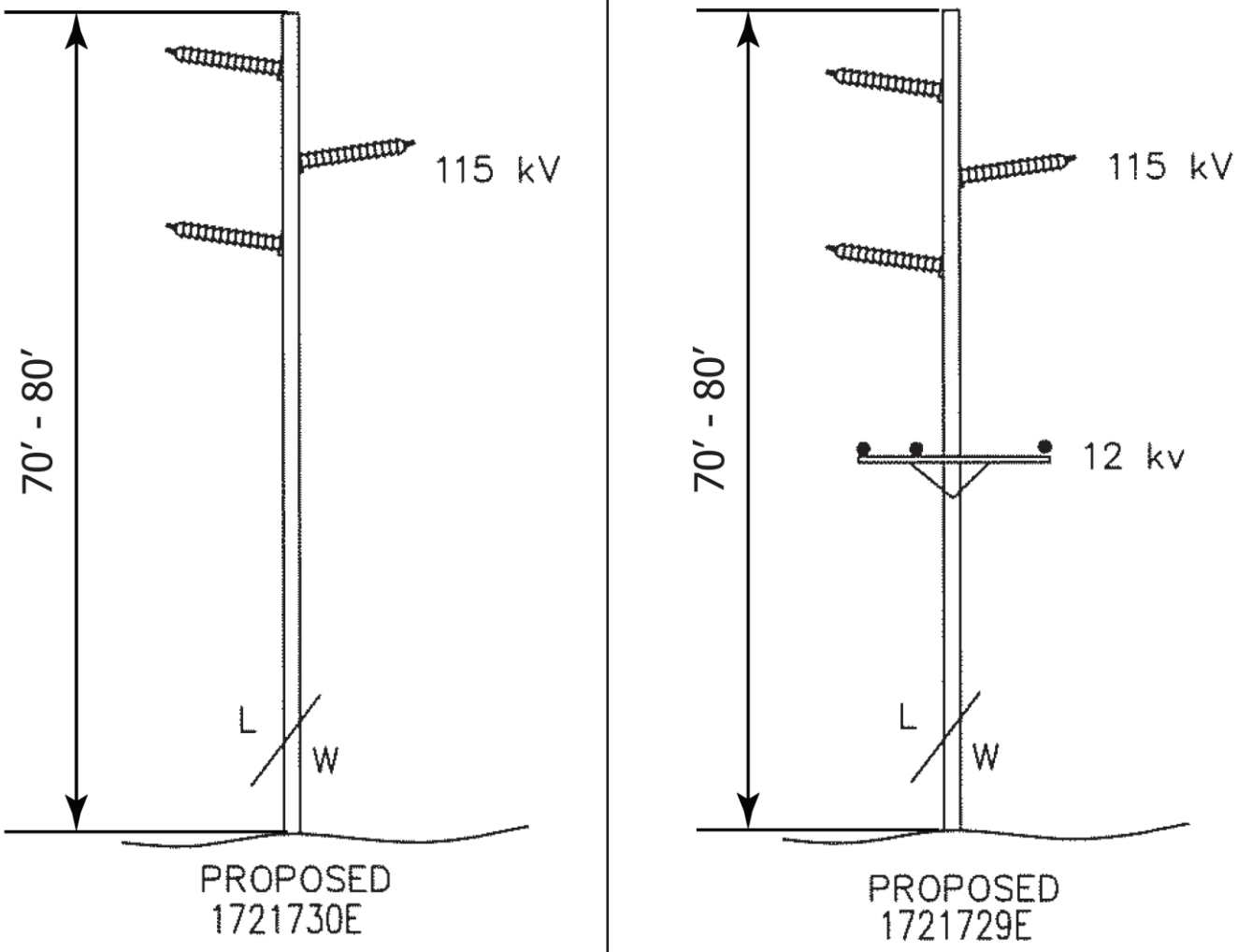
Figure 4-18.

Use of a Body Extension to Raise a Tower



Source: SCE, 2018.

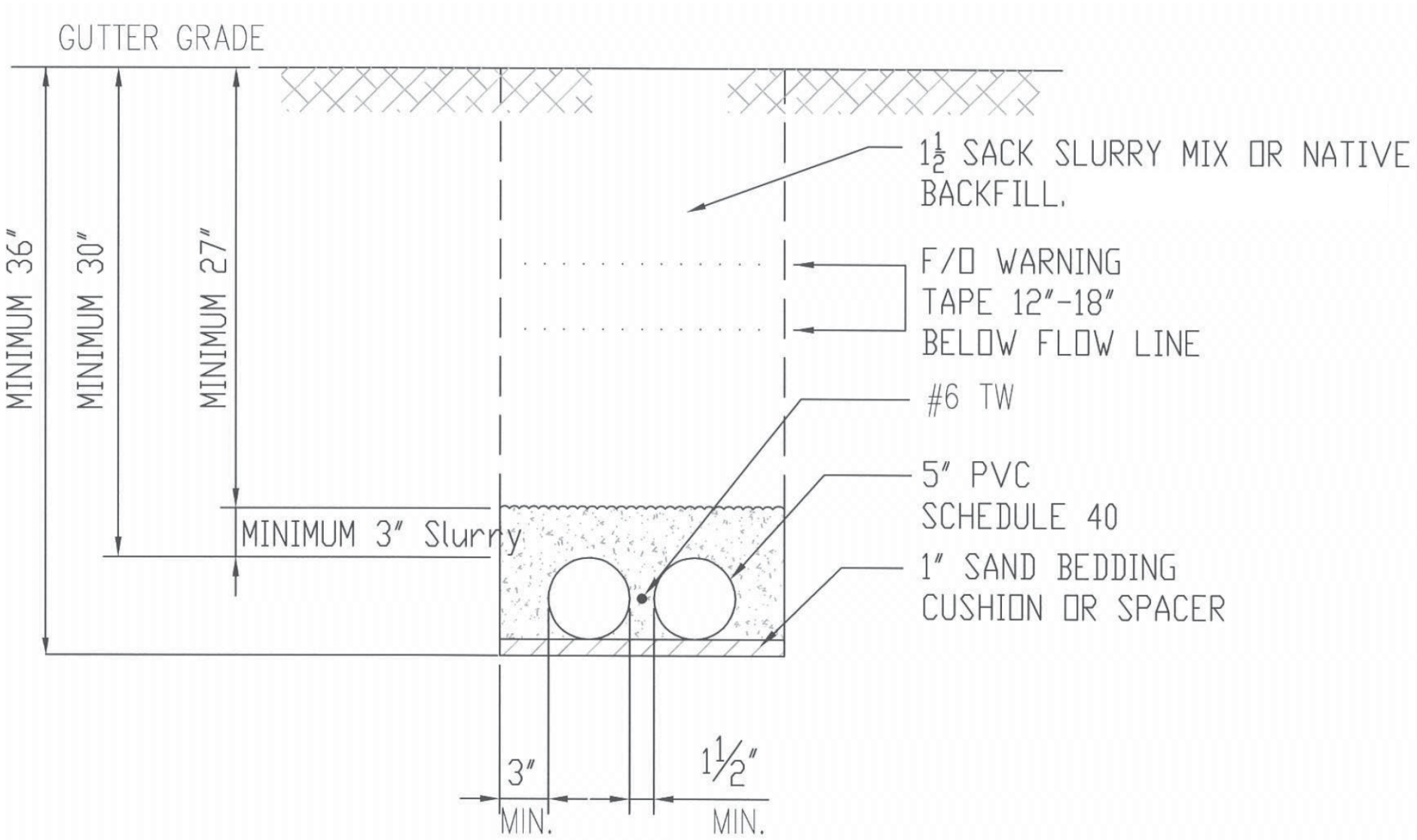
Figure 4-19.
Use of Ground Wire Peak (GWP) and Body Modifications to Support OPGW Installation



Source: SCE, 2017.

Figure 4-20.

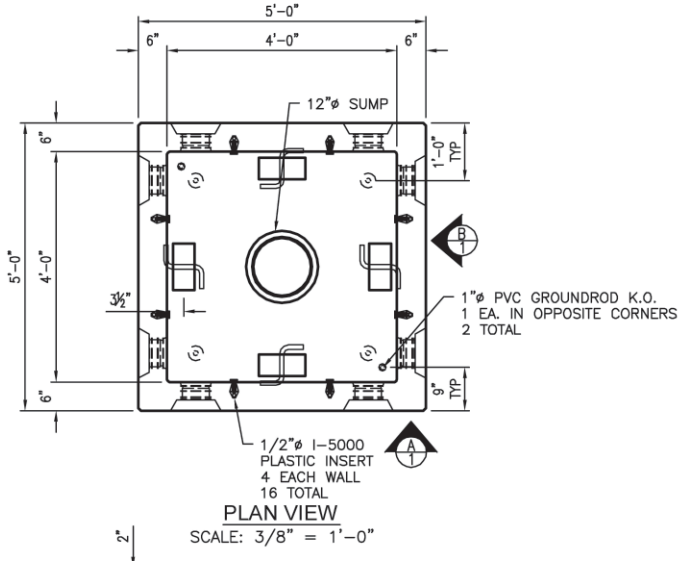
Typical Subtransmission Structures

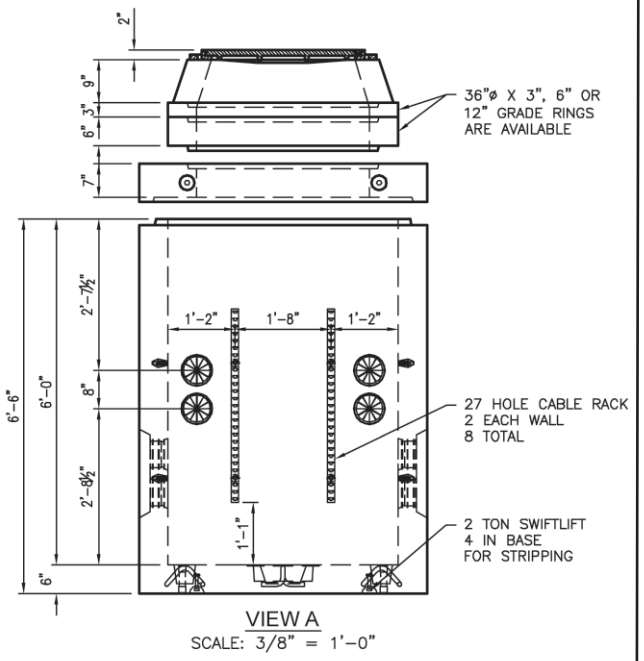


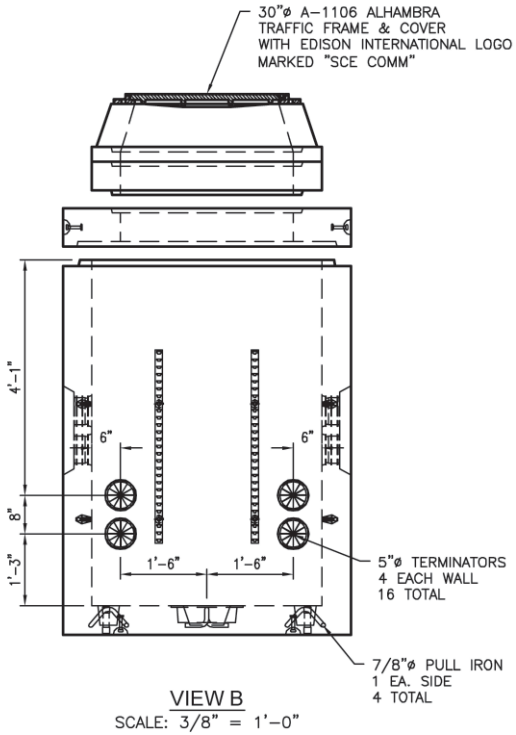
Source: SCE, 2017.

Figure 4-21.

Typical Telecommunications Duct Bank



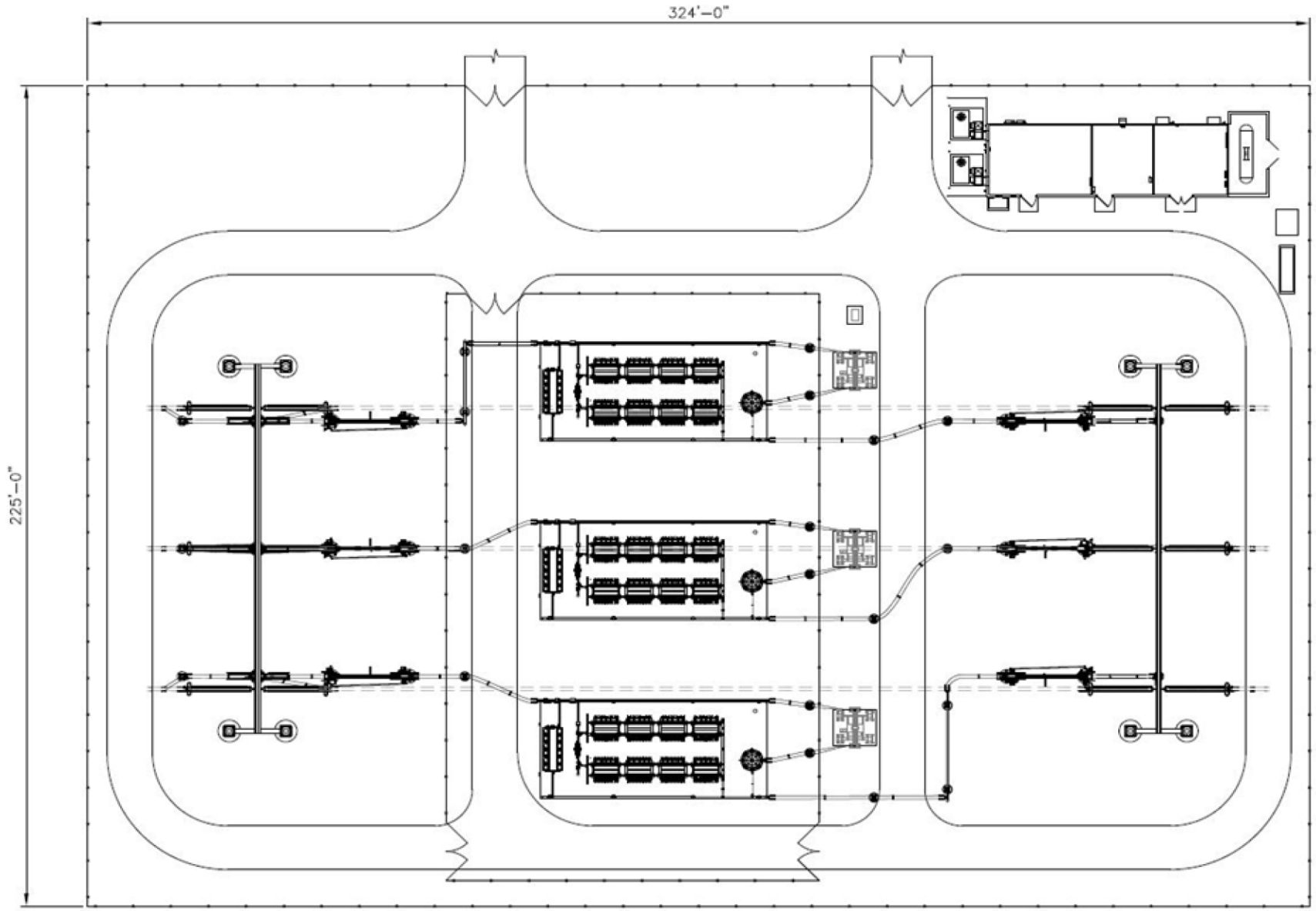




Source: SCE, 2017.

Figure 4-22.

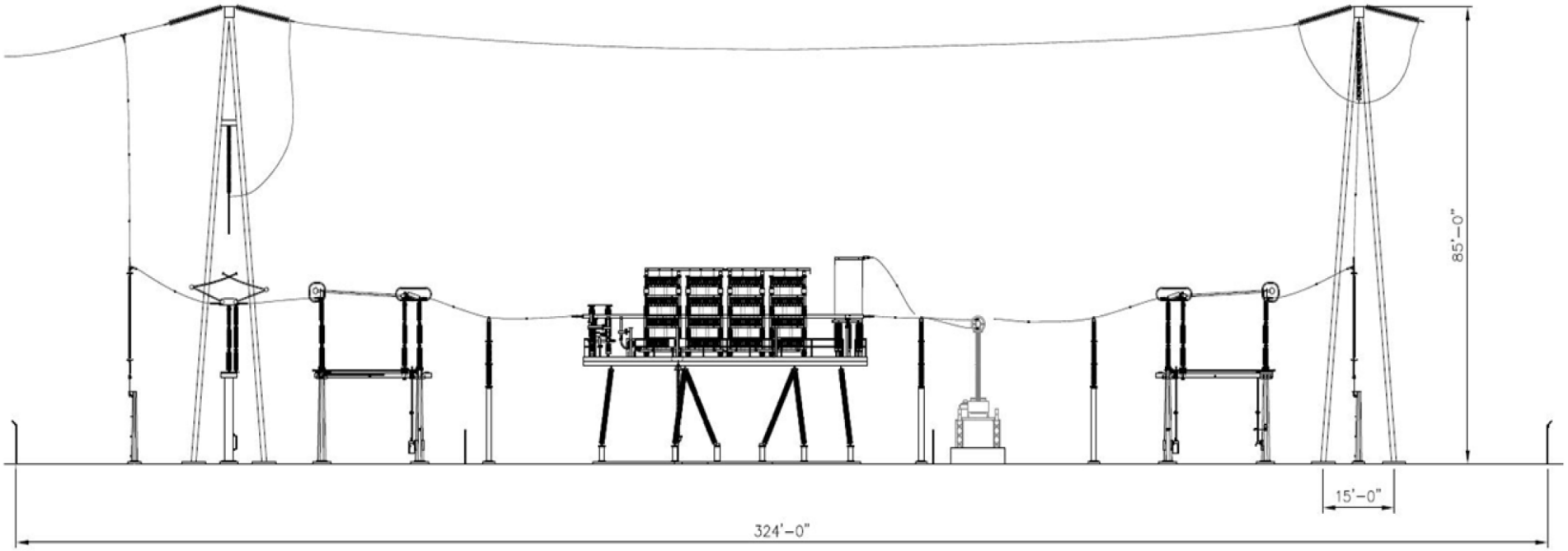
Typical Manhole



Source: SCE, 2017.

Figure 4-23.

Typical Mid-Line Series Capacitor Layout



Source: SCE, 2017.

Figure 4-24.

Typical Mid-Line Series Capacitor Profile

Table 4.A-1. Discrepancy Work Areas

Number	Tower Number	Location	Encroachment Type	Activity
Eldorado-Lugo 500 kV Transmission Line				
1	Between Towers M14-T3 and M14-T4	San Bernardino County, California	Ground/rock	Raise Tower M14-T4 by a minimum of 18.5 feet
2	Between Towers M14-T4 and M15-T1	San Bernardino County, California	Ground	Raise Tower M14-T4 by a minimum of 18.5 feet
3	Between Towers M20-T2 and M20-T3	San Bernardino County, California	115 kV crossing wire	Reframe 115 kV subtransmission line — lower by a minimum of 5 feet and lower the 12 kV distribution structure[1]
4	Between Towers M33-T1 and M33-T2	San Bernardino County, California	Ground/rock	Raise Tower M33-T1 by a minimum of 5 feet
5	Between Towers M58-T1 and M58-T2	San Bernardino County, California	Ground	Modify conductor
6	Between Towers M63-T3 and M63-T4	San Bernardino County, California	Ground	Raise Tower M63-T3 by a minimum of 15 feet
7	Between Towers M64-T1 and M64-T2	San Bernardino County, California	Ground	Raise Tower M64-T2 by a minimum of 5 feet
8	Between Towers M97-T1 and M97-T2	San Bernardino County, California	Railroad	Raise Towers M97-T1 and M97-T2 by 18.5 feet
Lugo-Mohave 500 kV Transmission Line				
9	Between Towers M4-T2 and M4-T3	San Bernardino County, California	Ground	Remove approximately 3.5 feet of concrete below conductor
10	Between Towers M8-T1 and M8-T2	San Bernardino County, California	12 kV crossing wire	Reframe distribution line — to be lowered by a minimum of 5 feet
11	Between Towers M20-T3 and M20-T4	San Bernardino County, California	115 kV crossing wire	This would be corrected by the proposed mitigation between towers M20-T2 and M20-T3 on the Eldorado-Lugo 500 kV transmission line (Reframe 115 kV line) — lower by a minimum of 5 feet
12	Between Towers M22-T3 and M22-T4	San Bernardino County, California	Ground	Raise Tower M22-T4 by a minimum of 15 feet
13	Between Towers M29-T3 and M30-T1	San Bernardino County, California	Ground	Grade/remove berm by approxi-mately 2 feet
14	Between Towers M68-T1 and M68-T2	San Bernardino County, California	Ground/highway	Raise Tower M68-T1 by a minimum of 8.5 feet
15	Between Towers M89-T1 and M89-T2	San Bernardino County, California	Ground	Modify conductor
Eldorado-Mohave 500 kV Transmission Line				
16	Between Towers M4-T1 and M4-T2	Clark County, Nevada	230 kV crossing wire	Raise Tower M4-T1 by a minimum of 18.5 feet and modify foundation as required

1 - This proposed mitigation would also correct the discrepancy between towers M20-T3 and M20-T4 on the Lugo-Mohave 500 kV Transmission Line.

Table 4.B-1. Tower Modifications Associated with Optical Ground Wire Installation

Splice Location[1]	Structure Type	Ground Wire Peak Modification	Body Modification	Bent Steel Repair
Lugo-Mohave 500 kV Transmission Line Splice Locations				
M0-T1*	DHA-2	—	—	—
M2-T3	ELD-1	—	—	—
M5-T4	EHT-2	Yes	—	—
M9-T1	ELD-T-1	—	—	—
M12-T2	EMT-3	Yes	—	—
M15-T3	EMT-3	Yes	Yes	—
M18-T4	EHD-1	—	—	—
M22-T2	ELD-2	—	—	—
M24-T5	ELD-1	—	—	—
M27-T3	EMT-3	Yes	—	—
M29-T3	EMT-3	Yes	—	—
M31-T1	EMT-3	Yes	—	—
M33-T2	EMT-3	Yes	—	—
M36-T3	EMT-3	Yes	—	—
M40-T1	EMT-3	Yes	Yes	—
M42-T4	ELD-1	—	—	—
M46-T2	EMT-2	Yes	Yes	—
M49-T3	ELD-1	—	—	—
M53-T1	EMT-3	Yes	—	—
M56-T2	EMT-2	Yes	Yes	—
M59-T3	EMT-2	Yes	Yes	—
M63-T1	EMT-3	Yes	—	—
M66-T2	ELD-2	—	—	—
M68-T4	EMT-3	Yes	Yes	—
M69-T1	ELD-1	—	—	—
M72-T1	EMT-2	Yes	Yes	—
M75-T3	EMT-1	Yes	Yes	—
M78-T4	ELD-1	—	—	—
M82-T1	EMT-2	Yes	Yes	—
M85-T2	EMT-3	Yes	Yes	—
M88-T4	EMT-1	Yes	Yes	—
M92-T1	EMT-2	Yes	Yes	—
M95-T1	EMT-3	Yes	—	—
M98-T2	EMT-3	Yes	Yes	—
M102-T1	EMT-3	Yes	Yes	—
M105-T2	EMT-3	Yes	—	—
M108-T2	EMT-3	Yes	—	—
M111-T3	EMT-3	Yes	—	—
M114-T4	EMT-1	Yes	Yes	—
M118-T2	EMT-2	Yes	Yes	—
M121-T2	EMT-3	Yes	—	—
M124-T3	EMT-3	Yes	—	—

Table 4.B-1. Tower Modifications Associated with Optical Ground Wire Installation

Splice Location[1]	Structure Type	Ground Wire Peak Modification	Body Modification	Bent Steel Repair
M128-T1	EMT-2	Yes	Yes	—
M131-T2	EMT-3	Yes	—	—
M134-T2	EMT-3	Yes	—	—
M137-T3	EMT-2	Yes	Yes	—
M141-T1	EMT-2	Yes	Yes	—
M144-T2	EMT-3	Yes	—	—
M147-T4	EMT-3	Yes	—	—
M151-T1	EMT-3	Yes	—	—
M154-T3	EMT-2	Yes	Yes	—
M157-T1	EMT-2	Yes	Yes	—
M160-T2	EHT-S-2	Yes	—	—
M163-T4	EMT-3	Yes	—	—
M167-T1	EMT-3	Yes	—	—
M170-T1	EMT-2	Yes	Yes	—
M173-T2	ELD-1	—	—	—
Eldorado-Mohave 500 kV Transmission Line Splice Locations				
M0-T1	EDE-1	—	—	—
M2-T1	ELD-1	—	—	—
M4-T1	EMT-3	Yes	Yes	Yes
M6-T2	EHT-S-3	Yes	—	Yes
M9-T3	EMT-2	Yes	Yes	Yes
M13-T1	EMT-3	Yes	Yes	Yes
M16-T3	ELD-T-1	—	—	—
M19-T3	EMT-3	Yes	—	—
M23-T1	EMT-3	Yes	—	—
M26-T2	EMT-3	Yes	Yes	—
M29-T4	EMT-3	Yes	—	—
M33-T2	EMT-3	Yes	—	—
M36-T4	EMT-4	Yes	—	—
M40-T1	EMT-3	Yes	—	—
M43-T3	EMT-1	Yes	Yes	—
M46-T3	EMT-3	Yes	—	—
M49-T4	ELD-1	—	—	—
M53-T1	EHT-S-2	Yes	—	—
M56-T1	EMT-3	Yes	Yes	—
M59-T2*	DHA-1	—	—	—
Total, Eldorado-Mohave 500 kV Transmission Line		15	6	4
Total, Lugo-Mohave 500 kV Transmission Line		45	21	0

1 - Asterisks are given for locations that are possible splice locations. These locations are not to be used if the optical ground wire is run straight into the substation rack.

Table 4.C-1. Construction Equipment and Workforce Estimates

Activity	Equipment Type	Approx. Total Days Used	Approx. Quantity	Approx. Number of Workers	On-Road Type	Off-Road Type	Output (Hp)	Approx. Use (hours/day)	Approx. Use by State (percent)		Maximum Days Used	
									CA	NV	2019	2020
Capacitors												
Capacitors - Eldorado Series Cap - SC3 - Commissioning: Testing	Scissor Lift	40	3	10	—	Aerial Lifts	50	6	0	100	74	0
Capacitors - Eldorado Series Cap - SC3 - Commissioning: Testing	Foreman's Truck	40	1	10	Passenger	—	—	—	0	100	74	0
Capacitors - Eldorado Series Cap - SC3 - Commissioning: Testing	Job Site Utility Cart	35	1	10	Passenger	—	—	—	0	100	74	0
Capacitors - Eldorado Series Cap - SC3 - Commissioning: Testing	Test Truck	40	1	10	Delivery	—	—	—	0	100	74	0
Capacitors - Eldorado Series Cap - SC3 - Commissioning: Testing	Tool Truck	35	1	10	Delivery	—	—	—	0	100	74	0
Capacitors - Eldorado Series Cap - SC3 - Commissioning: Testing	Worker Commute Automobile	40	10	10	Passenger	—	—	—	0	100	74	0
Capacitors - Eldorado Series Cap - SC3 - Demo: Removals, Refurbishing	250-Ton Hydraulic Crane	15	1	5	—	Cranes	450	5	0	100	54	0
Capacitors - Eldorado Series Cap - SC3 - Demo: Removals, Refurbishing	500-Gallon Water Buffalo with Truck	15	1	5	—	Off-Highway Trucks	185	5	0	100	54	0
Capacitors - Eldorado Series Cap - SC3 - Demo: Removals, Refurbishing	Bobcat Skid Steer	15	1	5	—	Skid Steer Loaders	93	8	0	100	54	0
Capacitors - Eldorado Series Cap - SC3 - Demo: Removals, Refurbishing	Bobcat with Auger	15	1	5	—	Skid Steer Loaders	93	8	0	100	54	0
Capacitors - Eldorado Series Cap - SC3 - Demo: Removals, Refurbishing	Bobcat with Sweeper	15	1	5	—	Skid Steer Loaders	93	8	0	100	54	0
Capacitors - Eldorado Series Cap - SC3 - Demo: Removals, Refurbishing	Ditch Witch	20	1	5	—	Trenchers	42	8	0	100	54	0
Capacitors - Eldorado Series Cap - SC3 - Demo: Removals, Refurbishing	Mini Excavator	15	1	5	—	Excavators	50	8	0	100	54	0
Capacitors - Eldorado Series Cap - SC3 - Demo: Removals, Refurbishing	10-Cubic-Yard Dump Truck	20	3	5	HHDT	—	—	—	0	100	54	0
Capacitors - Eldorado Series Cap - SC3 - Demo: Removals, Refurbishing	4,000-Gallon Water Truck	20	3	5	HHDT	—	—	—	0	100	54	0
Capacitors - Eldorado Series Cap - SC3 - Demo: Removals, Refurbishing	Foreman's Truck	15	1	5	Passenger	—	—	—	0	100	54	0
Capacitors - Eldorado Series Cap - SC3 - Demo: Removals, Refurbishing	Job Site Utility Cart	15	1	5	Passenger	—	—	—	0	100	54	0
Capacitors - Eldorado Series Cap - SC3 - Demo: Removals, Refurbishing	Low Bed Equipment Hauler (5 axle)	15	1	5	HHDT	—	—	—	0	100	54	0
Capacitors - Eldorado Series Cap - SC3 - Demo: Removals, Refurbishing	Low Bed Equipment Hauler (7 axle)	15	1	5	HHDT	—	—	—	0	100	54	0
Capacitors - Eldorado Series Cap - SC3 - Demo: Removals, Refurbishing	Worker Commute Automobile	20	5	5	Passenger	—	—	—	0	100	54	0
Capacitors - Eldorado Series Cap - SC3 - Installations: Equipment, Wiring	135-Foot Manlift	20	1	15	—	Aerial Lifts	75	5	0	100	66	0
Capacitors - Eldorado Series Cap - SC3 - Installations: Equipment, Wiring	20,000-Pound Forklift	40	1	15	—	Forklifts	150	8	0	100	66	0
Capacitors - Eldorado Series Cap - SC3 - Installations: Equipment, Wiring	27-Ton Boom Truck	40	1	15	—	Cranes	350	5	0	100	66	0
Capacitors - Eldorado Series Cap - SC3 - Installations: Equipment, Wiring	65-Foot Manlift	40	1	15	—	Aerial Lifts	75	5	0	100	66	0
Capacitors - Eldorado Series Cap - SC3 - Installations: Equipment, Wiring	85-Foot Manlift	30	1	15	—	Aerial Lifts	75	5	0	100	66	0
Capacitors - Eldorado Series Cap - SC3 - Installations: Equipment, Wiring	Bobcat with Forks	90	2	15	—	Skid Steer Loaders	93	8	0	100	66	0
Capacitors - Eldorado Series Cap - SC3 - Installations: Equipment, Wiring	Crane	10	1	15	—	Cranes	350	5	0	100	66	0
Capacitors - Eldorado Series Cap - SC3 - Installations: Equipment, Wiring	Genie 45-Foot Manlift	35	1	15	—	Aerial Lifts	75	5	0	100	66	0
Capacitors - Eldorado Series Cap - SC3 - Installations: Equipment, Wiring	Scissor Lift	95	3	15	—	Aerial Lifts	50	6	0	100	66	0
Capacitors - Eldorado Series Cap - SC3 - Installations: Equipment, Wiring	Tele-Handler Forklift (5,000-7,000 lbs)	75	1	15	—	Rough Terrain Forklifts	150	8	0	100	66	0
Capacitors - Eldorado Series Cap - SC3 - Installations: Equipment, Wiring	Tele-Handler Forklift (8,000-12,000 lbs)	50	1	15	—	Rough Terrain Forklifts	150	8	0	100	66	0
Capacitors - Eldorado Series Cap - SC3 - Installations: Equipment, Wiring	Foreman's Truck	95	1	15	Passenger	—	—	—	0	100	66	0
Capacitors - Eldorado Series Cap - SC3 - Installations: Equipment, Wiring	Job Site Utility Cart	95	1	15	Passenger	—	—	—	0	100	66	0
Capacitors - Eldorado Series Cap - SC3 - Installations: Equipment, Wiring	Tool Truck	95	1	15	Delivery	—	—	—	0	100	66	0
Capacitors - Eldorado Series Cap - SC3 - Installations: Equipment, Wiring	Worker Commute Automobile	95	15	15	Passenger	—	—	—	0	100	66	0
Capacitors - Ludlow Series Cap - SC5 - Civil: Foundations, Below Grade, Stone Cover	140 Motor Grader	25	1	12	—	Graders	250	8	100	0	73	0
Capacitors - Ludlow Series Cap - SC5 - Civil: Foundations, Below Grade, Stone Cover	250-Ton Hydraulic Crane	30	1	12	—	Cranes	450	5	100	0	73	0
Capacitors - Ludlow Series Cap - SC5 - Civil: Foundations, Below Grade, Stone Cover	50,000-Pound Excavator/Breaker	30	1	12	—	Excavators	200	8	100	0	73	0

Table 4.C-1. Construction Equipment and Workforce Estimates

Activity	Equipment Type	Approx. Total Days Used	Approx. Quantity	Approx. Number of Workers	On-Road Type	Off-Road Type	Output (Hp)	Approx. Use (hours/day)	Approx. Use by State (percent)		Maximum Days Used	
									CA	NV	2019	2020
Capacitors - Ludlow Series Cap - SC5 - Civil: Foundations, Below Grade, Stone Cover	500-Gallon Water Buffalo with Truck	90	1	12	—	Off-Highway Trucks	185	5	100	0	73	0
Capacitors - Ludlow Series Cap - SC5 - Civil: Foundations, Below Grade, Stone Cover	75,000-Pound Excavator	30	1	12	—	Excavators	350	8	100	0	73	0
Capacitors - Ludlow Series Cap - SC5 - Civil: Foundations, Below Grade, Stone Cover	84-Inch Vibratory Roller Compactor	35	2	12	—	Rollers	130	8	100	0	73	0
Capacitors - Ludlow Series Cap - SC5 - Civil: Foundations, Below Grade, Stone Cover	Bobcat Compactor	50	1	12	—	Skid Steer Loaders	93	8	100	0	73	0
Capacitors - Ludlow Series Cap - SC5 - Civil: Foundations, Below Grade, Stone Cover	Bobcat Skid Steer	90	1	12	—	Skid Steer Loaders	93	8	100	0	73	0
Capacitors - Ludlow Series Cap - SC5 - Civil: Foundations, Below Grade, Stone Cover	Bobcat with Auger	90	1	12	—	Skid Steer Loaders	93	8	100	0	73	0
Capacitors - Ludlow Series Cap - SC5 - Civil: Foundations, Below Grade, Stone Cover	Bobcat with Sweeper	90	1	12	—	Skid Steer Loaders	93	8	100	0	73	0
Capacitors - Ludlow Series Cap - SC5 - Civil: Foundations, Below Grade, Stone Cover	Cat 623 Scraper	30	1	12	—	Graders	400	8	100	0	73	0
Capacitors - Ludlow Series Cap - SC5 - Civil: Foundations, Below Grade, Stone Cover	Cat 950 Loader	40	1	12	—	Tractors/Loaders/ Backhoes	130	8	100	0	73	0
Capacitors - Ludlow Series Cap - SC5 - Civil: Foundations, Below Grade, Stone Cover	D-6 Cat Dozer	40	1	12	—	Crawler Tractors	215	8	100	0	73	0
Capacitors - Ludlow Series Cap - SC5 - Civil: Foundations, Below Grade, Stone Cover	Ditch Witch	50	1	12	—	Trenchers	42	8	100	0	73	0
Capacitors - Ludlow Series Cap - SC5 - Civil: Foundations, Below Grade, Stone Cover	LoDrill Over 50,000 Pounds	20	1	12	—	Bore/Drill Rigs	350	5	100	0	73	0
Capacitors - Ludlow Series Cap - SC5 - Civil: Foundations, Below Grade, Stone Cover	LoDrill up to 50,000 Pounds	30	1	12	—	Bore/Drill Rigs	200	5	100	0	73	0
Capacitors - Ludlow Series Cap - SC5 - Civil: Foundations, Below Grade, Stone Cover	Mini Excavator	50	1	12	—	Excavators	50	8	100	0	73	0
Capacitors - Ludlow Series Cap - SC5 - Civil: Foundations, Below Grade, Stone Cover	Premiertrak 300 Rock Crusher	10	1	12	—	Crushing/Proc. Equipment	280	9	100	0	73	0
Capacitors - Ludlow Series Cap - SC5 - Civil: Foundations, Below Grade, Stone Cover	Skip Loader	100	1	12	—	Tractors/Loaders/ Backhoes	150	4	100	0	73	0
Capacitors - Ludlow Series Cap - SC5 - Civil: Foundations, Below Grade, Stone Cover	Vermeer RT-450 Trencher	30	1	12	—	Trenchers	50	8	100	0	73	0
Capacitors - Ludlow Series Cap - SC5 - Civil: Foundations, Below Grade, Stone Cover	10-Cubic-Yard Dump Truck	100	3	12	HHDT	—	—	—	100	0	73	0
Capacitors - Ludlow Series Cap - SC5 - Civil: Foundations, Below Grade, Stone Cover	4,000-Gallon Water Truck	100	3	12	HHDT	—	—	—	100	0	73	0
Capacitors - Ludlow Series Cap - SC5 - Civil: Foundations, Below Grade, Stone Cover	Foreman's Truck	90	1	12	Passenger	—	—	—	100	0	73	0
Capacitors - Ludlow Series Cap - SC5 - Civil: Foundations, Below Grade, Stone Cover	Job Site Utility Cart	90	1	12	Passenger	—	—	—	100	0	73	0
Capacitors - Ludlow Series Cap - SC5 - Civil: Foundations, Below Grade, Stone Cover	Low Bed Equipment Hauler (5 axle)	40	1	12	HHDT	—	—	—	100	0	73	0
Capacitors - Ludlow Series Cap - SC5 - Civil: Foundations, Below Grade, Stone Cover	Low Bed Equipment Hauler (7 axle)	40	1	12	HHDT	—	—	—	100	0	73	0
Capacitors - Ludlow Series Cap - SC5 - Civil: Foundations, Below Grade, Stone Cover	Low Side End Dump	100	3	12	HHDT	—	—	—	100	0	73	0
Capacitors - Ludlow Series Cap - SC5 - Civil: Foundations, Below Grade, Stone Cover	Tool Truck	50	1	12	Delivery	—	—	—	100	0	73	0
Capacitors - Ludlow Series Cap - SC5 - Civil: Foundations, Below Grade, Stone Cover	Worker Commute Automobile	100	12	12	Passenger	—	—	—	100	0	73	0
Capacitors - Ludlow Series Cap - SC5 - Commissioning: Testing	Scissor Lift	50	3	10	—	Aerial Lifts	50	6	100	0	0	34
Capacitors - Ludlow Series Cap - SC5 - Commissioning: Testing	Foreman’s Truck	50	1	10	Passenger	—	—	—	100	0	0	34
Capacitors - Ludlow Series Cap - SC5 - Commissioning: Testing	Job Site Utility Cart	50	1	10	Passenger	—	—	—	100	0	0	34
Capacitors - Ludlow Series Cap - SC5 - Commissioning: Testing	Test Truck	50	1	10	Delivery	—	—	—	100	0	0	34
Capacitors - Ludlow Series Cap - SC5 - Commissioning: Testing	Tool Truck	50	1	10	Delivery	—	—	—	100	0	0	34
Capacitors - Ludlow Series Cap - SC5 - Commissioning: Testing	Worker Commute Automobile	50	10	10	Passenger	—	—	—	100	0	0	34
Capacitors - Ludlow Series Cap - SC5 - Grading	140 Motor Grader	25	1	12	—	Graders	250	8	100	0	60	0
Capacitors - Ludlow Series Cap - SC5 - Grading	250-Ton Hydraulic Crane	30	1	12	—	Cranes	450	5	100	0	60	0
Capacitors - Ludlow Series Cap - SC5 - Grading	50,000-Pound Excavator/Breaker	30	1	12	—	Excavators	200	8	100	0	60	0
Capacitors - Ludlow Series Cap - SC5 - Grading	500-Gallon Water Buffalo with Truck	90	1	12	—	Off-Highway Trucks	185	5	100	0	60	0
Capacitors - Ludlow Series Cap - SC5 - Grading	75,000-Pound Excavator	30	1	12	—	Excavators	350	8	100	0	60	0
Capacitors - Ludlow Series Cap - SC5 - Grading	84-Inch Vibratory Roller Compactor	35	2	12	—	Rollers	130	8	100	0	60	0

Table 4.C-1. Construction Equipment and Workforce Estimates

Activity	Equipment Type	Approx. Total Days Used	Approx. Quantity	Approx. Number of Workers	On-Road Type	Off-Road Type	Output (Hp)	Approx. Use (hours/day)	Approx. Use by State (percent)		Maximum Days Used	
									CA	NV	2019	2020
Capacitors - Ludlow Series Cap - SC5 - Grading	Bobcat Compactor	50	1	12	—	Skid Steer Loaders	93	8	100	0	60	0
Capacitors - Ludlow Series Cap - SC5 - Grading	Bobcat Skid Steer	90	1	12	—	Skid Steer Loaders	93	8	100	0	60	0
Capacitors - Ludlow Series Cap - SC5 - Grading	Bobcat with Auger	90	1	12	—	Skid Steer Loaders	93	8	100	0	60	0
Capacitors - Ludlow Series Cap - SC5 - Grading	Bobcat with Sweeper	90	1	12	—	Skid Steer Loaders	93	8	100	0	60	0
Capacitors - Ludlow Series Cap - SC5 - Grading	Cat 623 Scraper	30	1	12	—	Graders	400	8	100	0	60	0
Capacitors - Ludlow Series Cap - SC5 - Grading	Cat 950 Loader	40	1	12	—	Tractors/Loaders/ Backhoes	130	8	100	0	60	0
Capacitors - Ludlow Series Cap - SC5 - Grading	D-6 Cat Dozer	40	1	12	—	Crawler Tractors	215	8	100	0	60	0
Capacitors - Ludlow Series Cap - SC5 - Grading	Ditch Witch	50	1	12	—	Trenchers	42	8	100	0	60	0
Capacitors - Ludlow Series Cap - SC5 - Grading	LoDrill Over 50,000 Pounds	20	1	12	—	Bore/Drill Rigs	350	5	100	0	60	0
Capacitors - Ludlow Series Cap - SC5 - Grading	LoDrill up to 50,000 Pounds	30	1	12	—	Bore/Drill Rigs	200	5	100	0	60	0
Capacitors - Ludlow Series Cap - SC5 - Grading	Mini Excavator	50	1	12	—	Excavators	50	8	100	0	60	0
Capacitors - Ludlow Series Cap - SC5 - Grading	Premiertrak 300 Rock Crusher	10	1	12	—	Crushing/Proc. Equipment	280	9	100	0	60	0
Capacitors - Ludlow Series Cap - SC5 - Grading	Skip Loader	100	1	12	—	Tractors/Loaders/ Backhoes	150	4	100	0	60	0
Capacitors - Ludlow Series Cap - SC5 - Grading	Vermeer RT-450 Trencher	30	1	12	—	Trenchers	50	8	100	0	60	0
Capacitors - Ludlow Series Cap - SC5 - Grading	10-Cubic-Yard Dump Truck	100	3	12	HHDT	—	—	—	100	0	60	0
Capacitors - Ludlow Series Cap - SC5 - Grading	4,000-Gallon Water Truck	100	3	12	HHDT	—	—	—	100	0	60	0
Capacitors - Ludlow Series Cap - SC5 - Grading	Foreman's Truck	90	1	12	Passenger	—	—	—	100	0	60	0
Capacitors - Ludlow Series Cap - SC5 - Grading	Job Site Utility Cart	90	1	12	Passenger	—	—	—	100	0	60	0
Capacitors - Ludlow Series Cap - SC5 - Grading	Low Bed Equipment Hauler (5 axle)	40	1	12	HHDT	—	—	—	100	0	60	0
Capacitors - Ludlow Series Cap - SC5 - Grading	Low Bed Equipment Hauler (7 axle)	40	1	12	HHDT	—	—	—	100	0	60	0
Capacitors - Ludlow Series Cap - SC5 - Grading	Low Side End Dump	100	3	12	HHDT	—	—	—	100	0	60	0
Capacitors - Ludlow Series Cap - SC5 - Grading	Tool Truck	50	1	12	Delivery	—	—	—	100	0	60	0
Capacitors - Ludlow Series Cap - SC5 - Grading	Worker Commute Automobile	100	12	12	Passenger	—	—	—	100	0	60	0
Capacitors - Ludlow Series Cap - SC5 - Installations: Structures, Equipment, Wiring	135-Foot Manlift	20	1	20	—	Aerial Lifts	75	5	100	0	83	53
Capacitors - Ludlow Series Cap - SC5 - Installations: Structures, Equipment, Wiring	20,000-Pound Forklift	40	1	20	—	Forklifts	150	8	100	0	83	53
Capacitors - Ludlow Series Cap - SC5 - Installations: Structures, Equipment, Wiring	27-Ton Boom Truck	60	1	20	—	Cranes	350	5	100	0	83	53
Capacitors - Ludlow Series Cap - SC5 - Installations: Structures, Equipment, Wiring	65-Foot Manlift	40	1	20	—	Aerial Lifts	75	5	100	0	83	53
Capacitors - Ludlow Series Cap - SC5 - Installations: Structures, Equipment, Wiring	85-Foot Manlift	40	1	20	—	Aerial Lifts	75	5	100	0	83	53
Capacitors - Ludlow Series Cap - SC5 - Installations: Structures, Equipment, Wiring	Bobcat with Forks	100	2	20	—	Skid Steer Loaders	93	8	100	0	83	53
Capacitors - Ludlow Series Cap - SC5 - Installations: Structures, Equipment, Wiring	Crane	20	1	20	—	Cranes	350	5	100	0	83	53
Capacitors - Ludlow Series Cap - SC5 - Installations: Structures, Equipment, Wiring	Generator	100	1	20	—	Generator Sets	50	12	100	0	83	53
Capacitors - Ludlow Series Cap - SC5 - Installations: Structures, Equipment, Wiring	Genie 45-Foot Manlift	40	1	20	—	Aerial Lifts	75	5	100	0	83	53
Capacitors - Ludlow Series Cap - SC5 - Installations: Structures, Equipment, Wiring	Scissor Lift	100	3	20	—	Aerial Lifts	50	6	100	0	83	53
Capacitors - Ludlow Series Cap - SC5 - Installations: Structures, Equipment, Wiring	Tele-Handler Forklift (5,000-7,000 lbs)	85	1	20	—	Rough Terrain Forklifts	150	8	100	0	83	53
Capacitors - Ludlow Series Cap - SC5 - Installations: Structures, Equipment, Wiring	Tele-Handler Forklift (8,000-12,000 lbs)	65	1	20	—	Rough Terrain Forklifts	150	8	100	0	83	53
Capacitors - Ludlow Series Cap - SC5 - Installations: Structures, Equipment, Wiring	Foreman's Truck	100	1	20	Passenger	—	—	—	100	0	83	53

Table 4.C-1. Construction Equipment and Workforce Estimates

Activity	Equipment Type	Approx. Total Days Used	Approx. Quantity	Approx. Number of Workers	On-Road Type	Off-Road Type	Output (Hp)	Approx. Use (hours/day)	Approx. Use by State (percent)		Maximum Days Used	
									CA	NV	2019	2020
Capacitors - Ludlow Series Cap - SC5 - Installations: Structures, Equipment, Wiring	Job Site Utility Cart	100	1	20	Passenger	—	—	—	100	0	83	53
Capacitors - Ludlow Series Cap - SC5 - Installations: Structures, Equipment, Wiring	Tool Truck	100	1	20	Delivery	—	—	—	100	0	83	53
Capacitors - Ludlow Series Cap - SC5 - Installations: Structures, Equipment, Wiring	Worker Commute Automobile	100	20	20	Passenger	—	—	—	100	0	83	53
Capacitors - Lugo Series Cap - SC1 - Commissioning: Testing	Foreman's Truck	35	1	6	Passenger	—	—	—	100	0	0	54
Capacitors - Lugo Series Cap - SC1 - Commissioning: Testing	Job Site Utility Cart	35	1	6	Passenger	—	—	—	100	0	0	54
Capacitors - Lugo Series Cap - SC1 - Commissioning: Testing	Test Truck	35	1	6	Delivery	—	—	—	100	0	0	54
Capacitors - Lugo Series Cap - SC1 - Commissioning: Testing	Tool Truck	35	1	6	Delivery	—	—	—	100	0	0	54
Capacitors - Lugo Series Cap - SC1 - Commissioning: Testing	Worker Commute Automobile	35	6	6	Passenger	—	—	—	100	0	0	54
Capacitors - Lugo Series Cap - SC1 - Demo: Removals, Refurbishing	250-Ton Hydraulic Crane	30	1	5	—	Cranes	450	5	100	0	48	0
Capacitors - Lugo Series Cap - SC1 - Demo: Removals, Refurbishing	500-Gallon Water Buffalo with Truck	30	1	5	—	Off-Highway Trucks	185	5	100	0	48	0
Capacitors - Lugo Series Cap - SC1 - Demo: Removals, Refurbishing	Bobcat Skid Steer	30	1	5	—	Skid Steer Loaders	93	8	100	0	48	0
Capacitors - Lugo Series Cap - SC1 - Demo: Removals, Refurbishing	Bobcat with Auger	30	1	5	—	Skid Steer Loaders	93	8	100	0	48	0
Capacitors - Lugo Series Cap - SC1 - Demo: Removals, Refurbishing	Bobcat with Sweeper	30	1	5	—	Skid Steer Loaders	93	8	100	0	48	0
Capacitors - Lugo Series Cap - SC1 - Demo: Removals, Refurbishing	10-Cubic-Yard Dump Truck	30	3	5	HHDT	—	—	—	100	0	48	0
Capacitors - Lugo Series Cap - SC1 - Demo: Removals, Refurbishing	4,000 Water Truck	30	3	5	HHDT	—	—	—	100	0	48	0
Capacitors - Lugo Series Cap - SC1 - Demo: Removals, Refurbishing	Foreman's Truck	30	1	5	Passenger	—	—	—	100	0	48	0
Capacitors - Lugo Series Cap - SC1 - Demo: Removals, Refurbishing	Job site Utility Cart	30	1	5	Passenger	—	—	—	100	0	48	0
Capacitors - Lugo Series Cap - SC1 - Demo: Removals, Refurbishing	Low Bed Equipment Hauler (5 axle)	20	1	5	HHDT	—	—	—	100	0	48	0
Capacitors - Lugo Series Cap - SC1 - Demo: Removals, Refurbishing	Low Bed Equipment Hauler (7 axle)	20	1	5	HHDT	—	—	—	100	0	48	0
Capacitors - Lugo Series Cap - SC1 - Demo: Removals, Refurbishing	Worker Commute Automobile	30	5	5	Passenger	—	—	—	100	0	48	0
Capacitors - Lugo Series Cap - SC1 - Installations: Equipment, Wiring	135-Foot Manlift	40	1	15	—	Aerial Lifts	75	5	100	0	53	13
Capacitors - Lugo Series Cap - SC1 - Installations: Equipment, Wiring	20,000-Pound Forklift	50	1	15	—	Forklifts	150	8	100	0	53	13
Capacitors - Lugo Series Cap - SC1 - Installations: Equipment, Wiring	27-Ton Boom Truck	50	1	15	—	Cranes	350	5	100	0	53	13
Capacitors - Lugo Series Cap - SC1 - Installations: Equipment, Wiring	65-Foot Manlift	50	1	15	—	Aerial Lifts	75	5	100	0	53	13
Capacitors - Lugo Series Cap - SC1 - Installations: Equipment, Wiring	85-Foot Manlift	40	1	15	—	Aerial Lifts	75	5	100	0	53	13
Capacitors - Lugo Series Cap - SC1 - Installations: Equipment, Wiring	Bobcat with Forks	50	2	15	—	Skid Steer Loaders	93	8	100	0	53	13
Capacitors - Lugo Series Cap - SC1 - Installations: Equipment, Wiring	Crane	20	1	15	—	Cranes	350	5	100	0	53	13
Capacitors - Lugo Series Cap - SC1 - Installations: Equipment, Wiring	Genie 45-Foot Manlift	50	1	15	—	Aerial Lifts	75	5	100	0	53	13
Capacitors - Lugo Series Cap - SC1 - Installations: Equipment, Wiring	Scissor Lift	50	3	15	—	Aerial Lifts	50	6	100	0	53	13
Capacitors - Lugo Series Cap - SC1 - Installations: Equipment, Wiring	Tele-Handler Forklift (5,000-7,000 lbs)	50	1	15	—	Rough Terrain Forklifts	150	8	100	0	53	13
Capacitors - Lugo Series Cap - SC1 - Installations: Equipment, Wiring	Tele-Handler Forklift (8,000-12,000 lbs)	50	1	15	—	Rough Terrain Forklifts	150	8	100	0	53	13
Capacitors - Lugo Series Cap - SC1 - Installations: Equipment, Wiring	Foreman's Truck	50	1	15	Passenger	—	—	—	100	0	53	13
Capacitors - Lugo Series Cap - SC1 - Installations: Equipment, Wiring	Job Site Utility Cart	50	1	15	Passenger	—	—	—	100	0	53	13
Capacitors - Lugo Series Cap - SC1 - Installations: Equipment, Wiring	Tool Truck	50	1	15	Delivery	—	—	—	100	0	53	13
Capacitors - Lugo Series Cap - SC1 - Installations: Equipment, Wiring	Worker Commute Automobile	50	15	15	Passenger	—	—	—	100	0	53	13
Capacitors - Lugo Series Cap - SC4 - Commissioning: Testing	Foreman's Truck	35	1	6	Passenger	—	—	—	100	0	0	41
Capacitors - Lugo Series Cap - SC4 - Commissioning: Testing	Job Site Utility Cart	35	1	6	Passenger	—	—	—	100	0	0	41
Capacitors - Lugo Series Cap - SC4 - Commissioning: Testing	Test Truck	35	1	6	Delivery	—	—	—	100	0	0	41
Capacitors - Lugo Series Cap - SC4 - Commissioning: Testing	Tool Truck	35	1	6	Delivery	—	—	—	100	0	0	41

Table 4.C-1. Construction Equipment and Workforce Estimates

Activity	Equipment Type	Approx. Total Days Used	Approx. Quantity	Approx. Number of Workers	On-Road Type	Off-Road Type	Output (Hp)	Approx. Use (hours/day)	Approx. Use by State (percent)		Maximum Days Used	
									CA	NV	2019	2020
Capacitors - Lugo Series Cap - SC4 - Commissioning: Testing	Worker Commute Automobile	35	6	6	Passenger	—	—	—	100	0	0	41
Capacitors - Lugo Series Cap - SC4 - Demo: Removals, Refurbishing	250-Ton Hydraulic Crane	30	1	5	—	Cranes	450	5	100	0	56	0
Capacitors - Lugo Series Cap - SC4 - Demo: Removals, Refurbishing	500-Gallon Water Buffalo with Truck	30	1	5	—	Off-Highway Trucks	185	5	100	0	56	0
Capacitors - Lugo Series Cap - SC4 - Demo: Removals, Refurbishing	Bobcat Skid Steer	30	1	5	—	Skid Steer Loaders	93	8	100	0	56	0
Capacitors - Lugo Series Cap - SC4 - Demo: Removals, Refurbishing	Bobcat with Auger	30	1	5	—	Skid Steer Loaders	93	8	100	0	56	0
Capacitors - Lugo Series Cap - SC4 - Demo: Removals, Refurbishing	Bobcat with Sweeper	30	1	5	—	Skid Steer Loaders	93	8	100	0	56	0
Capacitors - Lugo Series Cap - SC4 - Demo: Removals, Refurbishing	10-Cubic-Yard Dump Truck	30	3	5	HHDT	—	—	—	100	0	56	0
Capacitors - Lugo Series Cap - SC4 - Demo: Removals, Refurbishing	4,000 Water Truck	30	3	5	HHDT	—	—	—	100	0	56	0
Capacitors - Lugo Series Cap - SC4 - Demo: Removals, Refurbishing	Foreman's Truck	30	1	5	Passenger	—	—	—	100	0	56	0
Capacitors - Lugo Series Cap - SC4 - Demo: Removals, Refurbishing	Job site Utility Cart	30	1	5	Passenger	—	—	—	100	0	56	0
Capacitors - Lugo Series Cap - SC4 - Demo: Removals, Refurbishing	Low Bed Equipment Hauler (5 axle)	20	1	5	HHDT	—	—	—	100	0	56	0
Capacitors - Lugo Series Cap - SC4 - Demo: Removals, Refurbishing	Low Bed Equipment Hauler (7 axle)	20	1	5	HHDT	—	—	—	100	0	56	0
Capacitors - Lugo Series Cap - SC4 - Demo: Removals, Refurbishing	Worker Commute Automobile	30	5	5	Passenger	—	—	—	100	0	56	0
Capacitors - Lugo Series Cap - SC4 - Installations: Equipment, Wiring	135-Foot Manlift	40	1	15	—	Aerial Lifts	75	5	100	0	41	37
Capacitors - Lugo Series Cap - SC4 - Installations: Equipment, Wiring	20,000-Pound Forklift	50	1	15	—	Forklifts	150	8	100	0	41	37
Capacitors - Lugo Series Cap - SC4 - Installations: Equipment, Wiring	27-Ton Boom Truck	50	1	15	—	Cranes	350	5	100	0	41	37
Capacitors - Lugo Series Cap - SC4 - Installations: Equipment, Wiring	65-Foot Manlift	50	1	15	—	Aerial Lifts	75	5	100	0	41	37
Capacitors - Lugo Series Cap - SC4 - Installations: Equipment, Wiring	85-Foot Manlift	40	1	15	—	Aerial Lifts	75	5	100	0	41	37
Capacitors - Lugo Series Cap - SC4 - Installations: Equipment, Wiring	Bobcat with Forks	50	2	15	—	Skid Steer Loaders	93	8	100	0	41	37
Capacitors - Lugo Series Cap - SC4 - Installations: Equipment, Wiring	Crane	20	1	15	—	Cranes	350	5	100	0	41	37
Capacitors - Lugo Series Cap - SC4 - Installations: Equipment, Wiring	Genie 45-Foot Manlift	50	1	15	—	Aerial Lifts	75	5	100	0	41	37
Capacitors - Lugo Series Cap - SC4 - Installations: Equipment, Wiring	Scissor Lift	50	3	15	—	Aerial Lifts	50	6	100	0	41	37
Capacitors - Lugo Series Cap - SC4 - Installations: Equipment, Wiring	Tele-Handler Forklift (5,000-7,000 lbs)	50	1	15	—	Rough Terrain Forklifts	150	8	100	0	41	37
Capacitors - Lugo Series Cap - SC4 - Installations: Equipment, Wiring	Tele-Handler Forklift (8,000-12,000 lbs)	50	1	15	—	Rough Terrain Forklifts	150	8	100	0	41	37
Capacitors - Lugo Series Cap - SC4 - Installations: Equipment, Wiring	Foreman's Truck	50	1	15	Passenger	—	—	—	100	0	41	37
Capacitors - Lugo Series Cap - SC4 - Installations: Equipment, Wiring	Job Site Utility Cart	50	1	15	Passenger	—	—	—	100	0	41	37
Capacitors - Lugo Series Cap - SC4 - Installations: Equipment, Wiring	Tool Truck	50	1	15	Delivery	—	—	—	100	0	41	37
Capacitors - Lugo Series Cap - SC4 - Installations: Equipment, Wiring	Worker Commute Automobile	50	15	15	Passenger	—	—	—	100	0	41	37
Capacitors - Mohave Series Cap - SC6 - Civil: Grading, Foundations, Below Grade	250-Ton Hydraulic Crane	30	1	10	—	Cranes	450	5	0	100	80	0
Capacitors - Mohave Series Cap - SC6 - Civil: Grading, Foundations, Below Grade	50,000-Pound Excavator/Breaker	30	1	10	—	Excavators	200	8	0	100	80	0
Capacitors - Mohave Series Cap - SC6 - Civil: Grading, Foundations, Below Grade	500-Gallon Water Buffalo with Truck	90	1	10	—	Off-Highway Trucks	185	8	0	100	80	0
Capacitors - Mohave Series Cap - SC6 - Civil: Grading, Foundations, Below Grade	75,000-Pound Excavator	30	1	10	—	Excavators	350	8	0	100	80	0
Capacitors - Mohave Series Cap - SC6 - Civil: Grading, Foundations, Below Grade	84-Inch Vibratory Roller Compactor	35	1	10	—	Rollers	130	8	0	100	80	0
Capacitors - Mohave Series Cap - SC6 - Civil: Grading, Foundations, Below Grade	Bobcat Compactor	50	1	10	—	Skid Steer Loaders	93	8	0	100	80	0
Capacitors - Mohave Series Cap - SC6 - Civil: Grading, Foundations, Below Grade	Bobcat Skid Steer	90	1	10	—	Skid Steer Loaders	93	8	0	100	80	0
Capacitors - Mohave Series Cap - SC6 - Civil: Grading, Foundations, Below Grade	Bobcat with Auger	90	1	10	—	Skid Steer Loaders	93	8	0	100	80	0
Capacitors - Mohave Series Cap - SC6 - Civil: Grading, Foundations, Below Grade	Bobcat with Sweeper	90	1	10	—	Skid Steer Loaders	93	4	0	100	80	0
Capacitors - Mohave Series Cap - SC6 - Civil: Grading, Foundations, Below Grade	Cat 950 Loader	40	1	10	—	Tractors/Loaders/ Backhoes	130	8	0	100	80	0

Table 4.C-1. Construction Equipment and Workforce Estimates

Activity	Equipment Type	Approx. Total Days Used	Approx. Quantity	Approx. Number of Workers	On-Road Type	Off-Road Type	Output (Hp)	Approx. Use (hours/day)	Approx. Use by State (percent)		Maximum Days Used	
									CA	NV	2019	2020
Capacitors - Mohave Series Cap - SC6 - Civil: Grading, Foundations, Below Grade	D-6 Cat Dozer	40	1	10	—	Crawler Tractors	215	8	0	100	80	0
Capacitors - Mohave Series Cap - SC6 - Civil: Grading, Foundations, Below Grade	Ditch Witch	50	1	10	—	Trenchers	42	8	0	100	80	0
Capacitors - Mohave Series Cap - SC6 - Civil: Grading, Foundations, Below Grade	Drill Rig	50	1	10	—	Bore/Drill Rigs	500	5	0	100	80	0
Capacitors - Mohave Series Cap - SC6 - Civil: Grading, Foundations, Below Grade	Excavator with Breaker	50	1	10	—	Excavators	524	5	0	100	80	0
Capacitors - Mohave Series Cap - SC6 - Civil: Grading, Foundations, Below Grade	LoDrill Over 50,000 Pounds	20	1	10	—	Bore/Drill Rigs	350	5	0	100	80	0
Capacitors - Mohave Series Cap - SC6 - Civil: Grading, Foundations, Below Grade	LoDrill up to 50,000 Pounds	30	1	10	—	Bore/Drill Rigs	200	5	0	100	80	0
Capacitors - Mohave Series Cap - SC6 - Civil: Grading, Foundations, Below Grade	Mini Excavator	50	1	10	—	Excavators	50	5	0	100	80	0
Capacitors - Mohave Series Cap - SC6 - Civil: Grading, Foundations, Below Grade	Motor Grader	25	1	10	—	Graders	250	8	0	100	80	0
Capacitors - Mohave Series Cap - SC6 - Civil: Grading, Foundations, Below Grade	Skip Loader	90	1	10	—	Tractors/Loaders/ Backhoes	150	5	0	100	80	0
Capacitors - Mohave Series Cap - SC6 - Civil: Grading, Foundations, Below Grade	Vermeer RT-450 Trencher	30	1	10	—	Trenchers	50	5	0	100	80	0
Capacitors - Mohave Series Cap - SC6 - Civil: Grading, Foundations, Below Grade	10 Cubic Yard Dump Truck	90	3	10	HHDT	—	—	—	0	100	80	0
Capacitors - Mohave Series Cap - SC6 - Civil: Grading, Foundations, Below Grade	4,000-Gallon Water Truck	90	3	10	HHDT	—	—	—	0	100	80	0
Capacitors - Mohave Series Cap - SC6 - Civil: Grading, Foundations, Below Grade	8,000-Gallon Water Pull	40	1	10	HHDT	—	—	—	0	100	80	0
Capacitors - Mohave Series Cap - SC6 - Civil: Grading, Foundations, Below Grade	Foreman's Truck	90	1	10	Passenger	—	—	—	0	100	80	0
Capacitors - Mohave Series Cap - SC6 - Civil: Grading, Foundations, Below Grade	Job Site Utility Cart	90	1	10	Passenger	—	—	—	0	100	80	0
Capacitors - Mohave Series Cap - SC6 - Civil: Grading, Foundations, Below Grade	Low Bed Equipment Hauler (5 axle)	40	1	10	HHDT	—	—	—	0	100	80	0
Capacitors - Mohave Series Cap - SC6 - Civil: Grading, Foundations, Below Grade	Low Bed Equipment Hauler (7 axle)	40	1	10	HHDT	—	—	—	0	100	80	0
Capacitors - Mohave Series Cap - SC6 - Civil: Grading, Foundations, Below Grade	Low Side End Dump	90	3	10	HHDT	—	—	—	0	100	80	0
Capacitors - Mohave Series Cap - SC6 - Civil: Grading, Foundations, Below Grade	Tool Truck	50	1	10	Delivery	—	—	—	0	100	80	0
Capacitors - Mohave Series Cap - SC6 - Civil: Grading, Foundations, Below Grade	Worker Commute	90	10	10	Passenger	—	—	—	0	100	80	0
Capacitors - Mohave Series Cap - SC6 - Commissioning: Testing	Scissor Lift	50	3	6	—	Aerial Lifts	50	6	0	100	38	0
Capacitors - Mohave Series Cap - SC6 - Commissioning: Testing	Foreman's Truck	50	1	6	Passenger	—	—	—	0	100	38	0
Capacitors - Mohave Series Cap - SC6 - Commissioning: Testing	Job Site Utility Cart	50	1	6	Passenger	—	—	—	0	100	38	0
Capacitors - Mohave Series Cap - SC6 - Commissioning: Testing	Test Truck	40	1	6	Delivery	—	—	—	0	100	38	0
Capacitors - Mohave Series Cap - SC6 - Commissioning: Testing	Tool Truck	50	1	6	Delivery	—	—	—	0	100	38	0
Capacitors - Mohave Series Cap - SC6 - Commissioning: Testing	Worker Commute Automobile	50	6	6	Passenger	—	—	—	0	100	38	0
Capacitors - Mohave Series Cap - SC6 - Demo: Removals, Refurbishing	250-Ton Hydraulic Crane	30	1	10	—	Cranes	450	5	0	100	26	0
Capacitors - Mohave Series Cap - SC6 - Demo: Removals, Refurbishing	50,000-Pound Excavator/Breaker	30	1	10	—	Excavators	200	8	0	100	26	0
Capacitors - Mohave Series Cap - SC6 - Demo: Removals, Refurbishing	500-Gallon Water Buffalo with Truck	90	1	10	—	Off-Highway Trucks	185	8	0	100	26	0
Capacitors - Mohave Series Cap - SC6 - Demo: Removals, Refurbishing	75,000-Pound Excavator	30	1	10	—	Excavators	350	8	0	100	26	0
Capacitors - Mohave Series Cap - SC6 - Demo: Removals, Refurbishing	84-Inch Vibratory Roller Compactor	35	1	10	—	Rollers	130	8	0	100	26	0
Capacitors - Mohave Series Cap - SC6 - Demo: Removals, Refurbishing	Bobcat Compactor	50	1	10	—	Skid Steer Loaders	93	8	0	100	26	0
Capacitors - Mohave Series Cap - SC6 - Demo: Removals, Refurbishing	Bobcat Skid Steer	90	1	10	—	Skid Steer Loaders	93	8	0	100	26	0
Capacitors - Mohave Series Cap - SC6 - Demo: Removals, Refurbishing	Bobcat with Auger	90	1	10	—	Skid Steer Loaders	93	8	0	100	26	0
Capacitors - Mohave Series Cap - SC6 - Demo: Removals, Refurbishing	Bobcat with Sweeper	90	1	10	—	Skid Steer Loaders	93	4	0	100	26	0
Capacitors - Mohave Series Cap - SC6 - Demo: Removals, Refurbishing	Cat 950 Loader	40	1	10	—	Tractors/Loaders/ Backhoes	130	8	0	100	26	0
Capacitors - Mohave Series Cap - SC6 - Demo: Removals, Refurbishing	D-6 Cat Dozer	40	1	10	—	Crawler Tractors	215	8	0	100	26	0
Capacitors - Mohave Series Cap - SC6 - Demo: Removals, Refurbishing	Ditch Witch	50	1	10	—	Trenchers	42	8	0	100	26	0
Capacitors - Mohave Series Cap - SC6 - Demo: Removals, Refurbishing	Drill Rig	50	1	10	—	Bore/Drill Rigs	500	5	0	100	26	0

Table 4.C-1. Construction Equipment and Workforce Estimates

Activity	Equipment Type	Approx. Total Days Used	Approx. Quantity	Approx. Number of Workers	On-Road Type	Off-Road Type	Output (Hp)	Approx. Use (hours/day)	Approx. Use by State (percent)		Maximum Days Used	
									CA	NV	2019	2020
Capacitors - Mohave Series Cap - SC6 - Demo: Removals, Refurbishing	Excavator with Breaker	50	1	10	—	Excavators	524	5	0	100	26	0
Capacitors - Mohave Series Cap - SC6 - Demo: Removals, Refurbishing	LoDrill Over 50,000 Pounds	20	1	10	—	Bore/Drill Rigs	350	5	0	100	26	0
Capacitors - Mohave Series Cap - SC6 - Demo: Removals, Refurbishing	LoDrill up to 50,000 Pounds	30	1	10	—	Bore/Drill Rigs	200	5	0	100	26	0
Capacitors - Mohave Series Cap - SC6 - Demo: Removals, Refurbishing	Mini Excavator	50	1	10	—	Excavators	50	5	0	100	26	0
Capacitors - Mohave Series Cap - SC6 - Demo: Removals, Refurbishing	Motor Grader	25	1	10	—	Graders	250	8	0	100	26	0
Capacitors - Mohave Series Cap - SC6 - Demo: Removals, Refurbishing	Skip Loader	90	1	10	—	Tractors/Loaders/ Backhoes	150	5	0	100	26	0
Capacitors - Mohave Series Cap - SC6 - Demo: Removals, Refurbishing	Vermeer RT-450 Trencher	30	1	10	—	Trenchers	50	5	0	100	26	0
Capacitors - Mohave Series Cap - SC6 - Demo: Removals, Refurbishing	10 Cubic Yard Dump Truck	90	3	10	HHDT	—	—	—	0	100	26	0
Capacitors - Mohave Series Cap - SC6 - Demo: Removals, Refurbishing	4,000-Gallon Water Truck	90	3	10	HHDT	—	—	—	0	100	26	0
Capacitors - Mohave Series Cap - SC6 - Demo: Removals, Refurbishing	8,000-Gallon Water Pull	40	1	10	HHDT	—	—	—	0	100	26	0
Capacitors - Mohave Series Cap - SC6 - Demo: Removals, Refurbishing	Foreman's Truck	90	1	10	Passenger	—	—	—	0	100	26	0
Capacitors - Mohave Series Cap - SC6 - Demo: Removals, Refurbishing	Job Site Utility Cart	90	1	10	Passenger	—	—	—	0	100	26	0
Capacitors - Mohave Series Cap - SC6 - Demo: Removals, Refurbishing	Low Bed Equipment Hauler (5 axle)	40	1	10	HHDT	—	—	—	0	100	26	0
Capacitors - Mohave Series Cap - SC6 - Demo: Removals, Refurbishing	Low Bed Equipment Hauler (7 axle)	40	1	10	HHDT	—	—	—	0	100	26	0
Capacitors - Mohave Series Cap - SC6 - Demo: Removals, Refurbishing	Low Side End Dump	90	3	10	HHDT	—	—	—	0	100	26	0
Capacitors - Mohave Series Cap - SC6 - Demo: Removals, Refurbishing	Tool Truck	50	1	10	Delivery	—	—	—	0	100	26	0
Capacitors - Mohave Series Cap - SC6 - Demo: Removals, Refurbishing	Worker Commute Automobile	90	10	10	Passenger	—	—	—	0	100	26	0
Capacitors - Mohave Series Cap - SC6 - Installations: Equipment, Wiring	135-Foot Manlift	20	1	15	—	Aerial Lifts	75	5	0	100	108	0
Capacitors - Mohave Series Cap - SC6 - Installations: Equipment, Wiring	20,000-Pound Forklift	40	1	15	—	Forklifts	150	8	0	100	108	0
Capacitors - Mohave Series Cap - SC6 - Installations: Equipment, Wiring	27-Ton Boom Truck	60	1	15	—	Cranes	350	5	0	100	108	0
Capacitors - Mohave Series Cap - SC6 - Installations: Equipment, Wiring	65-Foot Manlift	40	1	15	—	Aerial Lifts	75	5	0	100	108	0
Capacitors - Mohave Series Cap - SC6 - Installations: Equipment, Wiring	85-Foot Manlift	40	1	15	—	Aerial Lifts	75	5	0	100	108	0
Capacitors - Mohave Series Cap - SC6 - Installations: Equipment, Wiring	Bobcat with Forks	90	2	15	—	Skid Steer Loaders	93	8	0	100	108	0
Capacitors - Mohave Series Cap - SC6 - Installations: Equipment, Wiring	Crane	20	1	15	—	Cranes	350	5	0	100	108	0
Capacitors - Mohave Series Cap - SC6 - Installations: Equipment, Wiring	Generator	90	1	15	—	Generator Sets	50	12	0	100	108	0
Capacitors - Mohave Series Cap - SC6 - Installations: Equipment, Wiring	Genie 45-Foot Manlift	40	1	15	—	Aerial Lifts	75	5	0	100	108	0
Capacitors - Mohave Series Cap - SC6 - Installations: Equipment, Wiring	Scissor Lift	90	3	15	—	Aerial Lifts	50	6	0	100	108	0
Capacitors - Mohave Series Cap - SC6 - Installations: Equipment, Wiring	Tele-Handler Forklift (5,000-7,000 lbs)	85	1	15	—	Rough Terrain Forklifts	150	8	0	100	108	0
Capacitors - Mohave Series Cap - SC6 - Installations: Equipment, Wiring	Tele-Handler Forklift (8,000-12,000 lbs)	65	1	15	—	Rough Terrain Forklifts	150	8	0	100	108	0
Capacitors - Mohave Series Cap - SC6 - Installations: Equipment, Wiring	Foreman's Truck	90	1	15	Passenger	—	—	—	0	100	108	0
Capacitors - Mohave Series Cap - SC6 - Installations: Equipment, Wiring	Job Site Utility Cart	90	1	15	Passenger	—	—	—	0	100	108	0
Capacitors - Mohave Series Cap - SC6 - Installations: Equipment, Wiring	Tool Truck	90	1	15	Delivery	—	—	—	0	100	108	0
Capacitors - Mohave Series Cap - SC6 - Installations: Equipment, Wiring	Worker Commute Automobile	90	15	15	Passenger	—	—	—	0	100	108	0
Capacitors - Newberry Springs Series Cap - SC2 - Civil: Foundations, Below Grade, Stone Cover	140 Motor Grader	25	1	12	—	Graders	250	8	100	0	88	0
Capacitors - Newberry Springs Series Cap - SC2 - Civil: Foundations, Below Grade, Stone Cover	250-Ton Hydraulic Crane	30	1	12	—	Cranes	450	5	100	0	88	0
Capacitors - Newberry Springs Series Cap - SC2 - Civil: Foundations, Below Grade, Stone Cover	50,000-Pound Excavator/Breaker	30	1	12	—	Excavators	200	8	100	0	88	0
Capacitors - Newberry Springs Series Cap - SC2 - Civil: Foundations, Below Grade, Stone Cover	500-Gallon Water Buffalo w/Truck	90	1	12	—	Off-Highway Trucks	185	5	100	0	88	0
Capacitors - Newberry Springs Series Cap - SC2 - Civil: Foundations, Below Grade, Stone Cover	75,000-Pound Excavator	30	1	12	—	Excavators	350	8	100	0	88	0

Table 4.C-1. Construction Equipment and Workforce Estimates

Activity	Equipment Type	Approx. Total Days Used	Approx. Quantity	Approx. Number of Workers	On-Road Type	Off-Road Type	Output (Hp)	Approx. Use (hours/day)	Approx. Use by State (percent)		Maximum Days Used	
									CA	NV	2019	2020
Capacitors - Newberry Springs Series Cap - SC2 - Civil: Foundations, Below Grade, Stone Cover	84-Inch Vibratory Roller Compactor	35	2	12	—	Rollers	130	8	100	0	88	0
Capacitors - Newberry Springs Series Cap - SC2 - Civil: Foundations, Below Grade, Stone Cover	Bobcat Compactor	50	1	12	—	Skid Steer Loaders	93	8	100	0	88	0
Capacitors - Newberry Springs Series Cap - SC2 - Civil: Foundations, Below Grade, Stone Cover	Bobcat Skid Steer	90	1	12	—	Skid Steer Loaders	93	8	100	0	88	0
Capacitors - Newberry Springs Series Cap - SC2 - Civil: Foundations, Below Grade, Stone Cover	Bobcat with Auger	90	1	12	—	Skid Steer Loaders	93	8	100	0	88	0
Capacitors - Newberry Springs Series Cap - SC2 - Civil: Foundations, Below Grade, Stone Cover	Bobcat with Sweeper	90	1	12	—	Skid Steer Loaders	93	8	100	0	88	0
Capacitors - Newberry Springs Series Cap - SC2 - Civil: Foundations, Below Grade, Stone Cover	Cat 623 Scraper	30	1	12	—	Graders	400	8	100	0	88	0
Capacitors - Newberry Springs Series Cap - SC2 - Civil: Foundations, Below Grade, Stone Cover	Cat 950 Loader	40	1	12	—	Tractors/Loaders/ Backhoes	130	8	100	0	88	0
Capacitors - Newberry Springs Series Cap - SC2 - Civil: Foundations, Below Grade, Stone Cover	D-6 Cat Dozer	40	1	12	—	Crawler Tractors	215	8	100	0	88	0
Capacitors - Newberry Springs Series Cap - SC2 - Civil: Foundations, Below Grade, Stone Cover	Ditch Witch	50	1	12	—	Trenchers	42	8	100	0	88	0
Capacitors - Newberry Springs Series Cap - SC2 - Civil: Foundations, Below Grade, Stone Cover	LoDrill Over 50,000 Pounds	20	1	12	—	Bore/Drill Rigs	350	5	100	0	88	0
Capacitors - Newberry Springs Series Cap - SC2 - Civil: Foundations, Below Grade, Stone Cover	LoDrill up to 50,000 Pounds	30	1	12	—	Bore/Drill Rigs	200	5	100	0	88	0
Capacitors - Newberry Springs Series Cap - SC2 - Civil: Foundations, Below Grade, Stone Cover	Mini Excavator	50	1	12	—	Excavators	50	8	100	0	88	0
Capacitors - Newberry Springs Series Cap - SC2 - Civil: Foundations, Below Grade, Stone Cover	Premiertrak 300 Rock Crusher	10	1	12	—	Crushing/Proc. Equipment	280	9	100	0	88	0
Capacitors - Newberry Springs Series Cap - SC2 - Civil: Foundations, Below Grade, Stone Cover	Skip Loader	100	1	12	—	Tractors/Loaders/ Backhoes	150	4	100	0	88	0
Capacitors - Newberry Springs Series Cap - SC2 - Civil: Foundations, Below Grade, Stone Cover	Vermeer RT-450 Trencher	30	1	12	—	Trenchers	50	8	100	0	88	0
Capacitors - Newberry Springs Series Cap - SC2 - Civil: Foundations, Below Grade, Stone Cover	10-Cubic-Yard Dump Truck	100	3	12	HHDT	—	—	—	100	0	88	0
Capacitors - Newberry Springs Series Cap - SC2 - Civil: Foundations, Below Grade, Stone Cover	4,000-Gallon Water Truck	100	3	12	HHDT	—	—	—	100	0	88	0
Capacitors - Newberry Springs Series Cap - SC2 - Civil: Foundations, Below Grade, Stone Cover	Foreman's Truck	90	1	12	Passenger	—	—	—	100	0	88	0
Capacitors - Newberry Springs Series Cap - SC2 - Civil: Foundations, Below Grade, Stone Cover	Job Site Utility Cart	90	1	12	Passenger	—	—	—	100	0	88	0
Capacitors - Newberry Springs Series Cap - SC2 - Civil: Foundations, Below Grade, Stone Cover	Low Bed Equipment Hauler (5 axle)	40	1	12	HHDT	—	—	—	100	0	88	0
Capacitors - Newberry Springs Series Cap - SC2 - Civil: Foundations, Below Grade, Stone Cover	Low Bed Equipment Hauler (7 axle)	40	1	12	HHDT	—	—	—	100	0	88	0
Capacitors - Newberry Springs Series Cap - SC2 - Civil: Foundations, Below Grade, Stone Cover	Low Side End Dump	100	3	12	HHDT	—	—	—	100	0	88	0
Capacitors - Newberry Springs Series Cap - SC2 - Civil: Foundations, Below Grade, Stone Cover	Tool Truck	50	1	12	Delivery	—	—	—	100	0	88	0
Capacitors - Newberry Springs Series Cap - SC2 - Civil: Foundations, Below Grade, Stone Cover	Worker Commute Automobile	100	12	12	Passenger	—	—	—	100	0	88	0
Capacitors - Newberry Springs Series Cap - SC2 - Commissioning: Testing	Scissor Lift	35	3	10	—	Aerial Lifts	50	6	100	0	0	28
Capacitors - Newberry Springs Series Cap - SC2 - Commissioning: Testing	Foreman's Truck	35	1	10	Passenger	—	—	—	100	0	0	28
Capacitors - Newberry Springs Series Cap - SC2 - Commissioning: Testing	Job Site Utility Cart	35	1	10	Passenger	—	—	—	100	0	0	28
Capacitors - Newberry Springs Series Cap - SC2 - Commissioning: Testing	Test Truck	35	1	10	Delivery	—	—	—	100	0	0	28
Capacitors - Newberry Springs Series Cap - SC2 - Commissioning: Testing	Tool Truck	35	1	10	Delivery	—	—	—	100	0	0	28
Capacitors - Newberry Springs Series Cap - SC2 - Commissioning: Testing	Worker Commute Automobile	35	10	10	Passenger	—	—	—	100	0	0	28
Capacitors - Newberry Springs Series Cap - SC2 - Grading	140 Motor Grader	25	1	12	—	Graders	250	8	100	0	46	0
Capacitors - Newberry Springs Series Cap - SC2 - Grading	250-Ton Hydraulic Crane	30	1	12	—	Cranes	450	5	100	0	46	0
Capacitors - Newberry Springs Series Cap - SC2 - Grading	50,000-Pound Excavator/Breaker	30	1	12	—	Excavators	200	8	100	0	46	0
Capacitors - Newberry Springs Series Cap - SC2 - Grading	500-Gallon Water Buffalo w/Truck	90	1	12	—	Off-Highway Trucks	185	5	100	0	46	0
Capacitors - Newberry Springs Series Cap - SC2 - Grading	75,000-Pound Excavator	30	1	12	—	Excavators	350	8	100	0	46	0
Capacitors - Newberry Springs Series Cap - SC2 - Grading	84-Inch Vibratory Roller Compactor	35	2	12	—	Rollers	130	8	100	0	46	0
Capacitors - Newberry Springs Series Cap - SC2 - Grading	Bobcat Compactor	50	1	12	—	Skid Steer Loaders	93	8	100	0	46	0
Capacitors - Newberry Springs Series Cap - SC2 - Grading	Bobcat Skid Steer	90	1	12	—	Skid Steer Loaders	93	8	100	0	46	0

Table 4.C-1. Construction Equipment and Workforce Estimates

Activity	Equipment Type	Approx. Total Days Used	Approx. Quantity	Approx. Number of Workers	On-Road Type	Off-Road Type	Output (Hp)	Approx. Use (hours/day)	Approx. Use by State (percent)		Maximum Days Used	
									CA	NV	2019	2020
Capacitors - Newberry Springs Series Cap - SC2 - Grading	Bobcat with Auger	90	1	12	—	Skid Steer Loaders	93	8	100	0	46	0
Capacitors - Newberry Springs Series Cap - SC2 - Grading	Bobcat with Sweeper	90	1	12	—	Skid Steer Loaders	93	8	100	0	46	0
Capacitors - Newberry Springs Series Cap - SC2 - Grading	Cat 623 Scraper	30	1	12	—	Graders	400	8	100	0	46	0
Capacitors - Newberry Springs Series Cap - SC2 - Grading	Cat 950 Loader	40	1	12	—	Tractors/Loaders/ Backhoes	130	8	100	0	46	0
Capacitors - Newberry Springs Series Cap - SC2 - Grading	D-6 Cat Dozer	40	1	12	—	Crawler Tractors	215	8	100	0	46	0
Capacitors - Newberry Springs Series Cap - SC2 - Grading	Ditch Witch	50	1	12	—	Trenchers	42	8	100	0	46	0
Capacitors - Newberry Springs Series Cap - SC2 - Grading	LoDrill Over 50,000 Pounds	20	1	12	—	Bore/Drill Rigs	350	5	100	0	46	0
Capacitors - Newberry Springs Series Cap - SC2 - Grading	LoDrill up to 50,000 Pounds	30	1	12	—	Bore/Drill Rigs	200	5	100	0	46	0
Capacitors - Newberry Springs Series Cap - SC2 - Grading	Mini Excavator	50	1	12	—	Excavators	50	8	100	0	46	0
Capacitors - Newberry Springs Series Cap - SC2 - Grading	Premiertrak 300 Rock Crusher	10	1	12	—	Crushing/Proc. Equipment	280	9	100	0	46	0
Capacitors - Newberry Springs Series Cap - SC2 - Grading	Skip Loader	100	1	12	—	Tractors/Loaders/ Backhoes	150	4	100	0	46	0
Capacitors - Newberry Springs Series Cap - SC2 - Grading	Vermeer RT-450 Trencher	30	1	12	—	Trenchers	50	8	100	0	46	0
Capacitors - Newberry Springs Series Cap - SC2 - Grading	10-Cubic-Yard Dump Truck	100	3	12	HHDT	—	—	—	100	0	46	0
Capacitors - Newberry Springs Series Cap - SC2 - Grading	4,000-Gallon Water Truck	100	3	12	HHDT	—	—	—	100	0	46	0
Capacitors - Newberry Springs Series Cap - SC2 - Grading	Foreman's Truck	90	1	12	Passenger	—	—	—	100	0	46	0
Capacitors - Newberry Springs Series Cap - SC2 - Grading	Job Site Utility Cart	90	1	12	Passenger	—	—	—	100	0	46	0
Capacitors - Newberry Springs Series Cap - SC2 - Grading	Low Bed Equipment Hauler (5 axle)	40	1	12	HHDT	—	—	—	100	0	46	0
Capacitors - Newberry Springs Series Cap - SC2 - Grading	Low Bed Equipment Hauler (7 axle)	40	1	12	HHDT	—	—	—	100	0	46	0
Capacitors - Newberry Springs Series Cap - SC2 - Grading	Low Side End Dump	100	3	12	HHDT	—	—	—	100	0	46	0
Capacitors - Newberry Springs Series Cap - SC2 - Grading	Tool Truck	50	1	12	Delivery	—	—	—	100	0	46	0
Capacitors - Newberry Springs Series Cap - SC2 - Grading	Worker Commute Automobile	100	12	12	Passenger	—	—	—	100	0	46	0
Capacitors - Newberry Springs Series Cap - SC2 - Installations: Structures, Equipment, Wiring	135-Foot Manlift	20	1	20	—	Aerial Lifts	75	5	100	0	101	40
Capacitors - Newberry Springs Series Cap - SC2 - Installations: Structures, Equipment, Wiring	20,000-Pound Forklift	40	1	20	—	Forklifts	150	8	100	0	101	40
Capacitors - Newberry Springs Series Cap - SC2 - Installations: Structures, Equipment, Wiring	27-Ton Boom Truck	60	1	20	—	Cranes	350	5	100	0	101	40
Capacitors - Newberry Springs Series Cap - SC2 - Installations: Structures, Equipment, Wiring	65-Foot Manlift	40	1	20	—	Aerial Lifts	75	5	100	0	101	40
Capacitors - Newberry Springs Series Cap - SC2 - Installations: Structures, Equipment, Wiring	85-Foot Manlift	40	1	20	—	Aerial Lifts	75	5	100	0	101	40
Capacitors - Newberry Springs Series Cap - SC2 - Installations: Structures, Equipment, Wiring	Bobcat with Forks	100	2	20	—	Skid Steer Loaders	93	8	100	0	101	40
Capacitors - Newberry Springs Series Cap - SC2 - Installations: Structures, Equipment, Wiring	Crane	20	1	20	—	Cranes	350	5	100	0	101	40
Capacitors - Newberry Springs Series Cap - SC2 - Installations: Structures, Equipment, Wiring	Generator	100	1	20	—	Generator Sets	50	10	100	0	101	40
Capacitors - Newberry Springs Series Cap - SC2 - Installations: Structures, Equipment, Wiring	Genie 45-Foot Manlift	40	1	20	—	Aerial Lifts	75	5	100	0	101	40
Capacitors - Newberry Springs Series Cap - SC2 - Installations: Structures, Equipment, Wiring	Scissor Lift	100	3	20	—	Aerial Lifts	50	6	100	0	101	40
Capacitors - Newberry Springs Series Cap - SC2 - Installations: Structures, Equipment, Wiring	Tele-Handler Forklift (5,000-7,000 lbs)	85	1	20	—	Rough Terrain Forklifts	150	8	100	0	101	40
Capacitors - Newberry Springs Series Cap - SC2 - Installations: Structures, Equipment, Wiring	Tele-Handler Forklift (8,000-12,000 lbs)	65	1	20	—	Rough Terrain Forklifts	150	8	100	0	101	40
Capacitors - Newberry Springs Series Cap - SC2 - Installations: Structures, Equipment, Wiring	Foreman's Truck	100	1	20	Passenger	—	—	—	100	0	101	40
Capacitors - Newberry Springs Series Cap - SC2 - Installations: Structures, Equipment, Wiring	Job Site Utility Cart	100	1	20	Passenger	—	—	—	100	0	101	40
Capacitors - Newberry Springs Series Cap - SC2 - Installations: Structures, Equipment, Wiring	Tool Truck	100	1	20	Delivery	—	—	—	100	0	101	40

Table 4.C-1. Construction Equipment and Workforce Estimates

Activity	Equipment Type	Approx. Total Days Used	Approx. Quantity	Approx. Number of Workers	On-Road Type	Off-Road Type	Output (Hp)	Approx. Use (hours/day)	Approx. Use by State (percent)		Maximum Days Used	
									CA	NV	2019	2020
Capacitors - Newberry Springs Series Cap - SC2 - Installations: Structures, Equipment, Wiring	Worker Commute Automobile	100	20	20	Passenger	—	—	—	100	0	101	40
Transmission												
Transmission - 500 kV - Survey (1)	1-Ton Truck, 4x4	90	2	8	Passenger	—	—	—	75	25	236	156
Transmission - 500 kV - Survey (1)	Worker Commute Automobile	90	8	8	Passenger	—	—	—	75	25	236	156
Transmission - 500 kV - Fiber Splicing and Termination	1-Ton Truck, 4x4	60	1	5	Passenger	—	—	—	75	25	184	132
Transmission - 500 kV - Fiber Splicing and Termination	Medium Duty Splicing Lab Truck	60	2	5	Delivery	—	—	—	75	25	184	132
Transmission - 500 kV - Fiber Splicing and Termination	Worker Commute Automobile	60	5	5	Passenger	—	—	—	75	25	184	132
Transmission - 500 kV - Lugo-Moh - Guard Structure Installation (5)	Auger Truck	30	1	6	—	Bore/Drill Rigs	210	4	95	5	66	53
Transmission - 500 kV - Lugo-Moh - Guard Structure Installation (5)	Boom/Crane Truck	30	1	6	—	Cranes	350	6	95	5	66	53
Transmission - 500 kV - Lugo-Moh - Guard Structure Installation (5)	Compressor Trailer	30	1	6	—	Air Compressors	60	4	95	5	66	53
Transmission - 500 kV - Lugo-Moh - Guard Structure Installation (5)	Digger Derrick 6060	30	2	6	—	Bore/Drill Rigs	300	8	95	5	66	53
Transmission - 500 kV - Lugo-Moh - Guard Structure Installation (5)	Manlift/Bucket Truck	30	1	6	—	Aerial Lifts	250	4	95	5	66	53
Transmission - 500 kV - Lugo-Moh - Guard Structure Installation (5)	1-Ton Truck, 4x4	30	1	6	Passenger	—	—	—	95	5	66	53
Transmission - 500 kV - Lugo-Moh - Guard Structure Installation (5)	3/4-Ton Truck, 4x4	30	1	6	Passenger	—	—	—	95	5	66	53
Transmission - 500 kV - Lugo-Moh - Guard Structure Installation (5)	Extendable Flat Bed Pole Truck	30	1	6	HHDT	—	—	—	95	5	66	53
Transmission - 500 kV - Lugo-Moh - Guard Structure Installation (5)	Worker Commute Automobile	30	6	6	Passenger	—	—	—	95	5	66	53
Transmission - 500 kV - Lugo-Moh - Guard Structure Removal (15)	Boom/Crane Truck	20	1	6	—	Cranes	350	6	95	5	66	53
Transmission - 500 kV - Lugo-Moh - Guard Structure Removal (15)	Compressor Trailer	20	1	6	—	Air Compressors	60	4	95	5	66	53
Transmission - 500 kV - Lugo-Moh - Guard Structure Removal (15)	Digger Derrick 6060	20	2	6	—	Bore/Drill Rigs	300	8	95	5	66	53
Transmission - 500 kV - Lugo-Moh - Guard Structure Removal (15)	Manlift/Bucket Truck	20	1	6	—	Aerial Lifts	250	4	95	5	66	53
Transmission - 500 kV - Lugo-Moh - Guard Structure Removal (15)	1-Ton Truck, 4x4	20	1	6	Passenger	—	—	—	95	5	66	53
Transmission - 500 kV - Lugo-Moh - Guard Structure Removal (15)	3/4-Ton Truck, 4x4	20	1	6	Passenger	—	—	—	95	5	66	53
Transmission - 500 kV - Lugo-Moh - Guard Structure Removal (15)	Extendable Flat Bed Pole Truck	20	1	6	HHDT	—	—	—	95	5	66	53
Transmission - 500 kV - Lugo-Moh - Guard Structure Removal (15)	Worker Commute Automobile	20	6	6	Passenger	—	—	—	95	5	66	53
Transmission - 500 kV - Lugo-Moh - Install Underground Fiber	Manlift/Bucket Truck	15	3	5	—	Aerial Lifts	250	6	100	0	80	0
Transmission - 500 kV - Lugo-Moh - Install Underground Fiber	Wire Truck/Trailer	15	1	5	—	Other Construction Equipment	10	6	100	0	80	0
Transmission - 500 kV - Lugo-Moh - Install Underground Fiber	1-Ton Truck, 4x4	15	1	5	Passenger	—	—	—	100	0	80	0
Transmission - 500 kV - Lugo-Moh - Install Underground Fiber	Worker Commute Automobile	15	5	5	Passenger	—	—	—	100	0	80	0
Transmission - 500 kV - Lugo-Moh - Pull-site preparation	Backhoe/Front Loader	8	1	5	—	Tractors/Loaders/ Backhoes	200	4	95	5	66	53
Transmission - 500 kV - Lugo-Moh - Pull-site preparation	Drum Type Compactor	8	1	5	—	Rollers	100	6	95	5	66	53
Transmission - 500 kV - Lugo-Moh - Pull-site preparation	Excavator	4	1	5	—	Excavators	160	4	95	5	66	53
Transmission - 500 kV - Lugo-Moh - Pull-site preparation	Motor Grader	8	1	5	—	Graders	250	6	95	5	66	53
Transmission - 500 kV - Lugo-Moh - Pull-site preparation	Track Type Dozer	8	1	5	—	Crawler Tractors	150	4	95	5	66	53
Transmission - 500 kV - Lugo-Moh - Pull-site preparation	1-Ton Truck, 4x4	8	1	5	Passenger	—	—	—	95	5	66	53
Transmission - 500 kV - Lugo-Moh - Pull-site preparation	Lowboy Truck/Trailer	8	1	5	HHDT	—	—	—	95	5	66	53
Transmission - 500 kV - Lugo-Moh - Pull-site preparation	Water Truck	8	1	5	HHDT	—	—	—	95	5	66	53
Transmission - 500 kV - Lugo-Moh - Pull-site preparation	Worker Commute	8	5	5	Passenger	—	—	—	95	5	66	53
Transmission - 500 kV - Lugo-Moh - R/W Clearing	Backhoe/Front Loader	82	1	5	—	Tractors/Loaders/ Backhoes	200	6	95	5	66	53

Table 4.C-1. Construction Equipment and Workforce Estimates

Activity	Equipment Type	Approx. Total Days Used	Approx. Quantity	Approx. Number of Workers	On-Road Type	Off-Road Type	Output (Hp)	Approx. Use (hours/day)	Approx. Use by State (percent)		Maximum Days Used	
									CA	NV	2019	2020
Transmission - 500 kV - Lugo-Moh - R/W Clearing	Motor Grader	82	1	5	—	Graders	250	6	95	5	66	53
Transmission - 500 kV - Lugo-Moh - R/W Clearing	Track Type Dozer	82	1	5	—	Crawler Tractors	150	6	95	5	66	53
Transmission - 500 kV - Lugo-Moh - R/W Clearing	1-Ton Truck, 4x4	82	1	5	Passenger	—	—	—	95	5	66	53
Transmission - 500 kV - Lugo-Moh - R/W Clearing	Lowboy Truck/Trailer	82	1	5	HHDT	—	—	—	95	5	66	53
Transmission - 500 kV - Lugo-Moh - R/W Clearing	Water Truck	82	1	5	HHDT	—	—	—	95	5	66	53
Transmission - 500 kV - Lugo-Moh - R/W Clearing	Worker Commute Automobile	82	5	5	Passenger	—	—	—	95	5	66	53
Transmission - 500 kV - Lugo-Moh - Remove OHGW, Install OPGW, Splicing, Peak Mod (14)	Hughes 530F Helicopter	210	4	44	—	—	NA	6	95	5	66	53
Transmission - 500 kV - Lugo-Moh - Remove OHGW, Install OPGW, Splicing, Peak Mod (14)	Backhoe/Front Loader	210	1	44	—	Tractors/Loaders/ Backhoes	200	4	95	5	66	53
Transmission - 500 kV - Lugo-Moh - Remove OHGW, Install OPGW, Splicing, Peak Mod (14)	Boom/Crane Truck	210	2	44	—	Cranes	350	8	95	5	66	53
Transmission - 500 kV - Lugo-Moh - Remove OHGW, Install OPGW, Splicing, Peak Mod (14)	Bullwheel Puller	150	1	44	—	Other Construction Equipment	350	8	95	5	66	53
Transmission - 500 kV - Lugo-Moh - Remove OHGW, Install OPGW, Splicing, Peak Mod (14)	D8 Cat	210	2	44	—	Crawler Tractors	350	2	95	5	66	53
Transmission - 500 kV - Lugo-Moh - Remove OHGW, Install OPGW, Splicing, Peak Mod (14)	Manlift/Bucket Truck	210	4	44	—	Aerial Lifts	250	8	95	5	66	53
Transmission - 500 kV - Lugo-Moh - Remove OHGW, Install OPGW, Splicing, Peak Mod (14)	R/T Crane (M)	210	2	44	—	Cranes	215	4	95	5	66	53
Transmission - 500 kV - Lugo-Moh - Remove OHGW, Install OPGW, Splicing, Peak Mod (14)	Sag Cat w/2 winches	105	2	44	—	Crawler Tractors	350	2	95	5	66	53
Transmission - 500 kV - Lugo-Moh - Remove OHGW, Install OPGW, Splicing, Peak Mod (14)	Skid Steer Mulcher	210	2	44	—	Tractors/Loaders/ Backhoes	110	8	95	5	66	53
Transmission - 500 kV - Lugo-Moh - Remove OHGW, Install OPGW, Splicing, Peak Mod (14)	Static Truck/Tensioner	210	1	44	—	Other Construction Equipment	350	8	95	5	66	53
Transmission - 500 kV - Lugo-Moh - Remove OHGW, Install OPGW, Splicing, Peak Mod (14)	Wire Truck/Trailer	150	4	44	—	Other Construction Equipment	10	6	95	5	66	53
Transmission - 500 kV - Lugo-Moh - Remove OHGW, Install OPGW, Splicing, Peak Mod (14)	1-Ton Truck, 4x4	210	6	44	Passenger	—	—	—	95	5	66	53
Transmission - 500 kV - Lugo-Moh - Remove OHGW, Install OPGW, Splicing, Peak Mod (14)	3/4-Ton Truck, 4x4	210	4	44	Passenger	—	—	—	95	5	66	53
Transmission - 500 kV - Lugo-Moh - Remove OHGW, Install OPGW, Splicing, Peak Mod (14)	Dump Truck	210	1	44	HHDT	—	—	—	95	5	66	53
Transmission - 500 kV - Lugo-Moh - Remove OHGW, Install OPGW, Splicing, Peak Mod (14)	Fuel, Helicopter Support Truck	210	4	44	HHDT	—	—	—	95	5	66	53
Transmission - 500 kV - Lugo-Moh - Remove OHGW, Install OPGW, Splicing, Peak Mod (14)	Lowboy Truck/Trailer	210	3	44	HHDT	—	—	—	95	5	66	53
Transmission - 500 kV - Lugo-Moh - Remove OHGW, Install OPGW, Splicing, Peak Mod (14)	Splicing Lab	210	2	44	Passenger	—	—	—	95	5	66	53
Transmission - 500 kV - Lugo-Moh - Remove OHGW, Install OPGW, Splicing, Peak Mod (14)	Worker Commute Automobile	210	44	44	Passenger	—	—	—	95	5	66	53
Transmission - 500 kV - Lugo-Moh - Restoration (16)	Backhoe/Front Loader	82	1	7	—	Tractors/Loaders/ Backhoes	200	4	95	5	66	53
Transmission - 500 kV - Lugo-Moh - Restoration (16)	Drum Type Compactor	82	1	7	—	Rollers	100	4	95	5	66	53
Transmission - 500 kV - Lugo-Moh - Restoration (16)	Motor Grader	82	1	7	—	Graders	250	6	95	5	66	53
Transmission - 500 kV - Lugo-Moh - Restoration (16)	1-Ton Truck, 4x4	82	2	7	Passenger	—	—	—	95	5	66	53
Transmission - 500 kV - Lugo-Moh - Restoration (16)	Lowboy Truck/Trailer	82	1	7	HHDT	—	—	—	95	5	66	53
Transmission - 500 kV - Lugo-Moh - Restoration (16)	Water Truck	82	1	7	HHDT	—	—	—	95	5	66	53
Transmission - 500 kV - Lugo-Moh - Restoration (16)	Worker Commute	82	7	7	Passenger	—	—	—	95	5	66	53
Transmission - 500 kV - Marshalling Yard (2)	Boom/Crane Truck	78	1	4	—	Cranes	350	2	75	25	79	0
Transmission - 500 kV - Marshalling Yard (2)	R/T Forklift	78	1	4	—	Rough Terrain Forklifts	125	6	75	25	79	0
Transmission - 500 kV - Marshalling Yard (2)	1-Ton Truck, 4x4	78	1	4	Passenger	—	—	—	75	25	79	0
Transmission - 500 kV - Marshalling Yard (2)	Truck, Semi-Tractor	78	1	4	HHDT	—	—	—	75	25	79	0

Table 4.C-1. Construction Equipment and Workforce Estimates

Activity	Equipment Type	Approx. Total Days Used	Approx. Quantity	Approx. Number of Workers	On-Road Type	Off-Road Type	Output (Hp)	Approx. Use (hours/day)	Approx. Use by State (percent)		Maximum Days Used	
									CA	NV	2019	2020
Transmission - 500 kV - Marshalling Yard (2)	Water Truck	78	1	4	HHDT	—	—	—	75	25	79	0
Transmission - 500 kV - Marshalling Yard (2)	Worker Commute Automobile	78	4	4	Passenger	—	—	—	75	25	79	0
Transmission - 500 kV - Moh-Eld - Guard Structure Installation (5)	Auger Truck	30	1	6	—	Bore/Drill Rigs	210	4	0	100	54	0
Transmission - 500 kV - Moh-Eld - Guard Structure Installation (5)	Boom/Crane Truck	30	1	6	—	Cranes	350	6	0	100	54	0
Transmission - 500 kV - Moh-Eld - Guard Structure Installation (5)	Compressor Trailer	30	1	6	—	Air Compressors	60	4	0	100	54	0
Transmission - 500 kV - Moh-Eld - Guard Structure Installation (5)	Digger Derrick 6060	30	2	6	—	Bore/Drill Rigs	300	8	0	100	54	0
Transmission - 500 kV - Moh-Eld - Guard Structure Installation (5)	Manlift/Bucket Truck	30	1	6	—	Aerial Lifts	250	4	0	100	54	0
Transmission - 500 kV - Moh-Eld - Guard Structure Installation (5)	1-Ton Truck, 4x4	30	1	6	Passenger	—	—	—	0	100	54	0
Transmission - 500 kV - Moh-Eld - Guard Structure Installation (5)	3/4-Ton Truck, 4x4	30	1	6	Passenger	—	—	—	0	100	54	0
Transmission - 500 kV - Moh-Eld - Guard Structure Installation (5)	Extendable Flat Bed Pole Truck	30	1	6	HHDT	—	—	—	0	100	54	0
Transmission - 500 kV - Moh-Eld - Guard Structure Installation (5)	Worker Commute Automobile	30	6	6	Passenger	—	—	—	0	100	54	0
Transmission - 500 kV - Moh-Eld - Guard Structure Removal (15)	Boom/Crane Truck	20	1	6	—	Cranes	350	6	0	100	54	0
Transmission - 500 kV - Moh-Eld - Guard Structure Removal (15)	Compressor Trailer	20	1	6	—	Air Compressors	60	4	0	100	54	0
Transmission - 500 kV - Moh-Eld - Guard Structure Removal (15)	Digger Derrick 6060	20	2	6	—	Bore/Drill Rigs	300	8	0	100	54	0
Transmission - 500 kV - Moh-Eld - Guard Structure Removal (15)	Manlift/Bucket Truck	20	1	6	—	Aerial Lifts	250	4	0	100	54	0
Transmission - 500 kV - Moh-Eld - Guard Structure Removal (15)	1-Ton Truck, 4x4	20	1	6	Passenger	—	—	—	0	100	54	0
Transmission - 500 kV - Moh-Eld - Guard Structure Removal (15)	3/4-Ton Truck, 4x4	20	1	6	Passenger	—	—	—	0	100	54	0
Transmission - 500 kV - Moh-Eld - Guard Structure Removal (15)	Extendable Flat Bed Pole Truck	20	1	6	HHDT	—	—	—	0	100	54	0
Transmission - 500 kV - Moh-Eld - Guard Structure Removal (15)	Worker Commute Automobile	20	6	6	Passenger	—	—	—	0	100	54	0
Transmission - 500 kV - Moh-Eld - LST Foundation Reinforcement14	Auger Truck	20	1	7	—	Bore/Drill Rigs	210	6	0	100	7	0
Transmission - 500 kV - Moh-Eld - LST Foundation Reinforcement14	Backhoe/Front Loader	20	1	7	—	Tractors/Loaders/ Backhoes	200	6	0	100	7	0
Transmission - 500 kV - Moh-Eld - LST Foundation Reinforcement14	Boom/Crane Truck	20	1	7	—	Cranes	350	4	0	100	7	0
Transmission - 500 kV - Moh-Eld - LST Foundation Reinforcement14	3/4-Ton Truck, 4x4	20	2	7	Passenger	—	—	—	0	100	7	0
Transmission - 500 kV - Moh-Eld - LST Foundation Reinforcement14	Concrete Mixer Truck	15	3	7	HHDT	—	—	—	0	100	7	0
Transmission - 500 kV - Moh-Eld - LST Foundation Reinforcement14	Dump Truck	20	1	7	HHDT	—	—	—	0	100	7	0
Transmission - 500 kV - Moh-Eld - LST Foundation Reinforcement14	Water Truck	20	1	7	HHDT	—	—	—	0	100	7	0
Transmission - 500 kV - Moh-Eld - LST Foundation Reinforcement14	Worker Commute Automobile	20	7	7	Passenger	—	—	—	0	100	7	0
Transmission - 500 kV - Moh-Eld - Pull-site preparation	Backhoe/Front Loader	8	1	5	—	Tractors/Loaders/ Backhoes	200	4	0	100	54	0
Transmission - 500 kV - Moh-Eld - Pull-site preparation	Drum Type Compactor	8	1	5	—	Rollers	100	6	0	100	54	0
Transmission - 500 kV - Moh-Eld - Pull-site preparation	Excavator	4	1	5	—	Excavators	160	4	0	100	54	0
Transmission - 500 kV - Moh-Eld - Pull-site preparation	Motor Grader	8	1	5	—	Graders	250	6	0	100	54	0
Transmission - 500 kV - Moh-Eld - Pull-site preparation	Track Type Dozer	8	1	5	—	Crawler Tractors	150	4	0	100	54	0
Transmission - 500 kV - Moh-Eld - Pull-site preparation	1-Ton Truck, 4x4	8	1	5	Passenger	—	—	—	0	100	54	0
Transmission - 500 kV - Moh-Eld - Pull-site preparation	Lowboy Truck/Trailer	8	1	5	HHDT	—	—	—	0	100	54	0
Transmission - 500 kV - Moh-Eld - Pull-site preparation	Water Truck	8	1	5	HHDT	—	—	—	0	100	54	0
Transmission - 500 kV - Moh-Eld - Pull-site preparation	Worker Commute	8	5	5	Passenger	—	—	—	0	100	54	0
Transmission - 500 kV - Moh-Eld - R/W Clearing	Backhoe/Front Loader	82	1	5	—	Tractors/Loaders/ Backhoes	200	6	0	100	54	0
Transmission - 500 kV - Moh-Eld - R/W Clearing	Motor Grader	82	1	5	—	Graders	250	6	0	100	54	0

Table 4.C-1. Construction Equipment and Workforce Estimates

Activity	Equipment Type	Approx. Total Days Used	Approx. Quantity	Approx. Number of Workers	On-Road Type	Off-Road Type	Output (Hp)	Approx. Use (hours/day)	Approx. Use by State (percent)		Maximum Days Used	
									CA	NV	2019	2020
Transmission - 500 kV - Moh-Eld - R/W Clearing	Track Type Dozer	82	1	5	—	Crawler Tractors	150	6	0	100	54	0
Transmission - 500 kV - Moh-Eld - R/W Clearing	1-Ton Truck, 4x4	82	1	5	Passenger	—	—	—	0	100	54	0
Transmission - 500 kV - Moh-Eld - R/W Clearing	Lowboy Truck/Trailer	82	1	5	HHDT	—	—	—	0	100	54	0
Transmission - 500 kV - Moh-Eld - R/W Clearing	Water Truck	82	1	5	HHDT	—	—	—	0	100	54	0
Transmission - 500 kV - Moh-Eld - R/W Clearing	Worker Commute Automobile	82	5	5	Passenger	—	—	—	0	100	54	0
Transmission - 500 kV - Moh-Eld - Remove OHGW, Install OPGW, Splicing, Peak Mod (14)	Hughes 530F Helicopter	210	4	44	—	—	NA	6	0	100	54	0
Transmission - 500 kV - Moh-Eld - Remove OHGW, Install OPGW, Splicing, Peak Mod (14)	Backhoe/Front Loader	210	1	44	—	Tractors/Loaders/ Backhoes	200	4	0	100	54	0
Transmission - 500 kV - Moh-Eld - Remove OHGW, Install OPGW, Splicing, Peak Mod (14)	Boom/Crane Truck	210	2	44	—	Cranes	350	8	0	100	54	0
Transmission - 500 kV - Moh-Eld - Remove OHGW, Install OPGW, Splicing, Peak Mod (14)	Bullwheel Puller	150	1	44	—	Other Construction Equipment	350	8	0	100	54	0
Transmission - 500 kV - Moh-Eld - Remove OHGW, Install OPGW, Splicing, Peak Mod (14)	D8 Cat	210	2	44	—	Crawler Tractors	350	2	0	100	54	0
Transmission - 500 kV - Moh-Eld - Remove OHGW, Install OPGW, Splicing, Peak Mod (14)	Manlift/Bucket Truck	210	4	44	—	Aerial Lifts	250	8	0	100	54	0
Transmission - 500 kV - Moh-Eld - Remove OHGW, Install OPGW, Splicing, Peak Mod (14)	R/T Crane (M)	210	2	44	—	Cranes	215	4	0	100	54	0
Transmission - 500 kV - Moh-Eld - Remove OHGW, Install OPGW, Splicing, Peak Mod (14)	Sag Cat w/2 winches	105	2	44	—	Crawler Tractors	350	2	0	100	54	0
Transmission - 500 kV - Moh-Eld - Remove OHGW, Install OPGW, Splicing, Peak Mod (14)	Skid Steer Mulcher	210	2	44	—	Tractors/Loaders/ Backhoes	110	8	0	100	54	0
Transmission - 500 kV - Moh-Eld - Remove OHGW, Install OPGW, Splicing, Peak Mod (14)	Static Truck/Tensioner	210	1	44	—	Other Construction Equipment	350	8	0	100	54	0
Transmission - 500 kV - Moh-Eld - Remove OHGW, Install OPGW, Splicing, Peak Mod (14)	Wire Truck/Trailer	150	4	44	—	Other Construction Equipment	10	6	0	100	54	0
Transmission - 500 kV - Moh-Eld - Remove OHGW, Install OPGW, Splicing, Peak Mod (14)	1-Ton Truck, 4x4	210	6	44	Passenger	—	—	—	0	100	54	0
Transmission - 500 kV - Moh-Eld - Remove OHGW, Install OPGW, Splicing, Peak Mod (14)	3/4-Ton Truck, 4x4	210	4	44	Passenger	—	—	—	0	100	54	0
Transmission - 500 kV - Moh-Eld - Remove OHGW, Install OPGW, Splicing, Peak Mod (14)	Dump Truck	210	1	44	HHDT	—	—	—	0	100	54	0
Transmission - 500 kV - Moh-Eld - Remove OHGW, Install OPGW, Splicing, Peak Mod (14)	Fuel, Helicopter Support Truck	210	4	44	HHDT	—	—	—	0	100	54	0
Transmission - 500 kV - Moh-Eld - Remove OHGW, Install OPGW, Splicing, Peak Mod (14)	Lowboy Truck/Trailer	210	3	44	HHDT	—	—	—	0	100	54	0
Transmission - 500 kV - Moh-Eld - Remove OHGW, Install OPGW, Splicing, Peak Mod (14)	Splicing Lab	210	2	44	Passenger	—	—	—	0	100	54	0
Transmission - 500 kV - Moh-Eld - Remove OHGW, Install OPGW, Splicing, Peak Mod (14)	Worker Commute Automobile	210	44	44	Passenger	—	—	—	0	100	54	0
Transmission - 500 kV - Moh-Eld - Restoration (16)	Backhoe/Front Loader	82	1	7	—	Tractors/Loaders/ Backhoes	200	4	0	100	54	0
Transmission - 500 kV - Moh-Eld - Restoration (16)	Drum Type Compactor	82	1	7	—	Rollers	100	4	0	100	54	0
Transmission - 500 kV - Moh-Eld - Restoration (16)	Motor Grader	82	1	7	—	Graders	250	6	0	100	54	0
Transmission - 500 kV - Moh-Eld - Restoration (16)	1-Ton Truck, 4x4	82	2	7	Passenger	—	—	—	0	100	54	0
Transmission - 500 kV - Moh-Eld - Restoration (16)	Lowboy Truck/Trailer	82	1	7	HHDT	—	—	—	0	100	54	0
Transmission - 500 kV - Moh-Eld - Restoration (16)	Water Truck	82	1	7	HHDT	—	—	—	0	100	54	0
Transmission - 500 kV - Moh-Eld - Restoration (16)	Worker Commute Automobile	82	7	7	Passenger	—	—	—	0	100	54	0
Transmission - 500 kV - Overhead Conductor Modifications	Manlift/Bucket Truck	6	3	5	—	Aerial Lifts	250	6	100	0	79	1
Transmission - 500 kV - Overhead Conductor Modifications	Wire Truck/Trailer	6	1	5	—	Other Construction Equipment	10	6	100	0	79	1
Transmission - 500 kV - Overhead Conductor Modifications	1-Ton Truck, 4x4	6	1	5	Passenger	—	—	—	100	0	79	1
Transmission - 500 kV - Overhead Conductor Modifications	Worker Commute Automobile	6	5	5	Passenger	—	—	—	100	0	79	1
Transmission - 500 kV - Install TSP Foundations	Auger Truck	3	1	6	—	Bore/Drill Rigs	210	6	100	0	53	104

Table 4.C-1. Construction Equipment and Workforce Estimates

Activity	Equipment Type	Approx. Total Days Used	Approx. Quantity	Approx. Number of Workers	On-Road Type	Off-Road Type	Output (Hp)	Approx. Use (hours/day)	Approx. Use by State (percent)		Maximum Days Used	
									CA	NV	2019	2020
Transmission - 500 kV - Install TSP Foundations	Backhoe/Front Loader	6	1	6	—	Tractors/Loaders/ Backhoes	200	6	100	0	53	104
Transmission - 500 kV - Install TSP Foundations	Boom/Crane Truck	6	1	6	—	Cranes	350	4	100	0	53	104
Transmission - 500 kV - Install TSP Foundations	3/4-Ton Truck, 4x4	6	2	6	Passenger	—	—	—	100	0	53	104
Transmission - 500 kV - Install TSP Foundations	Concrete Mixer Truck	4	3	6	HHDT	—	—	—	100	0	53	104
Transmission - 500 kV - Install TSP Foundations	Dump Truck	6	1	6	HHDT	—	—	—	100	0	53	104
Transmission - 500 kV - Install TSP Foundations	Water Truck	6	1	6	HHDT	—	—	—	100	0	53	104
Transmission - 500 kV - Install TSP Foundations	Worker Commute	6	6	6	Passenger	—	—	—	100	0	53	104
Transmission - 500 kV - Install Trench (17)	Backhoe/Front Loader	90	1	8	—	Tractors/Loaders/ Backhoes	200	6	75	25	79	78
Transmission - 500 kV - Install Trench (17)	Compressor Trailer	90	1	8	—	Air Compressors	60	6	75	25	79	78
Transmission - 500 kV - Install Trench (17)	1-Ton Truck, 4x4	90	2	8	Passenger	—	—	—	75	25	79	78
Transmission - 500 kV - Install Trench (17)	Dump Truck	90	2	8	HHDT	—	—	—	75	25	79	78
Transmission - 500 kV - Install Trench (17)	Water Truck	90	1	8	HHDT	—	—	—	75	25	79	78
Transmission - 500 kV - Install Trench (17)	Worker Commute	90	8	8	Passenger	—	—	—	75	25	79	78
Transmission - 500 kV - TSP Assembly	Boom/Crane Truck	2	1	10	—	Cranes	350	8	100	0	53	104
Transmission - 500 kV - TSP Assembly	Compressor Trailer	2	1	10	—	Air Compressors	60	6	100	0	53	104
Transmission - 500 kV - TSP Assembly	1-Ton Truck, 4x4	2	2	10	Passenger	—	—	—	100	0	53	104
Transmission - 500 kV - TSP Assembly	3/4-Ton Truck, 4x4	2	2	10	Passenger	—	—	—	100	0	53	104
Transmission - 500 kV - TSP Assembly	Worker Commute	2	10	10	Passenger	—	—	—	100	0	53	104
Transmission - 500 kV - TSP Erection	Compressor Trailer	2	1	10	—	Air Compressors	60	4	100	0	53	104
Transmission - 500 kV - TSP Erection	R/T Crane (L)	2	1	10	—	Cranes	275	8	100	0	53	104
Transmission - 500 kV - TSP Erection	1-Ton Truck, 4x4	2	2	10	Passenger	—	—	—	100	0	53	104
Transmission - 500 kV - TSP Erection	3/4-Ton Truck, 4x4	2	2	10	Passenger	—	—	—	100	0	53	104
Transmission - 500 kV - TSP Erection	Worker Commute Automobile	2	10	10	Passenger	—	—	—	100	0	53	104
Transmission - 500 kV - TSP Foundation Removal	Backhoe/Front Loader	8	1	4	—	Tractors/Loaders/ Backhoes	200	6	100	0	53	104
Transmission - 500 kV - TSP Foundation Removal	Compressor Trailer	8	1	4	—	Air Compressors	60	8	100	0	53	104
Transmission - 500 kV - TSP Foundation Removal	Excavator	8	1	4	—	Excavators	160	4	100	0	53	104
Transmission - 500 kV - TSP Foundation Removal	3/4-Ton Truck, 4x4	8	1	4	Passenger	—	—	—	100	0	53	104
Transmission - 500 kV - TSP Foundation Removal	Dump Truck	8	1	4	HHDT	—	—	—	100	0	53	104
Transmission - 500 kV - TSP Foundation Removal	Worker Commute Automobile	8	4	4	Passenger	—	—	—	100	0	53	104
Transmission - 500 kV - TSP Haul	Boom/Crane Truck	1	1	4	—	Cranes	350	6	100	0	53	104
Transmission - 500 kV - TSP Haul	3/4-Ton Truck, 4x4	1	1	4	Passenger	—	—	—	100	0	53	104
Transmission - 500 kV - TSP Haul	Flat Bed Pole Truck	1	1	4	HHDT	—	—	—	100	0	53	104
Transmission - 500 kV - TSP Haul	Worker Commute Automobile	1	4	4	Passenger	—	—	—	100	0	53	104
Transmission - 500 kV - TSP Removal	Boom/Crane Truck	6	1	6	—	Cranes	350	6	100	0	53	104
Transmission - 500 kV - TSP Removal	Compressor Trailer	6	1	6	—	Air Compressors	60	8	100	0	53	104
Transmission - 500 kV - TSP Removal	R/T Crane (M)	6	1	6	—	Cranes	215	6	100	0	53	104
Transmission - 500 kV - TSP Removal	1-Ton Truck, 4x4	6	2	6	Passenger	—	—	—	100	0	53	104
Transmission - 500 kV - TSP Removal	Flat Bed Truck/Trailer	6	1	6	HHDT	—	—	—	100	0	53	104

Table 4.C-1. Construction Equipment and Workforce Estimates

Activity	Equipment Type	Approx. Total Days Used	Approx. Quantity	Approx. Number of Workers	On-Road Type	Off-Road Type	Output (Hp)	Approx. Use (hours/day)	Approx. Use by State (percent)		Maximum Days Used	
									CA	NV	2019	2020
Transmission - 500 kV - TSP Removal	Worker Commute Automobile	6	6	6	Passenger	—	—	—	100	0	53	104
Transmission - 500 kV - Wood Pole Modification (6)	Boom/Crane Truck	2	1	10	—	Cranes	350	6	75	25	105	91
Transmission - 500 kV - Wood Pole Modification (6)	Compressor Trailer	2	1	10	—	Air Compressors	60	4	75	25	105	91
Transmission - 500 kV - Wood Pole Modification (6)	Manlift/Bucket Truck	2	1	10	—	Aerial Lifts	250	6	75	25	105	91
Transmission - 500 kV - Wood Pole Modification (6)	1-Ton Truck, 4x4	2	2	10	Passenger	—	—	—	75	25	105	91
Transmission - 500 kV - Wood Pole Modification (6)	Flat Bed Truck/Trailer	2	1	10	HHDT	—	—	—	75	25	105	91
Transmission - 500 kV - Wood Pole Modification (6)	Worker Commute Automobile	2	10	10	Passenger	—	—	—	75	25	105	91
Telecommunications												
Telecom - Barstow Communication Repeater - Tower/Shelter Installation	Backhoe/Front Loader	10	1	8	—	Tractors/Loaders/ Backhoes	200	6	100	0	79	0
Telecom - Barstow Communication Repeater - Tower/Shelter Installation	Concrete Pump	2	1	8	—	Pumps	350	6	100	0	79	0
Telecom - Barstow Communication Repeater - Tower/Shelter Installation	Crane	6	1	8	—	Cranes	350	4	100	0	79	0
Telecom - Barstow Communication Repeater - Tower/Shelter Installation	Drill Rig	7	1	8	—	Bore/Drill Rigs	500	6	100	0	79	0
Telecom - Barstow Communication Repeater - Tower/Shelter Installation	Fork lift	10	1	8	—	Forklifts	200	4	100	0	79	0
Telecom - Barstow Communication Repeater - Tower/Shelter Installation	1-Ton Crew Cab 4x4	12	1	8	Passenger	—	—	—	100	0	79	0
Telecom - Barstow Communication Repeater - Tower/Shelter Installation	2-Ton Truck	12	1	8	Delivery	—	—	—	100	0	79	0
Telecom - Barstow Communication Repeater - Tower/Shelter Installation	Concrete Truck	2	1	8	HHDT	—	—	—	100	0	79	0
Telecom - Barstow Communication Repeater - Tower/Shelter Installation	Dump Truck	7	1	8	HHDT	—	—	—	100	0	79	0
Telecom - Barstow Communication Repeater - Tower/Shelter Installation	Flat Bed Truck	2	1	8	HHDT	—	—	—	100	0	79	0
Telecom - Barstow Communication Repeater - Tower/Shelter Installation	Worker Commute Automobile	12	8	8	Passenger	—	—	—	100	0	79	0
Telecom - Kelbaker Communication Repeater - Tower/Shelter Installation	Backhoe/front loader	10	1	8	—	Tractors/Loaders/ Backhoes	200	6	100	0	79	0
Telecom - Kelbaker Communication Repeater - Tower/Shelter Installation	Concrete Pump	2	1	8	—	Pumps	350	6	100	0	79	0
Telecom - Kelbaker Communication Repeater - Tower/Shelter Installation	Crane	6	1	8	—	Cranes	350	4	100	0	79	0
Telecom - Kelbaker Communication Repeater - Tower/Shelter Installation	Drill Rig	7	1	8	—	Bore/Drill Rigs	500	6	100	0	79	0
Telecom - Kelbaker Communication Repeater - Tower/Shelter Installation	Fork lift	10	1	8	—	Forklifts	200	4	100	0	79	0
Telecom - Kelbaker Communication Repeater - Tower/Shelter Installation	1-Ton Crew Cab 4x4	12	1	8	Passenger	—	—	—	100	0	79	0
Telecom - Kelbaker Communication Repeater - Tower/Shelter Installation	2-Ton Truck	12	1	8	Delivery	—	—	—	100	0	79	0
Telecom - Kelbaker Communication Repeater - Tower/Shelter Installation	Concrete Truck	2	1	8	HHDT	—	—	—	100	0	79	0
Telecom - Kelbaker Communication Repeater - Tower/Shelter Installation	Dump Truck	7	1	8	HHDT	—	—	—	100	0	79	0
Telecom - Kelbaker Communication Repeater - Tower/Shelter Installation	Flat Bed Truck	2	1	8	HHDT	—	—	—	100	0	79	0
Telecom - Kelbaker Communication Repeater - Tower/Shelter Installation	Worker Commute	12	8	8	Passenger	—	—	—	100	0	79	0
Telecom - Lanfair Communication Repeater - Tower/Shelter Installation	Backhoe/Front Loader	10	1	8	—	Tractors/Loaders/ Backhoes	200	6	100	0	79	0
Telecom - Lanfair Communication Repeater - Tower/Shelter Installation	Concrete Pump	2	1	8	—	Pumps	350	6	100	0	79	0
Telecom - Lanfair Communication Repeater - Tower/Shelter Installation	Crane	6	1	8	—	Cranes	350	4	100	0	79	0
Telecom - Lanfair Communication Repeater - Tower/Shelter Installation	Drill Rig	7	1	8	—	Bore/Drill Rigs	500	6	100	0	79	0
Telecom - Lanfair Communication Repeater - Tower/Shelter Installation	Fork lift	10	1	8	—	Forklifts	200	4	100	0	79	0
Telecom - Lanfair Communication Repeater - Tower/Shelter Installation	1-Ton Crew Cab 4x4	12	1	8	Passenger	—	—	—	100	0	79	0
Telecom - Lanfair Communication Repeater - Tower/Shelter Installation	2-Ton Truck	12	1	8	Delivery	—	—	—	100	0	79	0
Telecom - Lanfair Communication Repeater - Tower/Shelter Installation	Concrete Truck	2	1	8	HHDT	—	—	—	100	0	79	0

Table 4.C-1. Construction Equipment and Workforce Estimates

Activity	Equipment Type	Approx. Total Days Used	Approx. Quantity	Approx. Number of Workers	On-Road Type	Off-Road Type	Output (Hp)	Approx. Use (hours/day)	Approx. Use by State (percent)		Maximum Days Used	
									CA	NV	2019	2020
Telecom - Lanfair Communication Repeater - Tower/Shelter Installation	Dump Truck	7	1	8	HHDT	—	—	—	100	0	79	0
Telecom - Lanfair Communication Repeater - Tower/Shelter Installation	Flat Bed Truck	2	1	8	HHDT	—	—	—	100	0	79	0
Telecom - Lanfair Communication Repeater - Tower/Shelter Installation	Worker Commute Automobile	12	8	8	Passenger	—	—	—	100	0	79	0
Distribution												
Distribution - Barstow Communication Repeater - Overhead Line Work (2)	55-Foot Double Bucket Truck	1	1	6	—	Aerial Lifts	300	7	100	0	79	78
Distribution - Barstow Communication Repeater - Overhead Line Work (2)	60-Foot Digger Derrick	1	1	6	—	Bore/Drill Rigs	275	4	100	0	79	78
Distribution - Barstow Communication Repeater - Overhead Line Work (2)	1-Ton Crew Cab, 4x4	1	1	6	Passenger	—	—	—	100	0	79	78
Distribution - Barstow Communication Repeater - Overhead Line Work (2)	Worker Commute Automobile	1	6	6	Passenger	—	—	—	100	0	79	78
Distribution - Barstow Communication Repeater - Pole Installation (5)	55-Foot Double Bucket Truck	1	1	6	—	Aerial Lifts	300	7	100	0	79	78
Distribution - Barstow Communication Repeater - Pole Installation (5)	60-Foot Digger Derrick	1	1	6	—	Bore/Drill Rigs	275	4	100	0	79	78
Distribution - Barstow Communication Repeater - Pole Installation (5)	1-Ton Crew Cab, 4x4	1	2	6	Passenger	—	—	—	100	0	79	78
Distribution - Barstow Communication Repeater - Pole Installation (5)	Worker Commute Automobile	1	6	6	Passenger	—	—	—	100	0	79	78
Distribution - Barstow Communication Repeater - Trenching, Structure Excavation (1)	Backhoe Front Loader	1	1	4	—	Tractors/Loaders/ Backhoes	300	8	100	0	79	78
Distribution - Barstow Communication Repeater - Trenching, Structure Excavation (1)	1-Ton Crew Cab	1	1	4	Passenger	—	—	—	100	0	79	78
Distribution - Barstow Communication Repeater - Trenching, Structure Excavation (1)	Dump Truck	1	1	4	HHDT	—	—	—	100	0	79	78
Distribution - Barstow Communication Repeater - Trenching, Structure Excavation (1)	Worker Commute Automobile	1	4	4	Passenger	—	—	—	100	0	79	78
Distribution - Barstow Communication Repeater - Underground Cable Makeup (4)	55-Foot Double Bucket Truck	1	1	3	—	Aerial Lifts	300	4	100	0	79	78
Distribution - Barstow Communication Repeater - Underground Cable Makeup (4)	1- Ton Crew Cab, 4x4	1	1	3	Passenger	—	—	—	100	0	79	78
Distribution - Barstow Communication Repeater - Underground Cable Makeup (4)	Worker Commute Automobile	1	3	3	Passenger	—	—	—	100	0	79	78
Distribution - Barstow Communication Repeater - Underground Cable Pulling (3) & Transformer Installation	55-Foot Double Bucket Truck	1	1	4	—	Aerial Lifts	300	7	100	0	79	78
Distribution - Barstow Communication Repeater - Underground Cable Pulling (3) & Transformer Installation	Hydraulic Rewind Puller	1	1	4	—	Other Construction Equipment	300	6	100	0	79	78
Distribution - Barstow Communication Repeater - Underground Cable Pulling (3) & Transformer Installation	1-Ton Crew Cab, 4x4	1	1	4	Passenger	—	—	—	100	0	79	78
Distribution - Barstow Communication Repeater - Underground Cable Pulling (3) & Transformer Installation	Worker Commute Automobile	1	4	4	Passenger	—	—	—	100	0	79	78
Distribution - Deep Creek T-Line Undercrossing - Overhead Line Work (2)	55-Foot Double Bucket Truck	1	1	6	—	Aerial Lifts	300	7	100	0	39	0
Distribution - Deep Creek T-Line Undercrossing - Overhead Line Work (2)	60-Foot Digger Derrick	1	1	6	—	Bore/Drill Rigs	275	4	100	0	39	0
Distribution - Deep Creek T-Line Undercrossing - Overhead Line Work (2)	1-Ton Crew Cab, 4x4	1	1	6	Passenger	—	—	—	100	0	39	0
Distribution - Deep Creek T-Line Undercrossing - Overhead Line Work (2)	Worker Commute Automobile	1	6	6	Passenger	—	—	—	100	0	39	0
Distribution - Kelbaker Communication Repeater - Overhead Line Work (2)	55-Foot Double Bucket Truck	2	1	6	—	Aerial Lifts	300	7	100	0	79	78
Distribution - Kelbaker Communication Repeater - Overhead Line Work (2)	60-Foot Digger Derrick	2	1	6	—	Bore/Drill Rigs	275	4	100	0	79	78
Distribution - Kelbaker Communication Repeater - Overhead Line Work (2)	1-Ton Crew Cab, 4x4	2	1	6	Passenger	—	—	—	100	0	79	78
Distribution - Kelbaker Communication Repeater - Overhead Line Work (2)	Worker Commute Automobile	2	6	6	Passenger	—	—	—	100	0	79	78
Distribution - Kelbaker Communication Repeater - Pole Installation (5)	55-Foot Double Bucket Truck	4	1	6	—	Aerial Lifts	300	7	100	0	79	78
Distribution - Kelbaker Communication Repeater - Pole Installation (5)	60-Foot Digger Derrick	4	1	6	—	Bore/Drill Rigs	275	4	100	0	79	78
Distribution - Kelbaker Communication Repeater - Pole Installation (5)	1-Ton Crew Cab, 4x4	4	2	6	Passenger	—	—	—	100	0	79	78
Distribution - Kelbaker Communication Repeater - Pole Installation (5)	Worker Commute Automobile	4	6	6	Passenger	—	—	—	100	0	79	78
Distribution - Kelbaker Communication Repeater - Trenching, Structure Excavation (1)	Backhoe/Front Loader	1	1	4	—	Tractors/Loaders/ Backhoes	200	8	100	0	79	78

Table 4.C-1. Construction Equipment and Workforce Estimates

Activity	Equipment Type	Approx. Total Days Used	Approx. Quantity	Approx. Number of Workers	On-Road Type	Off-Road Type	Output (Hp)	Approx. Use (hours/day)	Approx. Use by State (percent)		Maximum Days Used	
									CA	NV	2019	2020
Distribution - Kelbaker Communication Repeater - Trenching, Structure Excavation (1)	1-Ton Crew Cab	1	1	4	Passenger	—	—	—	100	0	79	78
Distribution - Kelbaker Communication Repeater - Trenching, Structure Excavation (1)	Dump Truck	1	1	4	HHDT	—	—	—	100	0	79	78
Distribution - Kelbaker Communication Repeater - Trenching, Structure Excavation (1)	Worker Commute Automobile	1	4	4	Passenger	—	—	—	100	0	79	78
Distribution - Kelbaker Communication Repeater - Underground Cable Makeup (4)	55-Foot Double Bucket Truck	1	1	3	—	Aerial Lifts	300	4	100	0	79	78
Distribution - Kelbaker Communication Repeater - Underground Cable Makeup (4)	1-Ton Crew Cab, 4x4	1	1	3	Passenger	—	—	—	100	0	79	78
Distribution - Kelbaker Communication Repeater - Underground Cable Makeup (4)	Worker Commute Automobile	1	3	3	Passenger	—	—	—	100	0	79	78
Distribution - Kelbaker Communication Repeater - Underground Cable Pulling (3) & Transformer Installation	55-Foot Double Bucket Truck	1	1	4	—	Aerial Lifts	300	7	100	0	79	78
Distribution - Kelbaker Communication Repeater - Underground Cable Pulling (3) & Transformer Installation	Hydraulic Rewind Puller	1	1	4	—	Other Construction Equipment	300	6	100	0	79	78
Distribution - Kelbaker Communication Repeater - Underground Cable Pulling (3) & Transformer Installation	1-Ton Crew Cab, 4x4	1	1	4	Passenger	—	—	—	100	0	79	78
Distribution - Kelbaker Communication Repeater - Underground Cable Pulling (3) & Transformer Installation	Worker Commute Automobile	1	4	4	Passenger	—	—	—	100	0	79	78
Distribution - Lanfair Communication Repeater - Overhead Line Work (2)	55-Foot Double Bucket Truck	3	1	6	—	Aerial Lifts	300	7	100	0	79	78
Distribution - Lanfair Communication Repeater - Overhead Line Work (2)	60-Foot Digger Derrick	3	1	6	—	Bore/Drill Rigs	275	4	100	0	79	78
Distribution - Lanfair Communication Repeater - Overhead Line Work (2)	1-Ton Crew Cab, 4x4	3	1	6	Passenger	—	—	—	100	0	79	78
Distribution - Lanfair Communication Repeater - Overhead Line Work (2)	Worker Commute Automobile	3	6	6	Passenger	—	—	—	100	0	79	78
Distribution - Lanfair Communication Repeater - Pole Installation (5)	55-Foot Double Bucket Truck	9	1	6	—	Aerial Lifts	300	7	100	0	79	78
Distribution - Lanfair Communication Repeater - Pole Installation (5)	60-Foot Digger Derrick	9	1	6	—	Bore/Drill Rigs	275	4	100	0	79	78
Distribution - Lanfair Communication Repeater - Pole Installation (5)	1-Ton Crew Cab, 4x4	9	2	6	Passenger	—	—	—	100	0	79	78
Distribution - Lanfair Communication Repeater - Pole Installation (5)	Worker Commute Automobile	9	6	6	Passenger	—	—	—	100	0	79	78
Distribution - Lanfair Communication Repeater - Trenching, Structure Excavation (1)	Backhoe Front Loader	1	1	4	—	Tractors/Loaders/ Backhoes	300	8	100	0	79	78
Distribution - Lanfair Communication Repeater - Trenching, Structure Excavation (1)	1-Ton Crew Cab	1	1	4	Passenger	—	—	—	100	0	79	78
Distribution - Lanfair Communication Repeater - Trenching, Structure Excavation (1)	Dump Truck	1	1	4	HHDT	—	—	—	100	0	79	78
Distribution - Lanfair Communication Repeater - Trenching, Structure Excavation (1)	Worker Commute Automobile	1	4	4	Passenger	—	—	—	100	0	79	78
Distribution - Lanfair Communication Repeater - Underground Cable Makeup (4)	55-Foot Double Bucket Truck	1	1	3	—	Aerial Lifts	300	4	100	0	79	78
Distribution - Lanfair Communication Repeater - Underground Cable Makeup (4)	1-Ton Crew Cab, 4x4	1	1	3	Passenger	—	—	—	100	0	79	78
Distribution - Lanfair Communication Repeater - Underground Cable Makeup (4)	Worker Commute Automobile	1	3	3	Passenger	—	—	—	100	0	79	78
Distribution - Lanfair Communication Repeater - Underground Cable Pulling (3) & Transformer Installation	55-Foot Double Bucket Truck	1	1	4	—	Aerial Lifts	300	7	100	0	79	78
Distribution - Lanfair Communication Repeater - Underground Cable Pulling (3) & Transformer Installation	Hydraulic Rewind Puller	1	1	4	—	Other Construction Equipment	300	6	100	0	79	78
Distribution - Lanfair Communication Repeater - Underground Cable Pulling (3) & Transformer Installation	1-Ton Crew Cab, 4x4	1	1	4	Passenger	—	—	—	100	0	79	78
Distribution - Lanfair Communication Repeater - Underground Cable Pulling (3) & Transformer Installation	Worker Commute Automobile	1	4	4	Passenger	—	—	—	100	0	79	78
Distribution - Ludlow Series Cap - SC5 - Overhead Line Work (2)	100-Foot Bucket Truck	4	1	6	—	Aerial Lifts	350	8	100	0	79	78
Distribution - Ludlow Series Cap - SC5 - Overhead Line Work (2)	40-Ton Crane	4	1	6	—	Cranes	300	8	100	0	79	78
Distribution - Ludlow Series Cap - SC5 - Overhead Line Work (2)	55-Foot Double Bucket Truck	40	1	6	—	Aerial Lifts	300	7	100	0	79	78
Distribution - Ludlow Series Cap - SC5 - Overhead Line Work (2)	60-Foot Digger Derrick	40	1	6	—	Bore/Drill Rigs	275	4	100	0	79	78

Table 4.C-1. Construction Equipment and Workforce Estimates

Activity	Equipment Type	Approx. Total Days Used	Approx. Quantity	Approx. Number of Workers	On-Road Type	Off-Road Type	Output (Hp)	Approx. Use (hours/day)	Approx. Use by State (percent)		Maximum Days Used	
									CA	NV	2019	2020
Distribution - Ludlow Series Cap - SC5 - Overhead Line Work (2)	1-Ton Crew Cab, 4x4	40	2	6	Passenger	—	—	—	100	0	79	78
Distribution - Ludlow Series Cap - SC5 - Overhead Line Work (2)	Worker Commute Automobile	40	6	6	Passenger	—	—	—	100	0	79	78
Distribution - Ludlow Series Cap - SC5 - Pole Installation (5)	55-Foot Double Bucket Truck	4	1	6	—	Aerial Lifts	300	7	100	0	79	78
Distribution - Ludlow Series Cap - SC5 - Pole Installation (5)	60-Foot Digger Derrick	4	1	6	—	Bore/Drill Rigs	275	4	100	0	79	78
Distribution - Ludlow Series Cap - SC5 - Pole Installation (5)	1-Ton Crew Cab, 4x4	4	2	6	Passenger	—	—	—	100	0	79	78
Distribution - Ludlow Series Cap - SC5 - Pole Installation (5)	Worker Commute Automobile	4	6	6	Passenger	—	—	—	100	0	79	78
Distribution - Ludlow Series Cap - SC5 - Trenching, Structure Excavation (1)	Backhoe Front Loader	1	1	4	—	Tractors/Loaders/ Backhoes	300	8	100	0	79	78
Distribution - Ludlow Series Cap - SC5 - Trenching, Structure Excavation (1)	1-Ton Crew Cab	1	1	4	Passenger	—	—	—	100	0	79	78
Distribution - Ludlow Series Cap - SC5 - Trenching, Structure Excavation (1)	Dump Truck	1	1	4	HHDT	—	—	—	100	0	79	78
Distribution - Ludlow Series Cap - SC5 - Trenching, Structure Excavation (1)	Worker Commute Automobile	1	4	4	Passenger	—	—	—	100	0	79	78
Distribution - Ludlow Series Cap - SC5 - Underground Cable Makeup (4)	55-Foot Double Bucket Truck	1	1	3	—	Aerial Lifts	300	4	100	0	79	78
Distribution - Ludlow Series Cap - SC5 - Underground Cable Makeup (4)	1- Ton Crew Cab, 4x4	1	1	3	Passenger	—	—	—	100	0	79	78
Distribution - Ludlow Series Cap - SC5 - Underground Cable Makeup (4)	Worker Commute Automobile	1	3	3	Passenger	—	—	—	100	0	79	78
Distribution - Newberry Springs Series Cap - SC2 - Overhead Line Work (2)	100-Foot Bucket Truck	4	1	6	—	Aerial Lifts	350	8	100	0	79	78
Distribution - Newberry Springs Series Cap - SC2 - Overhead Line Work (2)	40-Ton Crane	4	1	6	—	Cranes	300	8	100	0	79	78
Distribution - Newberry Springs Series Cap - SC2 - Overhead Line Work (2)	55-Foot Double Bucket Truck	4	1	6	—	Aerial Lifts	300	7	100	0	79	78
Distribution - Newberry Springs Series Cap - SC2 - Overhead Line Work (2)	60-Foot Digger Derrick	4	1	6	—	Bore/Drill Rigs	275	4	100	0	79	78
Distribution - Newberry Springs Series Cap - SC2 - Overhead Line Work (2)	1-Ton Crew Cab, 4x4	4	2	6	Passenger	—	—	—	100	0	79	78
Distribution - Newberry Springs Series Cap - SC2 - Overhead Line Work (2)	Worker Commute Automobile	4	6	6	Passenger	—	—	—	100	0	79	78
Distribution - Newberry Springs Series Cap - SC2 - Pole Installation (5)	55-Foot Double Bucket Truck	4	1	6	—	Aerial Lifts	300	7	100	0	79	78
Distribution - Newberry Springs Series Cap - SC2 - Pole Installation (5)	60-Foot Digger Derrick	4	1	6	—	Bore/Drill Rigs	275	4	100	0	79	78
Distribution - Newberry Springs Series Cap - SC2 - Pole Installation (5)	1-Ton Crew Cab, 4x4	4	2	6	Passenger	—	—	—	100	0	79	78
Distribution - Newberry Springs Series Cap - SC2 - Pole Installation (5)	Worker Commute Automobile	4	6	6	Passenger	—	—	—	100	0	79	78
Distribution - Newberry Springs Series Cap - SC2 - Trenching, Structure Excavation (1)	Backhoe Front Loader	1	1	4	—	Tractors/Loaders/ Backhoes	300	8	100	0	79	78
Distribution - Newberry Springs Series Cap - SC2 - Trenching, Structure Excavation (1)	1-Ton Crew Cab	1	1	4	Passenger	—	—	—	100	0	79	78
Distribution - Newberry Springs Series Cap - SC2 - Trenching, Structure Excavation (1)	Dump Truck	1	1	4	HHDT	—	—	—	100	0	79	78
Distribution - Newberry Springs Series Cap - SC2 - Trenching, Structure Excavation (1)	Worker Commute Automobile	1	4	4	Passenger	—	—	—	100	0	79	78
Distribution - Newberry Springs Series Cap - SC2 - Underground Cable Makeup (4)	55-Foot Double Bucket Truck	1	1	3	—	Aerial Lifts	300	4	100	0	79	78
Distribution - Newberry Springs Series Cap - SC2 - Underground Cable Makeup (4)	1-Ton Crew Cab, 4x4	1	1	3	Passenger	—	—	—	100	0	79	78
Distribution - Newberry Springs Series Cap - SC2 - Underground Cable Makeup (4)	Worker Commute Automobile	1	3	3	Passenger	—	—	—	100	0	79	78
Distribution - Newberry Springs Series Cap - SC2 - Underground Cable Pulling (3) & Transformer Installation	55-Foot Double Bucket Truck	1	1	4	—	Aerial Lifts	300	7	100	0	79	78
Distribution - Newberry Springs Series Cap - SC2 - Underground Cable Pulling (3) & Transformer Installation	Hydraulic Rewind Puller	1	1	4	—	Other Construction Equipment	300	6	100	0	79	78
Distribution - Newberry Springs Series Cap - SC2 - Underground Cable Pulling (3) & Transformer Installation	1-Ton Crew Cab, 4x4	1	1	4	Passenger	—	—	—	100	0	79	78
Distribution - Newberry Springs Series Cap - SC2 - Underground Cable Pulling (3) & Transformer Installation	Worker Commute Automobile	1	4	4	Passenger	—	—	—	100	0	79	78
Substations												
Substation - ELD Sub-Line Pos - Electrical (Phase 1)	Bobcat	85	2	15	—	Skid Steer Loaders	200	5	0	100	0	30

Table 4.C-1. Construction Equipment and Workforce Estimates

Activity	Equipment Type	Approx. Total Days Used	Approx. Quantity	Approx. Number of Workers	On-Road Type	Off-Road Type	Output (Hp)	Approx. Use (hours/day)	Approx. Use by State (percent)		Maximum Days Used	
									CA	NV	2019	2020
Substation - ELD Sub-Line Pos - Electrical (Phase 1)	Crane	85	1	15	—	Cranes	350	4	0	100	0	30
Substation - ELD Sub-Line Pos - Electrical (Phase 1)	Forklift	85	2	15	—	Forklifts	200	5	0	100	0	30
Substation - ELD Sub-Line Pos - Electrical (Phase 1)	Generator	85	2	15	—	Generator Sets	50	8	0	100	0	30
Substation - ELD Sub-Line Pos - Electrical (Phase 1)	Manlift	85	2	15	—	Aerial Lifts	150	5	0	100	0	30
Substation - ELD Sub-Line Pos - Electrical (Phase 1)	Foreman's Truck	85	1	15	Passenger	—	—	—	0	100	0	30
Substation - ELD Sub-Line Pos - Electrical (Phase 1)	Job Site Utility Cart	85	4	15	Passenger	—	—	—	0	100	0	30
Substation - ELD Sub-Line Pos - Electrical (Phase 1)	Tool Truck	85	2	15	Delivery	—	—	—	0	100	0	30
Substation - ELD Sub-Line Pos - Electrical (Phase 1)	Worker Commute Automobile	85	15	15	Passenger	—	—	—	0	100	0	30
Substation - ELD Sub-Line Pos - Grading/Civil (Phase 1)	Backhoe	70	2	15	—	Tractors/Loaders/ Backhoes	200	4	0	100	0	39
Substation - ELD Sub-Line Pos - Grading/Civil (Phase 1)	Bobcat	70	2	15	—	Skid Steer Loaders	200	5	0	100	0	39
Substation - ELD Sub-Line Pos - Grading/Civil (Phase 1)	Compactor	70	1	15	—	Rollers	300	5	0	100	0	39
Substation - ELD Sub-Line Pos - Grading/Civil (Phase 1)	Excavator	70	2	15	—	Excavators	160	5	0	100	0	39
Substation - ELD Sub-Line Pos - Grading/Civil (Phase 1)	Generator	70	2	15	—	Generator Sets	50	8	0	100	0	39
Substation - ELD Sub-Line Pos - Grading/Civil (Phase 1)	Grader	70	2	15	—	Graders	290	8	0	100	0	39
Substation - ELD Sub-Line Pos - Grading/Civil (Phase 1)	LoDrill	70	1	15	—	Bore/Drill Rigs	200	5	0	100	0	39
Substation - ELD Sub-Line Pos - Grading/Civil (Phase 1)	Skip Loader	70	1	15	—	Tractors/Loaders/ Backhoes	150	4	0	100	0	39
Substation - ELD Sub-Line Pos - Grading/Civil (Phase 1)	Trencher	70	1	15	—	Trenchers	175	5	0	100	0	39
Substation - ELD Sub-Line Pos - Grading/Civil (Phase 1)	Dump Truck	70	1	15	HHDT	—	—	—	0	100	0	39
Substation - ELD Sub-Line Pos - Grading/Civil (Phase 1)	Foreman's Truck	70	1	15	Passenger	—	—	—	0	100	0	39
Substation - ELD Sub-Line Pos - Grading/Civil (Phase 1)	Fuel Truck	70	1	15	HHDT	—	—	—	0	100	0	39
Substation - ELD Sub-Line Pos - Grading/Civil (Phase 1)	Job site Utility Cart	70	4	15	Passenger	—	—	—	0	100	0	39
Substation - ELD Sub-Line Pos - Grading/Civil (Phase 1)	Low Bed Hauler	70	1	15	HHDT	—	—	—	0	100	0	39
Substation - ELD Sub-Line Pos - Grading/Civil (Phase 1)	Tool Truck	70	2	15	Delivery	—	—	—	0	100	0	39
Substation - ELD Sub-Line Pos - Grading/Civil (Phase 1)	Water Truck	70	2	15	HHDT	—	—	—	0	100	0	39
Substation - ELD Sub-Line Pos - Grading/Civil (Phase 1)	Worker Commute Automobile	70	15	15	Passenger	—	—	—	0	100	0	39
Substation - ELD Sub-Line Pos - Survey (Phase 1 - Lugo)	Foreman's Truck	15	1	2	Passenger	—	—	—	0	100	184	156
Substation - ELD Sub-Line Pos - Survey (Phase 1 - Lugo)	Job site Utility Cart	15	1	2	Passenger	—	—	—	0	100	184	156
Substation - ELD Sub-Line Pos - Survey (Phase 1 - Lugo)	Tool Truck	15	1	2	Delivery	—	—	—	0	100	184	156
Substation - ELD Sub-Line Pos - Survey (Phase 1 - Lugo)	Worker Commute Automobile	15	2	2	Passenger	—	—	—	0	100	184	156
Substation - ELD Sub-Line Pos - Survey (Phase 2 - Mohave)	Foreman's Truck	15	1	2	Passenger	—	—	—	0	100	236	78
Substation - ELD Sub-Line Pos - Survey (Phase 2 - Mohave)	Job site Utility Cart	15	1	2	Passenger	—	—	—	0	100	236	78
Substation - ELD Sub-Line Pos - Survey (Phase 2 - Mohave)	Tool Truck	15	1	2	Delivery	—	—	—	0	100	236	78
Substation - ELD Sub-Line Pos - Survey (Phase 2 - Mohave)	Worker Commute Automobile	15	2	2	Passenger	—	—	—	0	100	236	78
Substation - ELD Sub-Line Pos - Testing	Test Truck	140	2	5	Delivery	—	—	—	0	100	0	66
Substation - ELD Sub-Line Pos - Testing	Worker Commute Automobile	140	4	5	Passenger	—	—	—	0	100	0	66
Substation - ELD Sub-Line Pos - Wiring	Manlift	60	1	5	—	Aerial Lifts	150	5	0	100	0	30
Substation - ELD Sub-Line Pos - Wiring	Foreman's Truck	60	1	5	Passenger	—	—	—	0	100	0	30
Substation - ELD Sub-Line Pos - Wiring	Job Site Utility Cart	60	2	5	Passenger	—	—	—	0	100	0	30
Substation - ELD Sub-Line Pos - Wiring	Tool Truck	60	2	5	Delivery	—	—	—	0	100	0	30

Table 4.C-1. Construction Equipment and Workforce Estimates

Activity	Equipment Type	Approx. Total Days Used	Approx. Quantity	Approx. Number of Workers	On-Road Type	Off-Road Type	Output (Hp)	Approx. Use (hours/day)	Approx. Use by State (percent)		Maximum Days Used	
									CA	NV	2019	2020
Substation - ELD Sub-Line Pos - Wiring	Worker Commute Automobile	60	5	5	Passenger	—	—	—	0	100	0	30
Substation - Lugo-Line Pos - Electrical (SC1)	Bobcat	35	2	15	—	Skid Steer Loaders	200	5	100	0	0	95
Substation - Lugo-Line Pos - Electrical (SC1)	Crane	35	1	15	—	Cranes	350	4	100	0	0	95
Substation - Lugo-Line Pos - Electrical (SC1)	Forklift	35	2	15	—	Forklifts	200	5	100	0	0	95
Substation - Lugo-Line Pos - Electrical (SC1)	Generator	35	2	15	—	Generator Sets	50	8	100	0	0	95
Substation - Lugo-Line Pos - Electrical (SC1)	Manlift	35	2	15	—	Aerial Lifts	150	5	100	0	0	95
Substation - Lugo-Line Pos - Electrical (SC1)	Foreman's Truck	35	1	15	Passenger	—	—	—	100	0	0	95
Substation - Lugo-Line Pos - Electrical (SC1)	Job Site Utility Cart	35	4	15	Passenger	—	—	—	100	0	0	95
Substation - Lugo-Line Pos - Electrical (SC1)	Tool Truck	35	2	15	Delivery	—	—	—	100	0	0	95
Substation - Lugo-Line Pos - Electrical (SC1)	Worker Commute Automobile	35	15	15	Passenger	—	—	—	100	0	0	95
Substation - Lugo-Line Pos - Electrical (SC4)	Bobcat	35	2	15	—	Skid Steer Loaders	200	5	100	0	0	28
Substation - Lugo-Line Pos - Electrical (SC4)	Crane	35	1	15	—	Cranes	350	4	100	0	0	28
Substation - Lugo-Line Pos - Electrical (SC4)	Forklift	35	2	15	—	Forklifts	200	5	100	0	0	28
Substation - Lugo-Line Pos - Electrical (SC4)	Generator	35	2	15	—	Generator Sets	50	8	100	0	0	28
Substation - Lugo-Line Pos - Electrical (SC4)	Manlift	35	2	15	—	Aerial Lifts	150	5	100	0	0	28
Substation - Lugo-Line Pos - Electrical (SC4)	Foreman's Truck	35	1	15	Passenger	—	—	—	100	0	0	28
Substation - Lugo-Line Pos - Electrical (SC4)	Job Site Utility Cart	35	4	15	Passenger	—	—	—	100	0	0	28
Substation - Lugo-Line Pos - Electrical (SC4)	Tool Truck	35	2	15	Delivery	—	—	—	100	0	0	28
Substation - Lugo-Line Pos - Electrical (SC4)	Worker Commute Automobile	35	15	15	Passenger	—	—	—	100	0	0	28
Substation - Lugo-Line Pos - Grading/Civil	Backhoe	45	2	15	—	Tractors/Loaders/ Backhoes	200	4	100	0	53	27
Substation - Lugo-Line Pos - Grading/Civil	Bobcat	45	2	15	—	Skid Steer Loaders	200	5	100	0	53	27
Substation - Lugo-Line Pos - Grading/Civil	Compactor	45	1	15	—	Rollers	300	5	100	0	53	27
Substation - Lugo-Line Pos - Grading/Civil	Excavator	45	2	15	—	Excavators	160	5	100	0	53	27
Substation - Lugo-Line Pos - Grading/Civil	Generator	45	2	15	—	Generator Sets	50	8	100	0	53	27
Substation - Lugo-Line Pos - Grading/Civil	Grader	45	2	15	—	Graders	290	5	100	0	53	27
Substation - Lugo-Line Pos - Grading/Civil	LoDrill	45	1	15	—	Bore/Drill Rigs	200	5	100	0	53	27
Substation - Lugo-Line Pos - Grading/Civil	Skip Loader	45	1	15	—	Tractors/Loaders/ Backhoes	150	4	100	0	53	27
Substation - Lugo-Line Pos - Grading/Civil	Trencher	45	1	15	—	Trenchers	175	5	100	0	53	27
Substation - Lugo-Line Pos - Grading/Civil	Dump Truck	45	1	15	HHDT	—	—	—	100	0	53	27
Substation - Lugo-Line Pos - Grading/Civil	Foreman's Truck	45	1	15	Passenger	—	—	—	100	0	53	27
Substation - Lugo-Line Pos - Grading/Civil	Fuel Truck	45	1	15	HHDT	—	—	—	100	0	53	27
Substation - Lugo-Line Pos - Grading/Civil	Job Site Utility Cart	45	4	15	Passenger	—	—	—	100	0	53	27
Substation - Lugo-Line Pos - Grading/Civil	Low Bed Hauler	45	1	15	HHDT	—	—	—	100	0	53	27
Substation - Lugo-Line Pos - Grading/Civil	Tool Truck	45	2	15	Delivery	—	—	—	100	0	53	27
Substation - Lugo-Line Pos - Grading/Civil	Water Truck	45	2	15	HHDT	—	—	—	100	0	53	27
Substation - Lugo-Line Pos - Grading/Civil	Worker Commute Automobile	45	15	15	Passenger	—	—	—	100	0	53	27
Substation - Lugo-Line Pos - Survey	Foreman's Truck	15	1	2	Passenger	—	—	—	100	0	67	156
Substation - Lugo-Line Pos - Survey	Job Site Utility Cart	15	1	2	Passenger	—	—	—	100	0	67	156
Substation - Lugo-Line Pos - Survey	Tool Truck	15	1	2	Delivery	—	—	—	100	0	67	156

Table 4.C-1. Construction Equipment and Workforce Estimates

Activity	Equipment Type	Approx. Total Days Used	Approx. Quantity	Approx. Number of Workers	On-Road Type	Off-Road Type	Output (Hp)	Approx. Use (hours/day)	Approx. Use by State (percent)		Maximum Days Used	
									CA	NV	2019	2020
Substation - Lugo-Line Pos - Survey	Worker Commute Automobile	15	2	2	Passenger	—	—	—	100	0	67	156
Substation - Lugo-Line Pos - Testing (SC1)	Test Truck	60	2	4	Delivery	—	—	—	100	0	0	130
Substation - Lugo-Line Pos - Testing (SC1)	Worker Commute Automobile	60	4	4	Passenger	—	—	—	100	0	0	130
Substation - Lugo-Line Pos - Testing (SC4)	Test Truck	60	2	4	Delivery	—	—	—	100	0	0	26
Substation - Lugo-Line Pos - Testing (SC4)	Worker Commute Automobile	60	4	4	Passenger	—	—	—	100	0	0	26
Substation - Lugo-Line Pos - Wiring (SC1)	Manlift	45	1	5	—	Aerial Lifts	150	5	100	0	0	95
Substation - Lugo-Line Pos - Wiring (SC1)	Foreman's Truck	45	1	5	Passenger	—	—	—	100	0	0	95
Substation - Lugo-Line Pos - Wiring (SC1)	Job Site Utility Cart	45	2	5	Passenger	—	—	—	100	0	0	95
Substation - Lugo-Line Pos - Wiring (SC1)	Tool Truck	45	2	5	Delivery	—	—	—	100	0	0	95
Substation - Lugo-Line Pos - Wiring (SC1)	Worker Commute Automobile	45	5	5	Passenger	—	—	—	100	0	0	95
Substation - Mohave-Line Pos - Electrical	Bobcat	45	2	15	—	Skid Steer Loaders	200	5	0	100	0	30
Substation - Mohave-Line Pos - Electrical	Crane	45	1	15	—	Cranes	350	4	0	100	0	30
Substation - Mohave-Line Pos - Electrical	Forklift	45	2	15	—	Forklifts	200	5	0	100	0	30
Substation - Mohave-Line Pos - Electrical	Generator	45	2	15	—	Generator Sets	50	8	0	100	0	30
Substation - Mohave-Line Pos - Electrical	Manlift	45	2	15	—	Aerial Lifts	150	5	0	100	0	30
Substation - Mohave-Line Pos - Electrical	Foreman's Truck	45	1	15	Passenger	—	—	—	0	100	0	30
Substation - Mohave-Line Pos - Electrical	Job Site Utility Cart	45	4	15	Passenger	—	—	—	0	100	0	30
Substation - Mohave-Line Pos - Electrical	Tool Truck	45	2	15	Delivery	—	—	—	0	100	0	30
Substation - Mohave-Line Pos - Electrical	Worker Commute Automobile	45	15	15	Passenger	—	—	—	0	100	0	30
Substation - Mohave-Line Pos - Grading/Civil (Phase 1)	Backhoe	45	2	15	—	Tractors/Loaders/ Backhoes	200	4	0	100	0	40
Substation - Mohave-Line Pos - Grading/Civil (Phase 1)	Bobcat	45	2	15	—	Skid Steer Loaders	200	5	0	100	0	40
Substation - Mohave-Line Pos - Grading/Civil (Phase 1)	Compactor	45	1	15	—	Rollers	300	5	0	100	0	40
Substation - Mohave-Line Pos - Grading/Civil (Phase 1)	Excavator	45	2	15	—	Excavators	160	5	0	100	0	40
Substation - Mohave-Line Pos - Grading/Civil (Phase 1)	Generator	45	2	15	—	Generator Sets	50	8	0	100	0	40
Substation - Mohave-Line Pos - Grading/Civil (Phase 1)	Grader	45	2	15	—	Graders	290	5	0	100	0	40
Substation - Mohave-Line Pos - Grading/Civil (Phase 1)	LoDrill	45	1	15	—	Bore/Drill Rigs	200	5	0	100	0	40
Substation - Mohave-Line Pos - Grading/Civil (Phase 1)	Skip Loader	45	1	15	—	Tractors/Loaders/ Backhoes	150	4	0	100	0	40
Substation - Mohave-Line Pos - Grading/Civil (Phase 1)	Trencher	45	1	15	—	Trenchers	175	5	0	100	0	40
Substation - Mohave-Line Pos - Grading/Civil (Phase 1)	Dump Truck	45	1	15	HHDT	—	—	—	0	100	0	40
Substation - Mohave-Line Pos - Grading/Civil (Phase 1)	Foreman's Truck	45	1	15	Passenger	—	—	—	0	100	0	40
Substation - Mohave-Line Pos - Grading/Civil (Phase 1)	Fuel Truck	45	1	15	HHDT	—	—	—	0	100	0	40
Substation - Mohave-Line Pos - Grading/Civil (Phase 1)	Job site Utility Cart	45	4	15	Passenger	—	—	—	0	100	0	40
Substation - Mohave-Line Pos - Grading/Civil (Phase 1)	Low Bed Hauler	45	1	15	HHDT	—	—	—	0	100	0	40
Substation - Mohave-Line Pos - Grading/Civil (Phase 1)	Tool Truck	45	2	15	Delivery	—	—	—	0	100	0	40
Substation - Mohave-Line Pos - Grading/Civil (Phase 1)	Water Truck	45	2	15	HHDT	—	—	—	0	100	0	40
Substation - Mohave-Line Pos - Grading/Civil (Phase 1)	Worker Commute Automobile	45	15	15	Passenger	—	—	—	0	100	0	40
Substation - Mohave-Line Pos - Survey (Phase 1 - Eldorado)	Foreman's Truck	10	1	2	Passenger	—	—	—	0	100	236	78
Substation - Mohave-Line Pos - Survey (Phase 1 - Eldorado)	Job site Utility Cart	10	1	2	Passenger	—	—	—	0	100	236	78
Substation - Mohave-Line Pos - Survey (Phase 1 - Eldorado)	Tool Truck	10	1	2	Delivery	—	—	—	0	100	236	78

Table 4.C-1. Construction Equipment and Workforce Estimates

Activity	Equipment Type	Approx. Total Days Used	Approx. Quantity	Approx. Number of Workers	On-Road Type	Off-Road Type	Output (Hp)	Approx. Use (hours/day)	Approx. Use by State (percent)		Maximum Days Used	
									CA	NV	2019	2020
Substation - Mohave-Line Pos - Survey (Phase 1 - Eldorado)	Worker Commute Automobile	10	2	2	Passenger	—	—	—	0	100	236	78
Substation - Mohave-Line Pos - Testing	Test Truck	75	2	4	Delivery	—	—	—	0	100	0	39
Substation - Mohave-Line Pos - Testing	Worker Commute Automobile	75	4	4	Passenger	—	—	—	0	100	0	39
Substation - Mohave-Line Pos - Wiring	Manlift	25	1	5	—	Aerial Lifts	150	5	0	100	0	30
Substation - Mohave-Line Pos - Wiring	Foreman's Truck	60	1	5	Passenger	—	—	—	0	100	0	30
Substation - Mohave-Line Pos - Wiring	Job Site Utility Cart	60	2	5	Passenger	—	—	—	0	100	0	30
Substation - Mohave-Line Pos - Wiring	Tool Truck	60	2	5	Delivery	—	—	—	0	100	0	30
Substation - Mohave-Line Pos - Wiring	Worker Commute Automobile	60	5	5	Passenger	—	—	—	0	100	0	30

5. Environmental Analysis

Introduction

This chapter describes the existing environmental setting relevant to each resource topic and provides an analysis of the environmental impacts that could occur from implementation of the Proposed Project. Discussions and explanations of the findings are provided for the following environmental resource topics:

1. Aesthetics
2. Agriculture and Forestry Resources
3. Air Quality
4. Biological Resources
5. Cultural Resources
6. Energy
7. Geology and Soils
8. Greenhouse gas Emissions
9. Hazards and Hazardous Materials
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.

Format of Environmental Resource Sections

The analysis of each environmental resource is organized as follows:

1. Environmental Setting
2. Regulatory Background
3. Applicant Proposed Measures (APMs)
4. CEQA Significance Criteria
5. Methodology
6. Project Impacts and Mitigation Measures
7. References

Environmental Setting

The analysis of each environmental resource area begins with a description of the existing physical setting that may be affected by the Proposed Project. The existing physical setting is based on the environmental conditions that existed in the study area in May 2018, the time that the application was submitted by SCE to the CPUC, pursuant to Section 15125(a) of the CEQA Guidelines.

Regulatory Background

This subsection describes the relevant regulations and guidelines that pertain to the environmental topic under consideration.

In California, the CPUC has exclusive jurisdiction over the design, siting, installation, operation, maintenance, and repair of electric transmission facilities. Therefore, the project is not subject to local discretionary regulations. Guidelines, plans, and policies for local jurisdictions in California are identified in Appendix C, by resource topic.

Applicant-Proposed Measures (APM)

SCE has proposed several measures to avoid or reduce Proposed Project impacts. The APMs are considered to be part of the Proposed Project. During construction, SCE's compliance with the APMs will be tracked through the Mitigation Monitoring and Reporting Plan (MMRP), similar to how compliance with mitigation measures will be tracked. The APMs proposed as part of the Proposed Project are provided in Chapter 4: Project Description, Table 4-18, as well as in each resource analysis section in Chapter 5, as applicable. If, during the analysis of project impacts, it is determined that the APMs are not sufficient to reduce an identified significant impact to a less than significant level, they are superseded by a mitigation measure, and an explanation of the rationale for superseding the APM is presented.

CEQA Significance Criteria

Significance criteria are identified for each environmental resource topic and used as a benchmark for determining if a project would result in a significant environmental impact when evaluated against baseline conditions. The significance criteria were developed using Appendix G of the CEQA Guidelines as a foundation and were modified as appropriate.

Methodology

For each environmental resource, the methodology used to analyze potential environmental impacts is presented prior to discussion of the results of the impact analysis.

Project Impacts and Mitigation Measures

The discussion of impacts to a resource is organized to:

- Describe and quantify each potential impact to the resources according to the identified significance criteria;
- Identify which APMs, if any, would serve to mitigate the impact and if they would reduce the impact to less than significant;
- If needed, identify additional mitigation measures that would further reduce the impact; and
- Provide a conclusion stating whether each potential impact would be less than significant without need for mitigation, mitigated to less than significant through measures identified in the IS; or potentially significant even with available mitigation.

References

Reference cited in the text are listed at the end of each resource section.

Cumulative Projects Impacts Analysis

Cumulative impacts of the Proposed Project are discussed in Section 5.21, Mandatory Findings of Significance, under question (b) "Does the project have impacts that are individually limited, but cumulatively considerable?" The focus of the cumulative impact analysis is to identify those project impacts that might not be significant when considered alone but which may contribute to a significant impact when viewed in conjunction with past, current, and reasonably foreseeable future projects. The analysis of cumulative impacts identifies whether a particular cumulative impact is significant, and then identifies whether the Proposed Project's contribution would be cumulatively considerable.

5.1 Aesthetics

AESTHETICS **Except as provided in Public Resources Code Section 21099, would the project:**	Potentially Significant Impact	Less Than Significant 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 non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	☐	☒	☐	☐
d. Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☒	☐	☐

Significance criteria established by CEQA Guidelines, Appendix G.

5.1.1 Environmental Setting

Visual resources are generally defined as the sum of natural and built features in the visible landscape. Landforms, water, and vegetation are among the natural elements that define an area's visual character. Buildings, roads, and other structures reflect human modifications to the natural landscape. Natural and built features are visual resources that contribute to the public's experience and appreciation of a landscape. This section evaluates visual conditions at and near the Eldorado-Lugo-Mohave Series Capacitor Project to determine how the project would affect the visual character of the existing landscape through the introduction of Proposed Project elements into the landscape.

Under CEQA, the aesthetics analysis considers how visible elements or conditions introduced by a project in the physical environment may affect the seen landscape and how these changes are experienced by viewers.

Visual resource analysis uses a systematic approach to logically assess visible change in the physical environment and the anticipated response of a viewer to that change. Different people viewing the same landscape may have different responses to that landscape and any visual changes that occur. These differences are based upon their personal experiences, values, familiarity, concern, or expectations for the landscape, as well as the landscape's scenic quality. Each person's attachment to and valuation of a landscape are unique. However, useful generalizations can be made about viewer sensitivity to scenic quality and visual change in order to assess impacts. For example, recreationists, hikers, equestrians, tourists, and people driving for pleasure are expected to a have high concern for scenery, visual quality, and character of a landscape they are viewing. People who commute regularly through the same landscape generally have a moderate concern for scenery which they see often and at high speeds. People working at agricultural or industrial sites within the same landscape may have a lower concern for scenic quality or changes to existing landscape character. The visual sensitivity of a landscape is affected by the viewing distances over which it is seen, such as close-up or far away. The visual sensitivity of a landscape also is affected by the travel speed of a person viewing the landscape (such as high speeds on a highway, low speeds on a hiking trail, or being stationary at a residence).

View parameters are greatly affected by the distance between a viewer and the landscape elements observed in the landscape. Typical distance zones considered are foreground (including a subcategory of immediate foreground), middle ground, and background. When a viewer is close to a viewed object or feature, details can be seen clearly and there is greater potential for the object to influence visual quality because of its form or scale relative to the other elements in the immediate view. At middle ground distances some detail is evident and new landscape features are seen more broadly in context with existing elements including landforms, vegetation patterns, and existing structures. When the same features are viewed at background distances, details may be imperceptible with overall forms and hues of existing terrain and vegetation that are more prominent, and the horizon and skyline may dominate.

The project area is in the Mojave Desert of California and Nevada. This is an arid environment with flat desert to rolling expanses separated by mountain ranges. With little rainfall, vegetation is relatively sparse and compact. Land and vegetation coloration is relatively muted. Much of the land traversed by the project is under the jurisdiction of the BLM, National Park Service (NPS), Bureau of Reclamation (BOR), and Department of Defense (DoD).

The Proposed Project would modify some components of three existing transmission lines and add new facilities under the lines at five locations. Two transmission lines extend between Lugo Substation to Eldorado Substation and Mohave Substation, respectively, and the third line extends between Mohave Substation to Eldorado Substation. The project would construct two series capacitor facilities and three optic fiber repeater facilities within existing rights of way (ROWs), replace an existing overhead ground wire with an optical ground wire, and address conductor clearance issues at 14 locations by raising selected towers or modifying circuits or grounding the transmission lines below. Modifications would also occur within each of the substations.

The existing 500 kilovolt (kV) transmission line ROWs cross flat desert, agricultural lands, and mountainous areas. Most of the land is undeveloped, with vegetation cover being principally low-growing desert grasses and scrubs. Land uses near the Proposed Project include undeveloped open space, protected wildernesses and preserves, national parks, BLM-managed lands, recreation, agricultural uses, roads, and energy infrastructure. Developed areas include low-density residential areas near Lugo Substation in Hesperia, California, residential development near Mohave Substation in Clark County, and electrical substations and renewable energy facilities near Eldorado Substation. With much of the Proposed Project area being undeveloped, the existing electrical transmission lines and access roads constitute dominant features in the landscape, along with two railroad lines and major highways — including Interstate 40 (I-40) and U.S. Highway 95 — that are spanned by the existing transmission lines. Mountain ranges provide a visual background in much of the Proposed Project vicinity. Sources of nighttime lighting are limited and include light from vehicles on roadways, dispersed residences, and lighting associated with existing substations and other utility facilities.

Viewshed

The project viewshed is defined as the general area from which the Proposed Project would be visible. As noted above, for purposes of describing a project's visual setting and assessing potential visual impacts, the viewshed can be divided into distance zones of foreground, middle ground, and background views. For purposes of assessment, "foreground" is defined as the distance between the viewer and about 0.5 mile. Landscape detail is most noticeable and objects generally appear most prominent when seen in the foreground. The "middle ground" is 0.5 to 5 miles from the viewer, and the "background" extends beyond 5 miles from the viewer.

In the analysis of visual effects for the Proposed Project, an emphasis is placed on the potential effects on foreground views, with consideration also given to the potential effects on more distant views. The greatest number of viewers would be from locations along nearby roads and highways, mostly from moving vehicles. From some locations, views of the Proposed Project may be partially or fully screened by intervening topography, structures, and vegetation. The proposed new facilities would be constructed adjacent to existing tall transmission towers and be situated largely within the existing ROWs. The two series capacitor facilities are similar to typical electric substations in appearance. Figure 5.1-1, Devers–Red Bluff 500 kV Mid-Line Capacitor, provides a photograph of an existing SCE mid-line capacitor facility located in the eastern Riverside County desert. The landscape is similar to that found in the vicinity of the Proposed Project. While the Devers–Red Bluff capacitor site supports more equipment and lines than would be present in the Newberry Springs and Ludlow capacitor facilities, the new facilities would be similar with regard to the core features shown in the figure. These include LSTs on either side of the capacitor site and A-frame or H-frame transition structures looping the transmission line conductor into and out from the elevated capacitor equipment. The inset in Figure 5.1-1 provides a view of the Devers–Red Bluff capacitor facility as seen from I-10, approximately 0.4 miles distant. For comparison, the Newberry Springs and Ludlow capacitor facilities would be approximately 0.6 miles from I-40.

The three optic fiber repeater facilities are substantially smaller than the two capacitor facilities and do not require dead-end structures to loop conductors in and out of the facilities, as the only transmission line feature entering the repeater facility would be the fiber optic line. The predominant feature at the repeater sites would be the one-story repeater equipment building. Each repeater facility would be located under the existing 500 kV transmission lines adjacent to existing LSTs.

Existing Landscape Setting and Viewer Characteristics

The visual character of the Proposed Project area is illustrated by a set of 21 photographs taken at various locations along the project alignment. These images document representative views from locations near the existing transmission lines. The locations of the photograph viewpoints are shown in Figure 5.1-2, Viewpoint Locations Map. Attachment 5.1-A, Characterization Photographs (at the end of this section), includes the 21 photographs, which are generally presented from west to east (i.e., Lugo Substation to Mohave Substation), and then south to north (i.e., Mohave Substation to Eldorado Substation). Six of the viewpoints were identified as Key Observation Points (KOPs). Simulations of project features as they would appear from these six KOPs allow a comparison of existing visual conditions from the KOPs and how the landscape would look at these locations after the project is implemented.

Photograph 1: Lugo Substation

Photograph 1 shows the existing view looking west from Fuente Avenue toward Lugo Substation. Two of the three existing transmission lines in the Proposed Project originate at Lugo Substation — the Eldorado-Lugo and Lugo-Mohave 500 kV Transmission Lines. Viewed from the eastern side of the substation, this photograph shows one of the existing double-circuit lattice steel towers (LSTs), as well as the switchracks and other components within the perimeter fencing surrounding the substation. The San Bernardino and San Gabriel Mountain Ranges are visible in the background.

Photograph 2: Arrowhead Lake Road Crossing

Photograph 2 shows the existing view looking north along Arrowhead Lake Road. Two existing LSTs appear along the Eldorado-Lugo and Lugo-Mohave 500 kV Transmission Lines where they span Arrowhead Lake Road, which runs north-south from the San Bernardino Mountains to the City of Hesperia. This photograph captures the existing transmission lines in a rural residential area south of the

city limits. As shown, existing homes are located on each side of the roadway and an existing distribution line parallels the roadway.

Photograph 3: Bowen Ranch Road (KOP 1)

Photograph 3 shows the existing view looking northeast from Bowen Ranch Road. Existing LSTs along the Eldorado-Lugo and Lugo-Mohave 500 kV Transmission Lines are visible from Bowen Range Road, which provides access to a few residential properties in the area. The photograph shows the hilly topography in this portion of the Proposed Project area, as well as the dominance of the existing LSTs of the Eldorado-Lugo 500 kV Transmission Line.

Photograph 4: State Route 18 Crossing

Photograph 4 shows the existing view looking west along State Route (SR-) 18. The Eldorado-Lugo and Lugo-Mohave 500 kV Transmission Lines span SR-18 in the unincorporated community of Lucerne Valley. This photograph includes features that are typical in the Proposed Project area, including existing transmission lines and a roadway, desert vegetation, and mountains in the background, with little development.

Photograph 5: Proposed Barstow Fiber Optic Repeater Site (KOP 2)

Photograph 5 shows the existing view looking northeast from SR-247 (Barstow Road) toward the site of the proposed Barstow Fiber Optic Repeater. The Eldorado-Lugo and Lugo-Mohave 500 kV Transmission Lines, as well as an existing 220 kV transmission line, are visible from SR-247, a County of San Bernardino–designated scenic route.[1] Sparse, rural residential development characterizes this area. The existing lines are shown against a backdrop of the Goat Ord, East Ord, and West Ord Mountains.

Photograph 6: Proposed Newberry Springs Series Capacitor Site (KOP 3)

Photograph 6 shows the existing view looking east-northeast from the National Trails Highway (historic U.S. Route 66) toward the site of the proposed Newberry Springs Series Capacitor along the Eldorado-Lugo 500 kV Transmission Line. In this area, the National Trails Highway (Route 66), a County of San Bernardino-designated scenic route,[2] runs parallel to I-40 and is in the foreground, and the view in this area would be similar from I-40. The view shows existing LSTs along the existing Eldorado-Lugo 500 kV Transmission Line and Pisgah Substation (shown at the far left of the photograph). Two separate 220 kV transmission lines (Lugo-Pisgah #1 and #2) terminate into the existing Pisgah Substation and not part of the Proposed Project. A cell tower appears in the photograph and is adjacent to the existing 500 kV LST. Flat topography and desert vegetation typical of the Mojave Desert is visible in the middle ground of the photograph, as well as the mountainous terrain in the background.

Photograph 7: Pisgah Road

Photograph 7 shows the existing view looking south-southwest from Pisgah Crater Road. The visual character of the area is dominated by existing LSTs near Pisgah Substation. Several transmission lines, including the Eldorado-Lugo 500 kV Transmission Line, are in adjacent ROWs. The San Bernardino Mountains form the background.

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1 Although designated by the County of San Bernardino as a scenic route, SR-247 is not a State scenic highway.

2 Although designated by the County of San Bernardino as a scenic route, the National Trails Highway (Route 66) is not a State scenic highway.

Photograph 8: Pisgah Substation

Photograph 8 shows the existing view looking northeast from Pisgah Crater Road toward Pisgah Substation. This provides a closer view of the existing Pisgah Substation as viewed from the intersection of Pisgah Road and Pisgah Crater Road. As in Photograph 7, this view highlights the dominance of existing transmission lines in the area. The black lava rocks and sand that are a dominant natural feature in this area are visible, and mountainous terrain forms the background.

Photograph 9: Interstate 40 Crossing

Photograph 9 shows the existing view looking east along the National Trails Highway (Route 66). In this photograph, the existing Lugo-Mohave 500 kV Transmission Line spans the National Trails Highway and I-40 southwest of the proposed Ludlow Series Capacitor site. The existing transmission line, distribution lines, and the roadways as major features in this area.

Photograph 10: Proposed Ludlow Series Capacitor Site (KOP 4)

Photograph 10 shows the existing view looking north from I-40 toward the site of the proposed Ludlow Series Capacitor along the Lugo-Mohave 500 kV Transmission Line. The existing LSTs in this area extend across the foreground. The flat topography and desert vegetation typical of the Mojave Desert are central features of the foreground and middle ground of the photograph, with the mountainous terrain in the background.

Photograph 11: Kelbaker Road (KOP 5)

Photograph 11 shows the existing view looking north-northwest from Kelbaker Road, a County of San Bernardino-designated scenic route.[3] The photograph shows the conductor of the Lugo-Mohave 500 kV Transmission Line and an existing Sempra Energy gas plant to the north of the transmission line, within the Mojave National Preserve. To the left of the plant, the white sands of the Kelso Dunes are visible in the middle ground and background.

Photograph 12: Proposed Kelbaker Fiber Optic Repeater Site

Photograph 12 shows the existing view looking northeast from Kelbaker Road toward the site of the proposed Kelbaker Fiber Optic Repeater. The foreground is dominated by rock from past road construction and maintenance. The existing Lugo-Mohave 500 kV Transmission Line is featured in this photograph, and mountainous terrain is visible in the background.

Photograph 13: Essex Road

Photograph 13 shows the existing view of the Lugo-Mohave 500 kV Transmission Line looking west from Essex Road, a County of San Bernardino-designated scenic route.[4] The photograph shows the disturbed condition of the ROW along the transmission line in the foreground, as well as the prominent mountains in the background.

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[3] Although designated by the County of San Bernardino as a scenic route, Kelbaker Road is not a State scenic highway.

[4] Although designated by the County of San Bernardino as a scenic route, Essex Road is not a State scenic highway.

Photograph 14: Black Canyon Road

Photograph 14 shows the existing view of the Lugo-Mohave 500 kV Transmission Line looking east from Black Canyon Road, a County of San Bernardino-designated scenic route.[5] The photograph features typical desert vegetation in the foreground and limited views of the Kelso Dunes in the background.

Photograph 15: Lanfair Road Crossing

Photograph 15 shows the existing view of the Lugo-Mohave 500 kV Transmission Line looking southeast along Lanfair Road, a County of San Bernardino-designated scenic route.[6] Existing distribution poles are also shown along the roadway, which is in the Mojave National Preserve. Goffs Butte is visible in the background.

Photograph 16: Proposed Lanfair Fiber Optic Repeater Site (KOP 6)

This photograph shows the LSTs and conductor of the existing Lugo-Mohave 500 kV Transmission Line looking northeast from Lanfair Road toward the proposed location of the Lanfair Fiber Optic Repeater site. Typical desert vegetation is visible in the foreground of the photograph, and Signal Hill can be seen in the background.

Photograph 17: Needles Highway – West

Photograph 17 shows the existing view of the LSTs along the Lugo-Mohave 500 kV Transmission Line looking west-southwest from Needles Highway in southern Clark County. As the transmission line crosses the mountains west of Mohave Substation, the LSTs that rise from the peaks of the mountains are prominent features in the viewshed, while the LSTs on the valley floor visually integrate with the surrounding vegetation in the middle ground. An existing water tank serving the local community is also visible in the middle ground.

Photograph 18: Needles Highway Crossing

This photograph shows the existing LSTs and conductors of the Eldorado-Mohave and Lugo-Mohave 500 kV Transmission Lines looking south-southeast across Needles Highway. Bullhead City, Arizona is visible in the background.

Photograph 19: Mohave Substation

Photograph 19 shows the existing Mohave Substation looking south-southwest from the substation's access road off of Bruce Woodbury Drive. The existing Eldorado-Mohave and Lugo-Mohave 500 kV Transmission Lines are shown looping into the substation.

Photograph 20: Eldorado Valley Drive

Photograph 20 shows the existing view looking south from Eldorado Valley Drive. The existing ROW outside of Eldorado Substation features three transmission lines, including the Eldorado-Mohave 500 kV Transmission Line as it departs to the south. The Eldorado-Lugo and the Eldorado-Moenkopi 500 kV Lines are also visible but are not a part of the Proposed Project in this location. Desert vegetation is prominent in the foreground and the Highland Range in the background.

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[5] Although designated by the County of San Bernardino as a scenic route, Black Canyon Road is not a State scenic highway.

[6] Although designated by the County of San Bernardino as a scenic route, Lanfair Road is not a State scenic highway.

Photograph 21: Eldorado Substation

Photograph 21 shows the existing view of Eldorado Substation looking north-northwest from Eldorado Valley Drive. Typical desert vegetation — characterized by the dominance of creosote (*Larrea tridentata*) shrubs, with other shrubs and emergent trees — is visible in the foreground. The McCullough Range is visible in the background.

5.1.2 Regulatory Background

State and Local

California

California Department of Transportation State Scenic Highway Program. The State Scenic Highway Program — a provision of Sections 260 through 263 of the Streets and Highways Code — was established by the Legislature in 1963 to preserve and enhance the natural beauty of California. The State Scenic Highway System 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. A city or county may propose adding routes with outstanding scenic elements to the list of eligible highways. However, State legislation is required. There are no State scenic highways in the Proposed Project area; the nearest officially designated scenic highway is SR-38, which is approximately 18 miles to the south of the Proposed Project.

Nevada

Nevada Revised Statutes Section 704.865 provides that "A person, other than a local government, shall not commence to construct a utility facility in the State without first having obtained a permit therefor from the Commission. The replacement of an existing facility with a like facility, as determined by the Commission, does not constitute construction of a utility facility." The Public Utilities Commission of Nevada is the Lead Agency for compliance with the Nevada Utility Environmental Protection Act.

Nevada Department of Transportation Scenic Byways Program. In 1983, the Nevada State Legislature established the Scenic Byways Program in Nevada. The Nevada Department of Transportation (NDOT) is the Lead Agency for the program, and the Director of NDOT has signature authority to establish a road as a Nevada Scenic Byway. Some Nevada Scenic Byways have historic significance, whereas others have natural attractions or access to outdoor recreation. Currently, there are 20 scenic byways in Nevada comprising approximately 420 miles. There are no Nevada Scenic Byways in the vicinity of the Proposed Project; the nearest Nevada Scenic Byway is Nevada Way, which is approximately 15 miles northeast of the Proposed Project.

Local

The CPUC has sole and exclusive jurisdiction over the siting and design of the Proposed Project components located in the State of California. Pursuant to CPUC G.O. 131-D, Section XIV.B, "Local jurisdictions acting pursuant to local authority are preempted from regulating electric power line projects, distribution lines, substations, or electric facilities constructed by public utilities subject to the CPUC's jurisdiction. However, in locating such projects, the public utilities shall consult with local agencies regarding land use matters." Consequently, public utilities are directed to consider local regulations and consult with local agencies, but the county and cities' regulations are not applicable as the county and cities do

not have jurisdiction over the Proposed Project. For informational purposes, local regulations in California jurisdictions are provided in Appendix C. The Proposed Project is subject to local regulations in the State of Nevada.

Clark County Comprehensive Plan. The Public Facilities and Services Element of the Clark County Comprehensive Plan contains goals and policies for utilities. The following policy is relevant to the Proposed Project:

- ***Utilities Policy 8:*** *Support the reduction of visual impacts by newly constructed utility poles, towers, substations, and equipment buildings. Use methods for reducing the effect though actions such as:*
  - *Disguising and co-locating antennas for cell towers;*
  - *Hiding equipment buildings with screening and solid fencing;*
  - *Use architecture design on major utility projects to complement the character of a community; and*
  - *Place high capacity electrical transmission lines underground, to lessen visual impacts in large multi-use projects.*

The Clark County Environmentally Sensitive Lands Advisory Committee Report, which provides background information for the Conservation Element, identifies one aesthetic resource — Oro Hanna Spring — within the Proposed Project vicinity.

South Clark County Land Use Plan. The following policy from the South Clark County Land Use Plan is relevant to the Proposed Project:

- ***Policy 54.8:*** *Since Highway 95 is a gateway to Clark County and the Las Vegas Valley, aesthetics and visual impacts caused by any type of proposed or expanded development, should be controlled.*

Laughlin Land Use Plan. The following goal and policies from the Public and Quasi-Public Infrastructure component of the Laughlin Land Use Plan are relevant to the Proposed Project:

- ***Goal 34:*** *Provide public and quasi-public infrastructure that emphasizes aesthetic considerations in its planning and development.*
- ***Policy 34.1:*** *Encourage the installation of public and quasi-public infrastructure (e.g., electrical substations, water pumping stations, etc.) with enhanced designs which utilize low profile equipment, decorative block walls, drought-tolerant landscaping and features which integrate with adjacent development.*
- ***Policy 34.2:*** *Discourage the use of low voltage overhead electric distribution lines. The Unified Development Code (Title 30) mandates that electric distribution lines be installed underground.*

City of Boulder City Master Plan. The following policy from the Special Planning Area Policies Chapter of the City of Boulder City Master Plan is relevant to the Proposed Project:

- *Policy EV 3: The visual impacts of future development in the Eldorado Valley should be a strong consideration when reviewing future proposals for energy production facilities or other uses. Future development should be designed so as to minimize negative impacts to views of the Eldorado Valley from the urbanized areas of the city.*

Federal

Bureau of Land Management

National Environmental Policy Act. The National Environmental Policy Act (NEPA) was enacted in 1969 to establish a national policy for public review of federal actions. Codified under Title 42, Sections 4321

to 4347 of the U.S. Code (USC), federal agencies are required to consider the environmental impact of their actions, including the issuance of discretionary permits. Because the Proposed Project would require several federal permits for work within federal lands and for potential impacts on federal jurisdictional resources, the federal agencies issuing the permits must comply with NEPA by conducting the appropriate environmental review of the Proposed Project.

Federal Land Policy and Management Act of 1976. Under the Federal Land Policy and Management Act (FLPMA) of 1976 (43 USC § 1701), land management agencies are required to manage federally owned public lands in a manner that protects the quality of resources, including scenic resources. The FLPMA provided a framework for the BLM to manage resources in perpetuity which led to the development of the California Desert Conservation Area (CDCA) Plan, which acts as the BLM's land use guide for the management of public lands and resources. The Las Vegas Resource Management Plan (VRM), also established under the FLPMA, acts as the BLM's VRM guide relative to visual and aesthetic impacts on BLM lands.

California Desert Conservation Area Plan. The CDCA Plan establishes goals for the protection and use of the CDCA and a framework for managing its various resources. The CDCA Plan contains an Energy Production and Utility Corridors Element, in which the BLM encourages applicants for utility ROWs to use designated corridors. The CDCA recognizes the BLM's VRM program as the tool that the BLM uses to inform its land use decisions. As part of Phase I of the Desert Renewable Energy Conservation Plan (DRECP), the BLM adopted an amendment to the CDCA Plan in September 2016 — the Land Use Plan Amendment (LUPA) to the CDCA Plan and Bishop and Bakersfield Resource Management Plan, which is discussed further below.

Desert Renewable Energy Conservation Plan. The DRECP is a collaborative effort between the California Energy Commission, California Department of Fish and Wildlife, BLM, and U.S. Fish and Wildlife Service to advance federal and state natural resource conservation goals and other federal land management goals; meet the requirements of the federal Endangered Species Act, California Endangered Species Act, Natural Community Conservation Planning Act, and FLPMA; and facilitate the timely and streamlined permitting of renewable energy projects in the Mojave and Colorado/Sonoran desert regions of Southern California. The DRECP covers approximately 22.5 million acres in the desert regions of Imperial, Inyo, Kern, Los Angeles, Riverside, San Bernardino, and San Diego Counties. The DRECP is being prepared in two phases. Phase I consists of the BLM LUPA to the CDCA Plan and Bishop and Bakersfield Resource Management Plan. Phase II will consist of a General Conservation Plan for approximately 5.5 million acres of non-federal land and a Conceptual Plan-Wide Natural Community Conservation Plan (NCCP) that encompasses the entire DRECP plan area. The DRECP designates National Scenic and Historic Trail management corridors on federal lands within the Plan area.

Bureau of Land Management Land Use Plan Amendment. The BLM LUPA establishes management direction for the permitting of renewable energy and transmission development on approximately 10 million acres of BLM-managed lands in the DRECP plan area. The BLM LUPA amends the CDCA Plan and the Bakersfield and Bishop Resource Management Plans. The purpose of the LUPA is to conserve biological, environmental, cultural, recreation, scenic, and visual resources; respond to federal renewable energy goals and policies, including state-level renewable energy targets; and comply with the FLPMA. The BLM LUPA designates land use allocations, prescribes conservation management actions, and establishes VRM classes.

California Historic Route 66: Needles to Barstow Corridor Management Plan (Proposed). The California Historic Route 66: Needles to Barstow Corridor Management Plan (CMP) is in the process of being developed to secure a nomination for the route as a National Scenic Byway. A final draft was released in 2015

and, once approved, it will focus on new development; the CMP will not propose changes to the regulation of Operation and Maintenance (O&M) activities for existing utility facilities. While there is guidance for new transmission lines and LSTs, the CMP does not contain policies that are relevant to the Proposed Project.

National Park Service

National Environmental Policy Act. NEPA is described above under Bureau of Land Management and applies to the NPS as well.

Organic Act of 1916. Act creating the NPS identifies the purpose of the NPS is to "…conserve the scenery and the natural and historic objects and the wild life therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations." 54 USC Sect. 100101(a).

Mojave National Preserve General Management Plan. The 2002 MNP-GMP addresses visual impact at pages 31 and 32, noting that "Visibility is probably the most important air quality resource in the desert region, and it is the most easily affected by activities that generate dust (especially fine particulates) and sulfur dioxide. " The GMP further identifies nearby pollution sources as vehicle traffic on I-40 and I-15, as well as other sources. "Local pollution sources in the desert consist primarily of particulate matter from off-road vehicles, windblown soil, mining operations, livestock grazing, and agricultural activities. These sources have left certain areas denuded or sparsely vegetated, allowing wind erosion to occur and air quality to suffer…" Under its Plan Actions, the "Mojave National Preserve will prepare guidelines for the built environment to establish visual consistency and themes in facility development. Guidelines will also be created for reaching visual compatibility with surrounding landscapes, significant architectural features, and site details. The primary objective of these guidelines will be to create harmony between the built environment and the natural environment." The Preserve's dark skies offer visitors and researchers opportunities for natural quiet, solitude, and star gazing. "However, the northern and southern boundaries are interstate highways. Traffic on these highways and the lights from Baker, California, Primm, Nevada, and Laughlin, Nevada are beginning to have a noticeable adverse effect on the night sky." "…preservation of this resource is critical to the future visitor experience." As part of its actions, the NPS "… will partner with communities and local government agencies to minimize reflected light and artificial light intrusion on the dark night sky …"

NPS Management Policies 2006 – The Guide to Managing the National Park System. Guidance to managing the National Park System relevant to visual resources addresses construction sites (Section 9.1.3.1) and utility lines (Section 9.1.5.3). These management policies apply to NPS practices but guidance to others working on NPS property as well. Construction sites are to be limited to the smallest feasible area and ground disturbance is to be carefully controlled to prevent undue damage and to minimize pollution. Visual intrusions are to be kept to a minimum. With regard to above ground utility lines and appurtenant structures, these are to be located and designed to minimize impacts on park resources and values. Where possible, they should share a common corridor and be combined with transportation corridors.

Foundation Document – Mojave National Preserve. A park's foundation document helps managers, staff, and stakeholders develop or affirm an understanding of what is most important about the preserve and identify the additional information needed to plan for the future. The 2013 Foundation Document for the Preserve identifies the fundamental value of desert scenery in the Preserve, stating that "Diverse scenic landscapes and visual qualities foster a sense of discovery and contribute to an

emotional connection for visitors. The enabling legislation highlights the importance of protecting this fundamental scenic value."

Federal Aviation Administration

Code of Federal Regulations. All airports and navigable airspace not administered by the DoD are under the jurisdiction of the Federal Aviation Administration (FAA). This applies to both federal and non-federal lands. Title 14, Part 77 of the Code of Federal Regulations (CFR) establishes the standards and required notification for objects affecting navigable airspace. This includes standards for marking and lighting structures to promote aviation safety, which can also affect existing viewsheds. Such standards are applicable to any temporary or permanent structures exceeding an overall height of 200 feet above ground level or exceeding any obstruction standard in Title 14, Part 77 of the CFR. SCE would file a Notice of Proposed Construction or Alteration (Form 7460-1) with the FAA for Proposed Project structures, as required. With respect to Proposed Project structures, the FAA would conduct its own analysis and may recommend no changes to the design of the proposed structures; or the FAA may recommend marking the structures, including the addition of aviation lighting or the placement of marker balls on wire spans. SCE would evaluate the FAA recommendations for reasonableness and feasibility; and in accordance with Title 14, Part 77 of the CFR, SCE may petition the FAA for a discretionary review of its determination to address any concerns. FAA determinations for permanent structures are typically valid for 18 months; therefore, such notifications would be filed upon completion of final engineering and before construction commences.

5.1.3 Applicant Proposed Measures

The Proposed Project does not include any APMs related to Aesthetics.

5.1.4 CEQA Significance Criteria

Appendix G of the CEQA Guidelines (14 CCR 15000 et seq.) provides guidance on assessing whether a project would have significant impacts on the environment. Consistent with Appendix G, the Proposed Project would have significant aesthetic impacts if it would:

a. *Have a substantial adverse effect on a scenic vista*
b. *Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway*
c. *In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings and in an urbanized area, would 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.*

5.1.5 Methodology

The Proposed Project would be located on land under various jurisdictions, including state and local governments as well as federal agencies, most notably the Bureau of Land Management (BLM) and the National Park Service (NPS). Table 5.1-1, Jurisdictions Crossed by the ELM Project, identifies the amount of land crossed by the project that is administered by various jurisdictions. BLM manages 58.4 percent of the land crossed by the project and NPS manages 15.9 percent. Overall, federal agencies manage nearly 75 percent of the land crossed by the project. The major new elements that would be introduced into

the visual environment as a result of the project are primarily on federal land. Notably, the Newberry Springs capacitor facility and most of the distribution power and telecommunication link between the Newberry Springs capacitor facility and the Ludlow capacitor facility, and two of the three optic fiber repeaters are on federal land. The Barstow repeater and the Ludlow capacitor facility are on private land.

Table 5.1-1. Jurisdictions Crossed by the ELM Project

Line	BLM	NPS	DoD	Bureau of Reclamation	California State Lands Commission	Private	Total (miles)
Lugo-Mohave 500 kV	88.3	48	1.1	0.6	4.7	33.1	175.8
Eldorado-Mohave 500 kV	49.5	0	0	0	0	9.9	59.4
Eldorado-Lugo 500 kV*	40.4	0.6	1	0	1	27.1	70.1
Ludlow & Newberry Springs capacitor link	0.9	0	0	0	0	0.4	1.3
Total line miles	179.1	48.6	2.1	0.6	5.7	70.5	306.6

*Includes only the portion of line included in the ELM project

The BLM develops and uses its Visual Resource Inventory/Visual Resource Management (VRI/VRM) methodology to inventory and classify lands with respect to visual quality and to assign management classes. The NPS uses its VRI methodology to establish a Scenic Quality Rating and View Importance Rating, which are used to establish a Scenic Inventory Value. However, the NPS methodology is under development. The CPUC has not adopted a specific method for assessing visual character and quality under CEQA. Therefore, the BLM methodology was used on BLM and NPS lands, as well as on private land.

NPS Visual Resource Program

The NPS Visual Resource Program (VRP) is under development. In conversations with the NPS, it was determined that the BLM VRI/VRM approach would be appropriate for assessing the visual impacts of the Proposed Project as the planned project activities on NPS land are associated with existing 500 kV transmission lines (NPS, 2018).

BLM Visual Resource Management

Based on the outcome of the Visual Resource Inventory (VRI), the VRM system identifies four classes (I through IV) with specific management prescriptions for each class. The system is based on an assessment of scenic quality, viewer sensitivity, and viewing distance zones.

Scenic Quality is a measure of the overall impression or appeal of an area created by the physical features of the landscape, such as natural features (landforms, vegetation, water, color, adjacent scenery, and scarcity) and built features (roads, buildings, railroads, agricultural patterns, and utility lines). These features create the distinguishable form, line, color, and texture of the landscape composition that can be judged for scenic quality using criteria such as distinctiveness, contrast, variety, harmony, and balance. Table 5.1-2 presents the VRM scenic quality rating components that are evaluated to arrive at one of three scenic quality ratings (A, B, or C) for a given landscape. Each landscape component is scored, and a score of 19 or higher results in a Class A scenic quality rating. A score of 12 to 18 results in a Class B scenic quality rating, while a score of 11 or less results in a Class C scenic quality rating. The three scenic quality classes are described as follows:

- **Scenic Quality Class A** – Landscapes that combine the most outstanding characteristics of the region.
- **Scenic Quality Class B** – Landscapes that exhibit a combination of outstanding and common features.
- **Scenic Quality Class C** – Landscapes that have features that are common to the region.

Table 5.1-2. Visual Resource Management (VRM) Scenic Quality Rating

Component	Scenic Quality Rating		
Landform	High vertical relief (prominent cliffs, spires, or massive rock outcrops); severe surface variation; highly eroded formations (major badlands or dune systems); detail features dominant and exceptionally striking/ intriguing. **5**	Steep canyons, mesas, buttes, cinder cones, and drumlins; interesting erosional patterns or variety in size and shape of landforms; or detail features, which are interesting though not dominant or exceptional. **3**	Low rolling hills, foothills, or flat valley bottoms or few or no interesting landscape features. **1**
Vegetation	A variety of vegetative types as expressed in interesting forms, textures, and patterns. **5**	Some variety of vegetation but only one or two major types. **3**	Little or no variety or contrast in vegetation. **1**
Water	Clear and clean appearing, still, or cascading white water, any of which are a dominant factor in the landscape. **5**	Flowing, or still, but not dominant in the landscape. **3**	Absent or present but not noticeable. **0**
Color	Rich color combinations; variety or vivid color; or pleasing contrasts in the soil, rock, vegetation, water, or snowfields. **5**	Some intensity or variety in colors and contrast of the soil, rock, and vegetation but not a dominant scenic element. **3**	Subtle color variations, contrast, or interest; generally muted tones. **1**
Influence of Adjacent Scenery	Adjacent scenery greatly enhances visual quality. **5**	Adjacent scenery moderately enhances overall visual quality. **3**	Adjacent scenery has little or no influence on overall visual quality. **0**
Scarcity	One of a kind, unusually memorable, or very rare within region. Consistent chance for exceptional wildlife or wildflower viewing, etc. **5+***	Distinctive, though somewhat similar to others within the region. **3**	Interesting within its setting but fairly common within the region. **1**
Cultural Modifications	Modifications add favorably to visual variety while promoting visual harmony. **2**	Modifications add little or no visual variety to the area and introduce no discordant elements. **0**	Modifications add variety but are very discordant and promote strong disharmony. **–4**
Scenic Quality Rating:	**A = 19 or more**	**B = 12 to 18**	**C = 11 or less**

*A rating of greater than 5 can be given but must be supported by written justification

Viewer Sensitivity is a factor used to represent the value of the visual landscape to the viewing public, including the extent to which the landscape is viewed. For example, a landscape may have high scenic qualities but be remotely located and, therefore, seldom viewed. Sensitivity considers such factors as visual access (including duration and frequency of view), type and amount of use (See Table 5.1-3), public interest, adjacent land uses, and whether the landscape is part of a special area (e.g., California Desert Conservation Area [CDCA]).

Table 5.1-3. Amount of Use Classifications

Type Area	High	Moderate	Low
Roads & highways	More than 45,000 visits/year	5,000 to 45,000 visits/year	Less than 5,000 visits/year
Rivers & trails	More than 20,000 visits/year	2,000-20,000 visits/year	Less than 2,000 visits/year
Recreation sites	More than 10,000 visitor-days/year	2,000-10,000 visitor-days/year	Less than 2,000 visitor-days/year

The three levels of viewer sensitivity can generally be defined as follows:

- **High Sensitivity.** Areas that are either designated for scenic resources protection or receive a high degree of use (includes areas visible from roads and highways receiving more than 45,000 visits [vehicles] per year), typically within the foreground/middle ground (f/m) viewing distance (see Table 5.1-4).
- **Medium Sensitivity.** Areas lacking specific, or designated, scenic resources protection but are located in sufficiently close proximity to be within the viewshed of the protected area. Includes areas that are visible from roads and highways receiving 5,000 to 45,000 visits (vehicles) per year. Typically within the background (b) viewing distance (see Table 5.1-4).
- **Low Sensitivity.** Areas that are remote from populated areas, major roadways, and protected areas or are severely degraded visually. Includes areas that are visible from roads and highways receiving less than 5,000 visits (vehicles) per year.

***Viewing Distance Zones*.** Landscapes are generally subdivided into three distance zones based on relative visibility from travel routes or observation points (see Table 5.1-4). The foreground/middle ground zone includes areas that are up to 5 miles from the viewing location. This zone defines the area in which landscape details transition from readily perceived to outlines and patterns. The background zone is generally greater than five but less than 15 miles from the viewing location. This zone includes areas where landforms are the most dominant element in the landscape, and color and texture become subordinate. Within this distance zone, vegetation would be visible at least as patterns of light and dark. The seldom-seen zone includes areas that are usually hidden from view as a result of topographic or vegetative screening or atmospheric conditions. In some cases, atmospheric and lighting conditions can reduce visibility and shorten the distances normally covered by each zone.

Table 5.1-4. Distance Zones

f/m – foreground/middle ground	0 to 5 miles
b – background	5–15 miles
s/s – seldom seen	seldom seen areas

The Visual Resource Management class for a given area is typically arrived at through the use of a classification matrix similar to that presented in Table 5.1-5. By comparing the scenic quality, visual sensitivity, and distance zone, the specific VRM class can be determined. The exception to this process is the Class I designation, which is placed on special areas where management activities are restricted (e.g., wilderness areas).

Table 5.1-5. Visual Resource Management (VRM) Classification Matrix								
Visual Sensitivity Levels		High			Medium			Low
Special Areas		I	I	I	I	I	I	I
Scenic Quality	A	II	II	II	II	II	II	II
	B	II	III	III* IV*	III	IV	IV	IV
	C	III	IV	IV	IV	IV	IV	IV
Distance Zones		f/m	b	s/s	f/m	b	s/s	s/s

*If adjacent areas are Class III or lower, assign Class III; if higher, assign Class IV.

The objectives of each VRM classification as stated in the BLM VRM *Visual Resource Inventory Manual* are as follows:

- **VRM Class I.** The objective is to preserve the existing character of the landscape. This class provides for natural ecological changes; however, it does not preclude very limited management activity. The level of change to the characteristic landscape should be very low and must not attract attention.
- **VRM Class II.** The objective is to retain the existing character of the landscape. The level of change to the characteristic landscape should be low. Management activities may be seen but should not attract the attention of the casual observer. Any changes must repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape.
- **VRM Class III.** The objective is to partially retain the existing character of the landscape. The level of change to the characteristic landscape should be moderate or lower. Management activities may attract attention but should not dominate the view of the casual observer. Changes should repeat the basic elements found in the predominant natural features of the characteristic landscape.
- **VRM Class IV.** The objective is to provide for management activities, which require major modification of the existing character of the landscape. The level of change to the characteristic landscape can be high. These management activities may dominate the view and be the major focus of viewer attention. However, every attempt should be made to minimize the impact of these activities through careful location, minimal disturbance, and repeating the basic elements in the predominant natural features of the characteristic landscape.

Project Visual Depiction

On non-federal lands, project components were evaluated using similar criteria as on federal lands, namely, form line, color, texture, and degree of contrast. On federal lands, Proposed Project components were assessed for their compatibility with the VRM objectives for its respective VRM class. Attachment 5.1-B, BLM Visual Contrast Rating Worksheets, contains the worksheets prepared for each KOP.

To aid in the evaluation of key project components, visual simulations were prepared from each of the six KOPs for the Proposed Project. These are provided in Attachment 5.1-C, Visual Simulations. The six KOPs are a selected subset of the viewpoints portrayed in the 21 representative photographs of the project vicinity. The simulations for these locations allow a comparison of the existing view with and without the project in place. The simulation images portray the location, scale, and appearance of the Proposed Project as seen from the six publicly accessible KOPs. These locations were selected to represent views of major project elements as seen by the largest number of viewers, primarily along public roadways. Taken together, the simulations illustrate the representative visual change associated with the Proposed Project.

The computer-generated visual simulations were developed using engineering design data for the Proposed Project. this data was supplied by SCE and includes a range of possible heights for proposed structures. These proposed structures are simulated at the tallest end of the height ranges in order to portray the Proposed Project's greatest potential visibility.

As described for KOP 1 below, some project activities to address clearance issues would require minor work at the ground level or involve lowering of some electric lines passing under the 500 kV transmission lines. In all, there are 16 actions at 14 widely scattered locations. In the context of surrounding visual elements (e.g., existing conductors, LSTs, distribution poles, and roads), most were considered to represent minor changes in the visible landscape having a nominal and highly localized visual impact. One exception would be locations where towers would be raised. In Section 4, Project Description, Figure 4.19 (Use of a Body Extension to Raise a Tower) illustrates how a lattice steel tower would appear before and after being raised. It would elevate the top of the tower, but not substantially alter its overall appearance.

A major aspect of the Proposed Project would be replacement of an existing overhead ground wire (OHGW) between Lugo and Mohave Substations and Mohave and Eldorado Substations with an optical ground wire (OPGW) at the same position on the LSTs. The visual impact of exchanging one ground wire for another would have little visual impact outside of the short-term visual impact associated with the presence of personnel and equipment required to remove and replace the ground wire. The somewhat heavier OPGW and the need for minor tower repairs at some locations would require the installation of additional steel members on selected towers. For OPGW support and tower strengthening, this would include the installation of small steel X-shaped pieces at the peak of some towers and larger steel X-shaped cross pieces in the body of the towers. This additional steel would be similar in form to the existing steel and to a viewer would not result in a noticeably different structure. As explained in the Impact Analysis section that follows, requirements addressing the potential reflectance of the new steel ensure that impacts would be less than significant.

KOP 1 – Discrepancy[7] Work Area at Towers M14-T3 to M14-T4

The visual simulation for KOP 1 shows the view of the Proposed Project from Bowen Ranch Road, approximately 0.4 miles from where Tower M14-T4 would be raised to address two clearance discrepancies on the Eldorado-Lugo 500 kV Transmission Line. As shown in the simulation, Tower M14-T4 would be modified and raised approximately 20 feet. From this viewpoint, several LSTs on the Eldorado-Lugo and Lugo-Mohave 500 kV Transmission Lines would be visible. Motorists using this roadway, which is used mainly for local access to residential properties in the area, would have occasional and temporary views of the existing and modified LSTs. As shown in the simulation, the modified LSTs would be taller, but would not change substantially in form from other existing LSTs, and would continue the pattern of LSTs within the area.

Tower M14-T4 is not located on BLM-managed land; however, a Visual Contrast Rating Worksheet for this KOP was prepared and is in Attachment 5.1-B, BLM Visual Contrast Rating Worksheets. If on federal land, the location would be considered VRM Class III. The contrast rating of this Proposed Project com-

[7] SCE has defined "discrepancies" as potential clearance problems between an energized conductor and its surroundings, such as the structure, another energized conductor on the same structure, a different line, or the ground. SCE has identified approximately 16 discrepancies at 14 locations along the Eldorado-Lugo, Eldorado-Mohave, and Lugo-Mohave 500 kV Transmission Lines, where minor grading, or relocation, replacement, or modification of transmission, subtransmission, or distribution facilities is needed to address CPUC G.O. 95 and National Electrical Safety Code overhead clearance requirements.

ponent is relatively weak, due to the presence of existing transmission lines in the viewshed. While the modified tower would be taller, it would continue the form, color, and pattern of the existing transmission lines and, therefore, would result in low contrast with existing conditions.

Similar conclusions apply to the other nine LSTs that would be raised as part of the project. Tower raisings would be in largely undeveloped areas and would adjust the height of an existing visual element in the viewshed, which is a line with similar LSTs supporting the transmission line. This is consistent with the VRM Class III objective, which is to partially maintain the character of the landscape and allow management changes that repeat the basic element found in the existing environment.

Other actions to address clearance discrepancies at discrete locations include removing 3.5 feet of concrete below the conductors at one location, grading a berm by 3 feet at another location, modifying conductor sags in two locations, and reframing and lowering power lines beneath the 500 kV Transmission Lines at two locations. These were considered minor changes in the landscape that would create minimal to no visual change in existing views at these locations, which are dominated by existing LSTs, conductors, and access roads in the ROW.

KOP 2 – Barstow Fiber Optic Repeater Site

The visual simulation for KOP 2 shows the location of the proposed Barstow Fiber Optic Repeater site along the Eldorado-Lugo and Lugo-Mohave 500 kV Transmission Lines, approximately 0.4 miles east of SR-247. As shown, the proposed facility, including the equipment building and perimeter fencing, would be visible from this County of San Bernardino-designated scenic route. Motorists on Barstow Road would be the main viewer group, along with the residents living in the neighboring scattered residential properties, the nearest of which is approximately 1,000 feet to the north. Though the residential viewers would have a relatively sustained view of the new Barstow Fiber Optic Repeater facility, motorists traveling along the roadway would have temporary views of the new facility and the view duration would be short. The proposed Barstow Fiber Optic Repeater facility would be relatively small and adjacent to two LSTs that dominate the immediate view. The surrounding mountains are distant, and views of the mountains would not be affected.

The proposed Barstow Fiber Optic Repeater site is not on BLM-managed land. However, a Visual Contrast Rating Worksheet for this KOP was prepared to assess the visual contrast of the proposed repeater facility. The overall contrast rating of this project component is weak. Due to the distance of the fiber optic repeater facility from the KOP location, the building enclosing the mechanical equipment would be the single visible component. The building would appear as a solid, light brown form and would continue the existing pattern in the area that is created by the scattered residential buildings and equipment storage nearby. The repeater facility is of a similar height as other structures in the general area. With an appropriate colored exterior for the building, the facility integrates well into the existing surroundings and would not contrast with the visual character of the surrounding landscape. The facility is consistent with the VRM Class III objective, which is to partially maintain the character of the landscape and allow management changes that repeat the basic element found in the existing environment.

KOP 3 – Newberry Springs Series Capacitor Site

The visual simulation for KOP 3 shows the proposed Newberry Springs Series Capacitor along the Eldorado-Lugo 500 kV Transmission Line. This site is northeast of the existing Pisgah Substation (visible in the right center of the photograph), and would be visible from several roadways, including I-40, the National Trails Highway (Route 66), Pisgah Road, and Pisgah Crater Road. The proposed mid-line series capacitor facility would be located approximately 0.6 miles from I-40 and would be visible from these

roadways, but primarily to passing motorists on the two highways. The proposed facility includes a capacitor bank located on a platform in the center of the site. As an example, see Figure 5.1-1, Devers–Red Bluff 500 kV Mid-Line Capacitor, which shows A-frame or H-frame dead-end structures located on either side of the capacitor bank to transition the conductor into and out of the capacitor. The conductor would extend from existing LSTs through the new the dead-end structures to loop in and out of the facility. The overhead ground wire above the conductor would span over the capacitor facility, between the existing LSTs on either side. The entire facility would be surrounded by an 8-foot-tall chain-link fence. The facility would be visible within the transmission line ROW. In this vicinity, existing 500 and 220 kV LSTs and Pisgah Substation are also visible. The capacitor site is near the BNSF rail line and a train is visible behind the proposed capacitor facility.

Motorists would have short duration and partial views of the proposed facility, particularly along I-40, where travel speeds are typically 70+ miles per hour. As seen in the visual simulation, views of the mountains would not be blocked by the facility due to the distance between the proposed Newberry Springs Series Capacitor and the mountains, the distance between the highways and the facility, and the facility's relatively low profile. The facility would not be a source of glare as long as the equipment and structures installed are grey or another neutral color and steel surfaces are nonspecular (reflecting light diffusely and evenly from surfaces).

The Newberry Springs facility is on BLM land in a VRM Class III area. To assess the visual contrast of the Proposed Project, the visual simulation for KOP 3 was analyzed using the Visual Contrast Rating Worksheet in Attachment 5.1-B, BLM Visual Contrast Rating Worksheets. The overall visual contrast rating of this Proposed Project component is weak to moderate. Due to the location of the proposed facility within a ROW near an existing substation and multiple LSTs, the proposed facility repeats elements that are already visible in the viewshed. Therefore, the proposed mid-line series capacitor integrates into the existing surroundings and would not contrast with the visual character of the surrounding landscape. The facility is consistent with the VRM Class III objective, which is to partially maintain the character of the landscape and allow management changes that repeat the basic element found in the existing environment.

KOP 4 – Ludlow Series Capacitor Site

The visual simulation for KOP 4 shows the location of the proposed Ludlow Series Capacitor along the Lugo-Mohave 500 kV Transmission Line. The site is approximately 1.3 miles east of the Newberry Springs capacitor site. The Ludlow capacitor facility would be visible to the public, and primarily to motorists traveling on I-40, which is approximately 0.6 miles distant. As shown in the simulation, the proposed mid-line series capacitor would be visible primarily to passing motorists. There are no residences or roads in close proximity to the site. The proposed facility includes the relatively solid-looking capacitor bank, similar to the Newberry Springs facility, which is located on a platform in the center of the site. A transmission dead-end structure would be located on either side of the capacitor bank, connecting the capacitor to the transmission line and the overhead ground wire will span the site between the existing LSTs on the other side. Also visible in the visual simulation is the tan-colored Mechanical Electrical Equipment Room (MEER) building associated with the mid-line series capacitor. The entire facility is surrounded by an approximately 8-foot-tall chain-link fence. The new facility would be visible within the transmission line ROW where existing LSTs of the Lugo-Mohave 500 kV Transmission Line are also visible.

Due to travel speeds of 70+ mph, motorists would have temporary, and in some locations, partial views of the facility, and their views would be short in duration. As shown in the simulation, views of the surrounding mountains would not be affected due to their distance from the proposed Ludlow Series Capacitor and its relatively low profile against the mountainous backdrop.

A line of wooden 12 kV distribution poles would be installed between the two capacitor facilities. At a distance of over a half mile the pole would be only nominally distinguishable against the ground that rises behind the site toward the distant mountains. Their color would be similar to the natural tones of the landscape.

Although surrounded by BLM-administered land, the Ludlow capacitor site is on a section of private land. As shown in Figure 5.1-3, BLM Visual Resource Management Classes, the proposed Ludlow Series Capacitor site would be considered a VRM Class III area. To assess the visual contrast of the Ludlow facility, the visual simulation for KOP 4 was analyzed using the Visual Contrast Rating Worksheet in Attachment 5.1-B, BLM Visual Contrast Rating Worksheets. Similar to the Newberry Springs facility, the contrast rating of the Ludlow facility is weak to moderate. Due to the location of the proposed facility within a ROW with existing LSTs, the proposed facility integrates into the existing surroundings and would not contrast with the visual character of the surrounding landscape. The Proposed Project is consistent with the VRM Class III objective, which is to partially maintain the character of the landscape and allow management changes that repeat the basic element found in the existing environment.

KOP 5 – Kelbaker Fiber Optic Repeater Site

The visual simulation for KOP 5 shows the location of the proposed Kelbaker Fiber Optic Repeater site along the Lugo-Mohave 500 kV Transmission Line. The site is within the Mojave National Preserve approximately 0.2 miles east of Kelbaker Road, which is a County of San Bernardino-designated scenic route. As shown in the simulation, the proposed facility, including the equipment building and perimeter fencing, would be visible adjacent to the existing LST visible in the center of the photograph. Motorists traveling on Kelbaker Road would be the main viewer group, but they would have short-duration views of the proposed Kelbaker Fiber Optic Repeater facility. As shown in the background of the simulation, views of the mountains would not be affected due to the relatively small size and low profile of the facility and its distance from the mountains.

Not visible in this view is a natural gas pipeline facility to the west of Kelbaker Road, just north of the transmission line (visible in characterization Photograph 11 in Attachment 5-1A). The existing natural gas facility, distribution line along the road, and the Lugo-Mohave Transmission Line are all visible to passing motorists. Similar to the existing wooden pole supported distribution line along Kelbaker Road, 6 new wooden distribution poles would be installed at the edge of the 500 kV ROW between the road and the repeater facility to provide power. These are not shown in the simulation but are similar to the wooden distribution poles between Kelbaker Road and the natural gas facility, as seen in Photograph 11 in Attachment 5-1A.

The proposed Kelbaker Fiber Optic Repeater site is located on a site with VRM Class III characteristics. To assess the visual contrast of the Proposed Project, the visual simulation for KOP 5 was analyzed using the Visual Contrast Rating Worksheet in Attachment 5.1-B, BLM Visual Contrast Rating Worksheets. The overall contrast rating of this Proposed Project component is weak. Due to the distance of the fiber optic repeater facility from the KOP location, the building enclosing the mechanical equipment would be the single visible component. The building would appear as a solid form, which is a new element in the viewshed, but it is partially hidden by intervening vegetation in the view. If a neutral color, the structure would not stand out. Because the proposed fiber optic repeater would be located adjacent to an existing LST within the existing ROW, the facility is somewhat integrated into the existing surroundings and would not contrast with the visual character of the surrounding landscape. The Proposed Project is consistent with the VRM Class III objective, which is to partially maintain the character of the landscape and allow management changes.

KOP 6 – Lanfair Fiber Optic Repeater Site

The visual simulation for KOP 6 shows the location of the proposed Lanfair Fiber Optic Repeater site along the Lugo-Mohave 500 kV Transmission Line. The site is within the Mojave National Preserve approximately 0.4 miles east of Lanfair Road, which is a County of San Bernardino-designated scenic route. As shown in the simulation, the proposed facility, including the equipment building and perimeter fencing, would be visible on the far side of an existing LST. Motorists traveling along Lanfair Road would be the main viewer group, and this group would experience views of the proposed Lanfair Fiber Optic Repeater facility that would be temporary and short in duration. As shown in the background of the simulation, views of Signal Hill would not be impacted due to the relatively small size and low profile of the facility and its distance from Signal Hill.

Similar to the existing distribution line supported by a wooden pole along the east side of Lanfair Road, 16 new wooden distribution poles would be installed at the edge of the 500 kV ROW between the road and the repeater facility to provide power. These are not shown in the simulation but are similar to the wooden distribution poles between Kelbaker Road and the natural gas facility, as seen in Photograph 11 in Attachment 5-1A.

The proposed Lanfair Fiber Optic Repeater site is located on a site with VRM Class III characteristics. To assess the visual contrast of the Proposed Project, the visual simulation for KOP 6 was analyzed using the Visual Contrast Rating Worksheet in Attachment 5.1-B, BLM Visual Contrast Rating Worksheets. The overall contrast rating of this Proposed Project component is weak. Due to the distance of the fiber optic repeater facility from the KOP location, the building enclosing the mechanical equipment would be the single visible component. The building would appear as a solid, light brown form, which is a new element in the viewshed. The facility would be located adjacent to an existing LST, and from this KOP, be visible directly behind the LST. Because of its proximity to the existing LST, the facility is integrated into the existing surroundings and would not contrast with the visual character of the surrounding landscape. The Proposed Project is consistent with the VRM Class III objective, which is to partially maintain the character of the landscape and allow management changes.

5.1.6 Project Impacts and Mitigation Measures

a. Would the project have a substantial adverse effect on a scenic vista?

Construction

LESS THAN SIGNIFICANT WITH MITIGATION. There are no designated State or local scenic vistas in the Proposed Project area. However, there are scenic views throughout the Proposed Project vicinity, due to the undeveloped desert open spaces and unimpeded views of the surrounding mountains. As shown in Attachment 5.1-C, Visual Simulations, the simulations of KOPs 2, 3, 4, 5, and 6 show the proposed permanent facilities in relation to views of the surrounding mountains. The proposed mid-line series capacitors and fiber optic repeater sites would be located mainly within existing ROWs that include existing access roads, substations, transmission lines, and LSTs. The proposed facilities would be relatively small compared to the mountains in the background, and would not impede on the views of the mountains. In addition, the facilities are consistent with applicable VRM classes and objectives. However, the facilities have structures and equipment that have the potential to have reflective surfaces or to be of colors that would contrast with their surrounding visual environment. Therefore, Mitigation Measure AES-1 is required to ensure that facility colors do not contrast with the hues of the surrounding landscape and that steel and other surfaces minimize reflectance.

The FAA may require installation of 36-inch diameter marker balls on spans and lights on towers to make them visible to pilots if it determines that spans and towers pose a hazard to air navigation. These would have an effect on the visual environment. Six transmission line spans (i.e., catenaries) between Lugo Substation and Interstate 40 will exceed 200 feet above ground level. Two spans are in uninhabited hilly terrain between the Mojave River and Highway 18, approximately 1.3 and 6.6 miles east of the Mojave River. Two spans are at Highway 18 west of Joshua Road. The final two spans are approximately 15 miles northeast of Lucerne Valley, 1.3 miles east of Camp Rock Road along Powerline Road. SCE submitted Form 7460-1 to the FAA for these towers and spans, providing location, elevation, and height-about-ground information. FAA conducted an aeronautical study and determined that the catenary wires and towers do not exceed FAA obstruction standards and would not be a hazard to air navigation. As a result, marking and lighting are not necessary (FAA, 2019).

SCE has identified a number of potential construction and material yards, the visibility of these yards from off-site locations and the number of potential viewers varies. Although not a permanent use, the sites may be occupied and used for approximately 18 months during construction. This could create a visual condition that contrasts with existing conditions in the vicinity. To address this potential effect, Mitigation Measure AES-2, Screen construction activities from view, would be required.

Construction of permanent facilities will require site grading and installation of gravel, rock, or other ground surface material. There is a risk of disturbing more area than is required for the facility to be installed. Likewise, structural work on towers and the removal of OHGW and installation of OPGW will require land disturbance to accommodate workers, materials, and equipment around affected towers and at pull-sites required to install the ground wire. This disturbance may include work site grading and/or drive and crush (driving over and crushing existing vegetation). To ensure that vegetation removal and ground disturbance is minimized, Mitigation Measure AES-3, Minimize vegetation removal and ground disturbance, is required.

With implementation of these measures, impacts on scenic vistas are less than significant with mitigation.

Operation and Maintenance

LESS THAN SIGNIFICANT. O&M activities associated with the Proposed Project would be similar to those currently performed by SCE for existing facilities, and generally include repairing conductors, washing or replacing insulators, repairing or replacing other hardware components, repairing or replacing poles and towers, vegetation and weed management, and access road maintenance, among other things. O&M practices would also include routine inspections and emergency repair within substations and ROWs, which would require the use of vehicles and equipment. Vehicles and crews would be on-site for short periods during these activities. For the fiber optic repeater facilities, additional testing, inspections, and maintenance of the building, site, generator, and fuel tank would also be required every six months to once a year. None of these routine O&M activities would impact scenic vistas.

Mitigation Measures

AES-1 **Minimize visual contrast in project design.** In the final design of approved project structures, SCE shall use design fundamentals that reduce the visual contrast of new facilities with the characteristic landscape. These include surface treatments; siting and location; reduction of visibility; repetition of form, line, color, and texture of the landscape; and reduction of unnecessary disturbance. New and modified transmission structures shall be of a dulled galvanized steel consistent with that of existing structures. SCE shall treat the surfaces of other structures and new buildings visible to the public such that: (a) their colors minimize visual contrast by blending with the characteristic landscape colors; and (b) their

colors and finishes do not create excessive glare. The steel used to repair or strengthen structures, new steel structures, and conductors, and OPGW shall have surfaces that are non-specular and non-reflective. Project elements with colored surfaces shall be in hues and tones that do not contrast with the surrounding landscape and are consistent with the palette of natural colors that occur in the area.

SCE shall provide for review by the CPUC, BLM, and NPS, a draft Project Design and Surface Treatment Plan describing the siting, placement, and other design considerations to be employed to minimize Proposed Project contrast. The draft plan must explain how the design will minimize visual intrusion and contrast by effectively blending earthwork, vegetation manipulation, and facilities with the landscape. The Project Design and Surface Treatment Plan shall describe the colors and textures to be applied to all new facility structures, buildings, walls, fences, and components to be constructed.

The draft Project Design and Surface Treatment Plan shall be submitted at least 60 days prior to the start of construction. If a reviewing agency notifies SCE that revisions to the plan are needed before the plan can be approved, within 30 days of receiving that notification, SCE shall prepare and submit for review and approval a revised plan.

AES-2 **Screen construction activities from view.** To reduce significant impacts associated with construction yards, staging areas, and material and equipment storage areas shall be visually screened using temporary screening fencing, with the exception of construction yards, staging areas, and material and equipment storage areas on existing substation properties. Fencing will be of an appropriate structure, material, and color for each specific location. This requirement shall not apply if SCE can demonstrate that construction yards are located away from areas of high public visibility including public roads, residential areas, and public recreational facilities or the yards are in areas where high winds pose a risk of the screening detaching and creating a hazard. For any site that SCE proposes to exempt from the screening requirement, SCE shall define the site on a detailed map demonstrating its visibility from nearby roads, residences, or recreational facilities to the agency having jurisdiction over the land (CPUC, BLM, or NPS) for review and approval at least 60 days prior to the start of construction at that site.

AES-3 **Minimize vegetation removal and ground disturbance.** Only the minimum amount of vegetation necessary for the construction of structures and facilities shall be removed during construction. In particular, vegetation within the ROW and ground clearing at the foot of each tower and between towers shall be limited to the clearing necessary to comply with requirements of CPUC General Order 95 and other regulatory requirements. Scars from temporary work areas and access road may be highly visible when located on hill slopes and along ridges, or when visible from elevated vantage points. In order to reduce visual impacts, the boundaries of all areas to be disturbed shall be delineated consistent with the requirements of Biological Resources Mitigation Measure BR-3. Staking, flagging, or other appropriate means shall define construction work areas, such as capacitor site grading areas, staging yards, and pulling sites. Stakes and flagging shall be installed before construction and in consultation with the Project Biologist and the agency's Environmental Monitor or Visual Specialist. Areas staked or flagged shall be as small as possible in order to minimize the visibility of ground disturbance from sensitive viewing locations such as roads, trails, residences, and recreation facilities and areas. Parking areas and staging and disposal site locations shall be similarly located in areas approved by the Project Biologist and the agency's Environmental Monitor or Visual Specialist prior to the start of construction. All disturbances by Proposed Project vehicles and equipment shall be confined to the staked and flagged areas.

BR-7 **Restore or revegetate temporary disturbance areas.** (The full text of this mitigation measure is provided in Section 5.4, Biological Resources. It would require restoration and revegetation of disturbed areas, which would reduce visual impacts.)

b. Would the project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State scenic highway?

Construction

LESS THAN SIGNIFICANT WITH MITIGATION. There are no designated State Scenic Highways in the Proposed Project area, and therefore there would be no impact to these such highways. However, there are several locally designated scenic roadways, particularly within San Bernardino County, and the National Trails Highway (Route 66) is nominated as a National Scenic Byway. During construction of the Proposed Project, construction crews, trucks, and equipment would be visible from locally designated scenic roadways. The temporary activities and equipment — including cranes and helicopters — would be visible from County of San Bernardino-designated scenic roadways, including Coxey Truck Trail, SR-18, SR-247, Kelbaker Road, Essex Road, Black Canyon Road, and Lanfair Road. These activities would also be visible at the US-95, I-40, and National Trails Highway (Route 66) crossings of the 500 kV transmission lines. Construction activities associated with the Proposed Project would be temporary, lasting weeks or months for the capacitors and repeaters, and a day or two along the linear components before moving onto the next segment.

Construction of the proposed Newberry Springs and Ludlow Series Capacitors would be viewed from I-40. The Newberry Springs Series Capacitor site can also be viewed from the National Trails Highway (Route 66). However, the Newberry Springs Capacitor site, which is approximately 0.6 miles from I-40 and the National Trails Highway (Route 66), would be viewed among the existing LSTs of the Eldorado-Lugo 500 kV Transmission Line, Pisgah Substation, and other poles and LSTs in the surroundings. Viewed in the context of these existing facilities, the impacts would be incremental and do not affect views of the mountains in the background. Similarly, the proposed Ludlow Series Capacitor would be visible from I-40 and partially visible from sections of the National Trails Highway (Route 66). As shown in the visual simulation for KOP 4, this facility would be located approximately 0.6 miles from I-40. The proposed Ludlow Series Capacitor and the proposed MEER building would be viewed in the presence of the existing LSTs, which would result in an incremental change in the viewshed, but would not affect the views of the mountains in the background.

The proposed Barstow, Kelbaker, and Lanfair Fiber Optic Repeater facilities would be visible from County of San Bernardino-designated scenic roadways — SR-247, Kelbaker Road, and Lanfair Road, respectively. Visual simulations of the facilities are shown in KOPs 2, 5, and 6 in Attachment 5.1-C, Visual Simulations. As shown in the simulation for KOP 2, the proposed Barstow Fiber Optic Repeater facility would be located approximately 0.4 miles from SR-247 and would be visible in the middle ground of the simulation. However, the facility would be located near existing LSTs, and the facility would be of a similar size as existing residential and outbuildings in the area. The proposed facility would have a relatively low profile and would not conflict with views of the surrounding mountains.

As shown in the simulation for KOP 5 in Attachment 5.1-C, Visual Simulations, the proposed Kelbaker Fiber Optic Repeater facility would be located approximately 0.2 miles from Kelbaker Road and would be visible in the middle ground of the simulation. The facility would be located near an existing LST within SCE's ROW. While this facility is more visible due to its proximity to the roadway, it would be adjacent to an existing tower structure and in relatively close proximity to an existing natural gas facility. The optic repeater facility would have little effect on the views of the surrounding mountains.

As shown in the simulation for KOP 6 in Attachment 5.1-C, Visual Simulations, the proposed Lanfair Fiber Optic Repeater facility would be located approximately 0.4 miles from Lanfair Road and visible in the foreground to middle ground of viewers from the road. As with the other fiber optic repeaters, this facility would be located near existing LSTs within an existing SCE ROW. In this portion of the project area, views of nearby mountains are limited to a single hill. The repeater facility would appear low-lying in the surrounding viewshed and would have little impact on the views in the area. The change in the viewshed would be minor and incremental, and consistent with existing structures in the landscape.

Additional components of the Proposed Project, including removal of overhead ground wire (OHGW) and installation of optical ground wire (OPGW), would take place on existing LSTs along the Eldorado-Mohave and Lugo-Mohave 500 kV Transmission Lines. Minor modifications to the LSTs, including the modification of the ground wire peaks and the strengthening of some tower bodies may be necessary to accommodate the new OPGW. While these modifications would be visible from public roadways, including County of San Bernardino-designated scenic roadways, they would not result in appreciable visual alterations to the viewshed. Because none of these roadways are designated as State Scenic Highways, there would be no impact specifically on State Scenic Highways. However, visual impacts to views from county-designated scenic roadways and to views along roads through the Mojave National Preserve can occur. To reduce these adverse effects, Mitigation Measures AES-1, AES-2, and AES-3, described above, and BR-7 described in 5.4 Biological Resources, would be required. Implementation of these measures would reduce the impacts to less than significant with mitigation.

Operation and Maintenance

LESS THAN SIGNIFICANT. As previously described, O&M activities associated with the Proposed Project would be similar to those currently performed for the existing facilities, though there would be additional O&M activities associated with the proposed mid-line series capacitors and fiber optic repeater facilities. The mid-line series capacitor and fiber optic repeater facilities would be unmanned, but equipment and trucks may be visible from nearby roadways (e.g., I-40, the National Trails Highway (Route 66), SR-247, Kelbaker Road, and Lanfair Road) during maintenance activities. However, maintenance activities would be temporary and short in duration, and due to the distance of the facilities from the roadways, the trucks and equipment would appear small in the distance and would be hidden from view by the facilities themselves, depending on the access road locations. Views of the surrounding natural environment, including mountains in the background of these viewsheds, would not be altered. In addition, because none of these roadways are State Scenic Highways, there would be no impact. Implementation of Mitigation Measures AES-1 and AES-2 would ensure that impacts from project implementation is less than significant. The presence of personnel and equipment at sites during routine O&M would be of short duration and would be less than significant.

Mitigation Measures

Mitigation measures described above would apply to this impact. These are:

- **AES-1. Minimize visual contrast in project design.**
- **AES-2. Screen construction activities from view.**
- **AES-3. Minimize vegetation removal and ground disturbance.**
- **BR-7. Restore or revegetate temporary disturbance areas.**

c. In non-urbanized 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 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?

Construction

LESS THAN SIGNIFICANT WITH MITIGATION. During construction, crews, trucks, and equipment would be visible from public roadways and a few residences located close to the existing ROWs. In some locations, staging yards and pulling and tensioning sites also would be visible to the public. In addition to construction at the capacitor and repeater sites, construction activities involving strengthening of towers, addressing clearance discrepancies, and removal of OHGW and installation of OPGW, would take place on existing LSTs along the 500 kV Transmission Lines. Construction activities for these activities would be temporary, lasting a day or two before moving onto the next LST or work site. The short-duration views of these activities — as well as of the trucks, equipment, cranes, helicopters, staging yards, and pulling and tensioning sites — would not degrade the existing visual quality or quality of public views. As explained in the discussion for question (a) above, the only long-term visible elements of the Proposed Project would be the two new mid-line series capacitor facilities north of I-40 near Pisgah Substation and the three fiber optic repeater facilities in the ROW under the existing Lugo-Mohave 500 kV Transmission Line. Areas used for staging yards would be screened from public views where they are near public viewpoints. Staging yards and pulling and tensioning sites would be restored to previously existing conditions.

The Proposed Project would modify and add facilities to three existing transmission lines located mainly within existing ROWs. The Proposed Project would result in the construction of five new facilities within the ROWs — the Newberry Springs and Ludlow Series Capacitors and the Barstow, Kelbaker, and Lanfair Fiber Optic Repeater facilities. As previously described, the construction of these permanent facilities would have incremental visual impacts on the existing viewshed of the project. The facilities would be adjacent to existing LSTs and access roads associated with the transmission lines. As described in Attachment 5.1-B, BLM Visual Contrast Rating Worksheets, the VRM rating associated with the proposed facilities would be weak to moderate for the mid-line series capacitors and weak for the fiber optic repeater sites. Because of distance from public viewpoints, as well their locations in viewsheds that already include existing transmission facilities, the Proposed Project facilities would be relatively well-integrated into the visual surroundings. In addition, the weak to moderate visual contrast with the surroundings are consistent with the VRM Class III objective. Given the current array of transmission and transportation infrastructure, the capacitor facilities would not substantially degrade the existing visual character of the location or the quality of public views. However, Mitigation Measures AES-1 through AES-3 and BR-7 would be required to protect the existing visual character in non-urban areas and the quality of public views of the project sites through strategies to minimize contrast created by the introduction of structures and ground disturbance. These measures would ensure impacts are minimized. With these measures implemented, impacts would be less than significant with mitigation.

The Proposed Project also includes modifications to the Eldorado-Lugo, Eldorado-Mohave, and Lugo-Mohave 500 kV Transmission Line LSTs and conductor or grading at 14 locations to address 16 overhead clearance discrepancies. The visual simulation for KOP 1 depicts the visual change associated with modifying (i.e., jacking) LSTs to raise the conductor between the LSTs, resulting in the elimination of the clearance discrepancy. The visual simulation for KOP 1 shows the modification of Tower M14-T4, which would eliminate the height discrepancy between that tower and Towers M14-T3 and M15-1. This modification would be visible from Bowen Ranch Road, a winding local collector road that is mainly used

by local residents. As shown in the simulation, Tower M14-T4 would be raised by approximately 20 feet to approximately 155 feet in height. Because the tower was previously existing and is part of a pattern of existing towers associated with the two transmission lines in this ROW, the impact of raising both the LST and the conductor is an incremental change from the existing conditions. In terms of the contrast rating, the contrast associated with the tower modification is relatively weak, and is consistent with the VRM Class III objective (like the other proposed permanent facilities). In addition, minor modifications to the LSTs, including the installation of goat peaks (4-by-10-foot lattice structures at the top of some towers), may be necessary to facilitate the new OPGW, but would not result in appreciable visual alterations to the viewshed. As a result, the permanent changes associated with the Proposed Project would be less than significant.

Operation and Maintenance

LESS THAN SIGNIFICANT. As previously described, O&M activities associated with the Proposed Project would be similar to those currently performed for the existing facilities, with additional O&M activities associated with the proposed mid-line series capacitors and fiber optic repeater facilities. However, O&M activities associated with these facilities would result in the temporary presence of workers and equipment, which would not be appreciably different from current O&M activities. Therefore, impacts would be less than significant.

Mitigation Measures

Mitigation measures described above would apply to this impact. These are:

- **AES-1. Minimize visual contrast in project design.**
- **AES-2. Screen construction activities from view.**
- **AES-3. Minimize vegetation removal and ground disturbance.**
- **BR-7. Restore or revegetate temporary disturbance areas.**

d. Would the project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

Construction

LESS THAN SIGNIFICANT WITH MITIGATION. As described above, untreated surfaces of new facilities and materials could create glare during daylight hours. However, mitigation measures regarding surface treatments address this potential. Daylight glare and reflectance would be addressed by implementation of Mitigation Measures AES-1 and AES-2. While construction of the Proposed Project would generally occur during daytime hours, some construction activities may be required to occur at night. Construction activities conducted at night would require the use of floodlights, which have the potential to illuminate properties in the vicinity of construction areas and be visible over great distances in flat terrain. To reduce the impact of nighttime lighting on neighboring properties and night skies, Mitigation Measure AES-4, Minimize night lighting at new project facilities, would be required. Therefore, the impact would be less than significant with mitigation.

Operation and Maintenance

LESS THAN SIGNIFICANT. As previously described, O&M activities associated with the Proposed Project would be similar to those currently performed for the existing facilities, with additional O&M activities associated with the proposed mid-line series capacitors and fiber optic repeater facilities. The proposed mid-line series capacitors and the fiber optic repeaters would utilize occasional outdoor yard lighting in

the event of an emergency, or when required for O&M. As described in Chapter 4, Project Description, the lighting would be controlled by a manual switch, which would normally be in the "off" position, and would be directed downward to avoid glare. Therefore, impacts would be less than significant during O&M.

Mitigation Measures

Mitigation measures described above would apply to this impact. These are:

- **AES-1. Minimize visual contrast in project design.**
- **AES-2. Screen construction activities from view.**

In addition, Mitigation Measure AES-4 would be required.

AES-4 **Minimize night lighting at new project facilities.** At the project's new in-line series capacitors and fiber optic repeater facilities, SCE shall avoid night lighting where possible and minimize its use under all circumstances. To ensure this, SCE shall implement the following general principles and specifications:

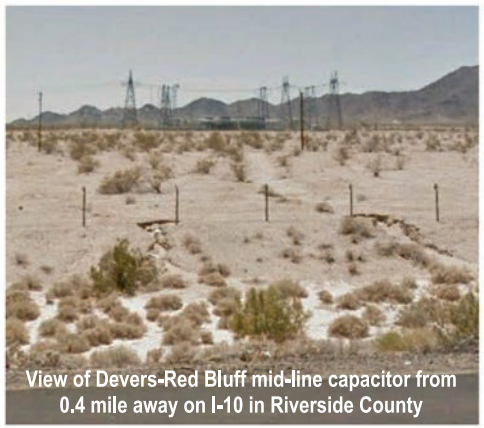
- When used, portable truck-mounted lighting shall point away from roads and from residences within 1,000 feet.
- White lighting (metal halide & LED) (a) shall be used only when necessitated by specific work tasks; and (b) shall be less than 5000 Kelvin color temperature.
- All lamp locations, orientations, and intensities shall be the minimum needed for safety and security.
- Light fixtures that could be visible from beyond project facility boundaries shall have cutoff angles sufficient to prevent lamps and reflectors from being visible beyond the project facility boundary, including security lighting.
- If security lighting is installed, motion sensors are to be used to activate the security lighting; lights shall operate continuously only when the area is occupied.
- All temporary construction lighting, including at yards, and all permanent exterior lighting shall include: (a) lamps and reflectors that are not visible from beyond the construction site or facility including any off-site security buffer areas; (b) lighting that does not cause excessive reflected glare; and (c) directed lighting that does not illuminate the nighttime sky, except for required FAA aircraft safety lighting, if required.
- Lighted nighttime maintenance is to be minimized or avoided as a routine practice and should occur only during emergencies.

5.1.7 References

FAA (Federal Aviation Agency). 2019. Determinations of No Hazard to Air Navigation (letters).

NPS (National Park Service). 2018. Email communication with Mark Meyer, NPS Visual Resource Specialist.

SCE (Southern California Edison). 2018. Eldorado-Lugo-Mohave Series Capacitor Project: Proponent's Environmental Assessment (PEA). Volumes 1 through 8. April.



View of Devers-Red Bluff mid-line capacitor from 0.4 mile away on I-10 in Riverside County

Source: SCE, 2018.

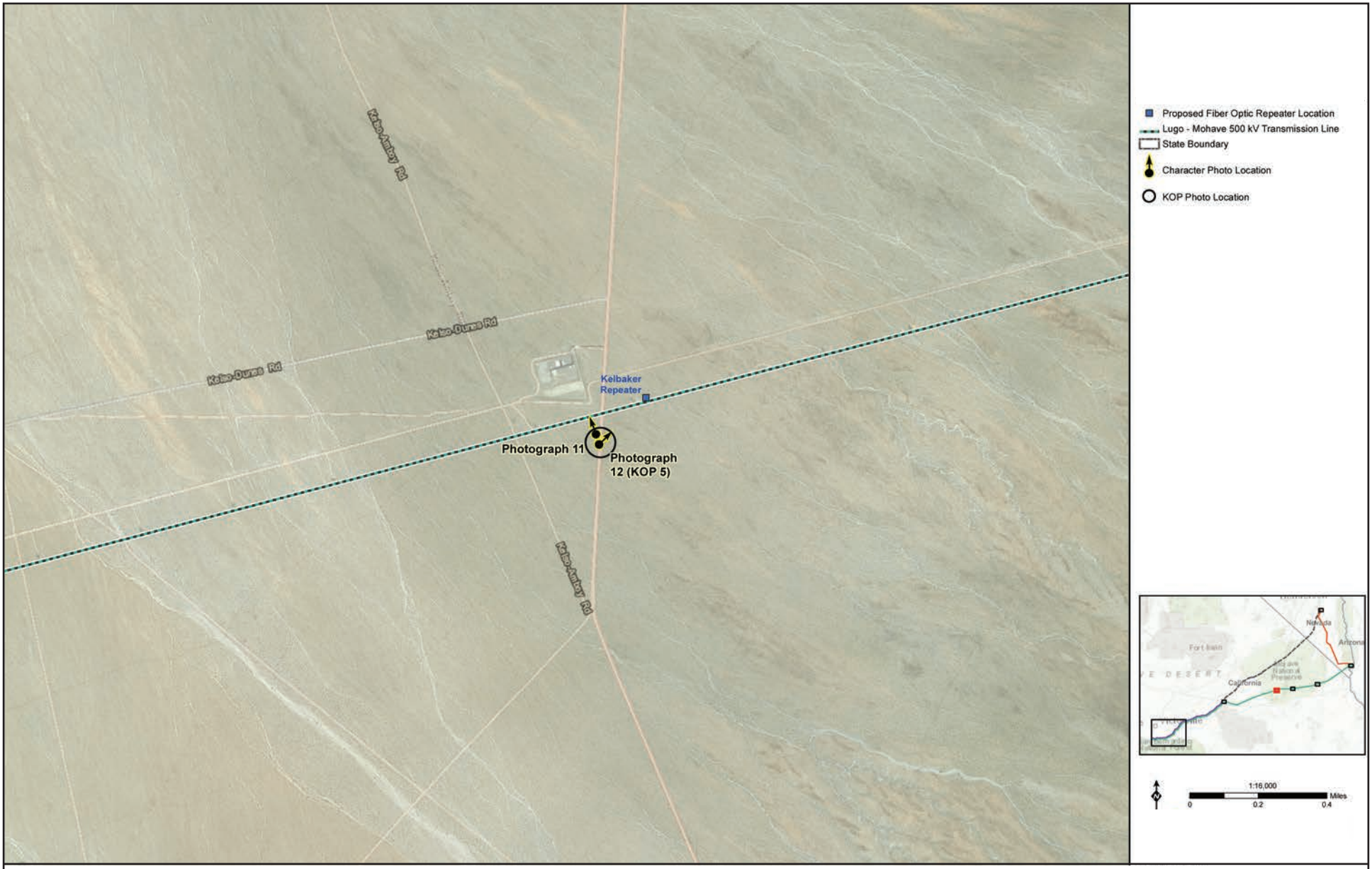
Figure 5.1-1
Devers-Red Bluff
500kV Mid-Line Capacitor

Source: SCE, 2018.

Figure 5.1-2
Viewpoint Locations
Map 1 of 7

Source: SCE, 2018.

Figure 5.1-2
Viewpoint Locations
Map 2 of 7

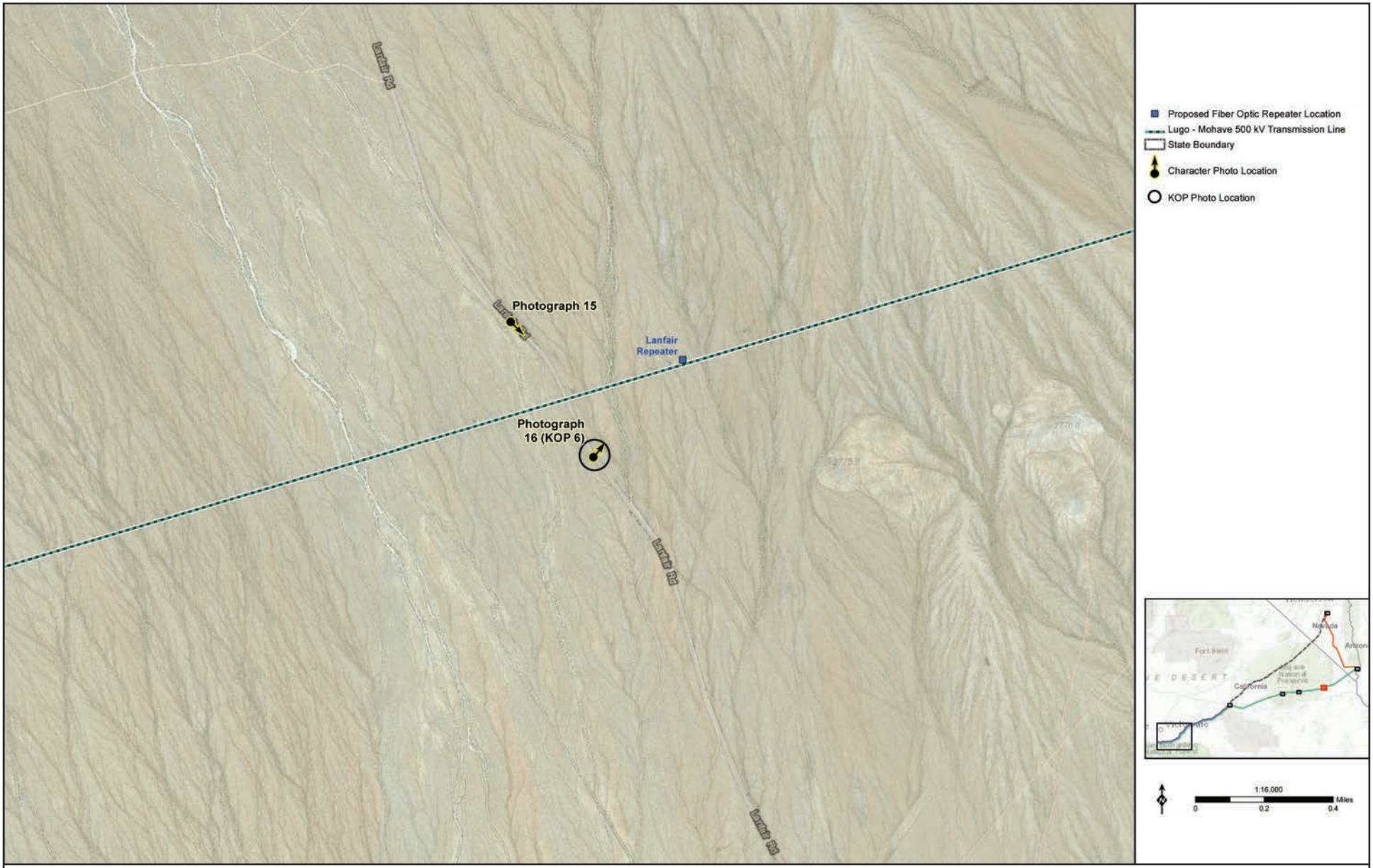


Source: SCE, 2018.

Figure 5.1-2
Viewpoint Locations
Map 3 of 7

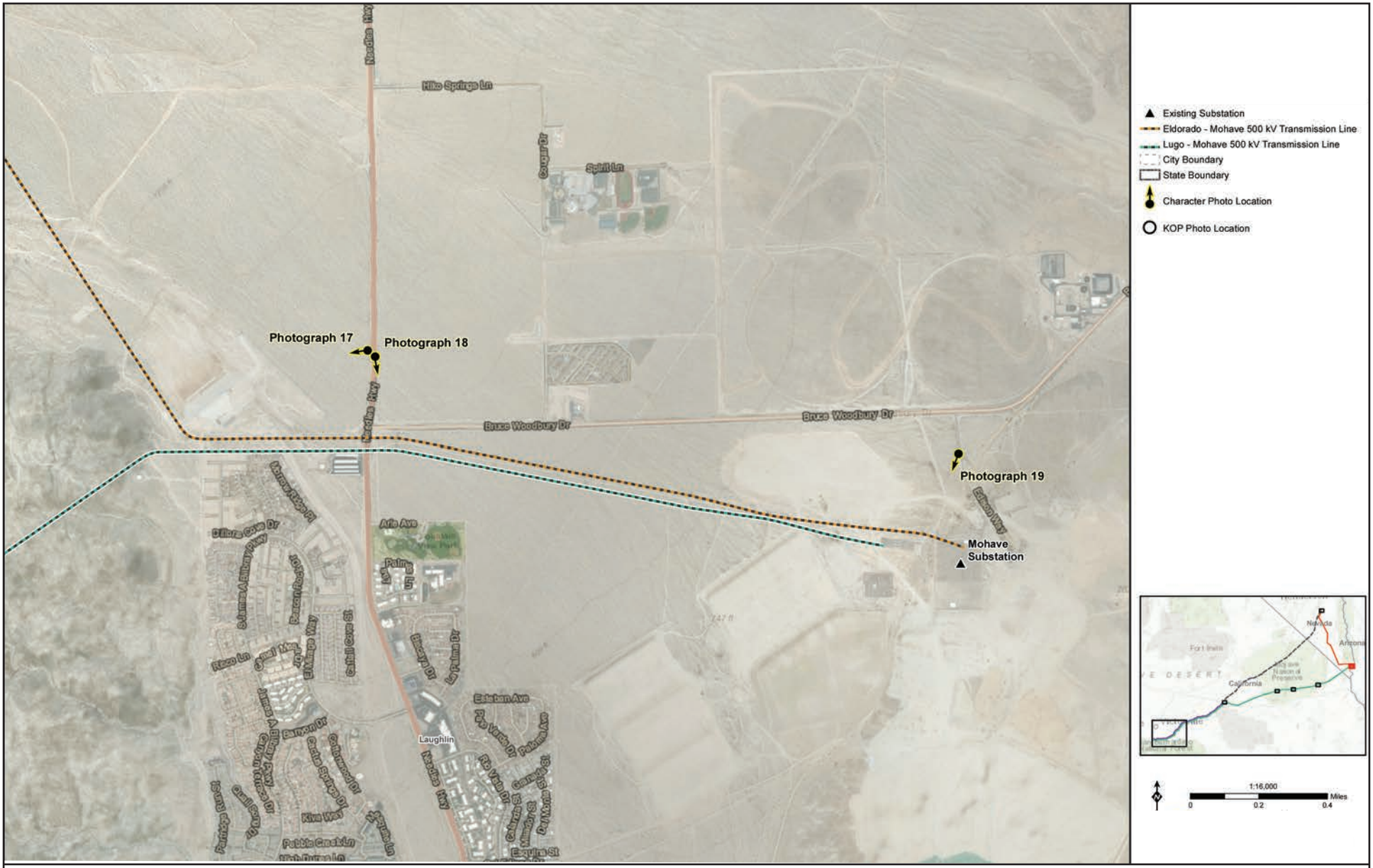
Source: SCE, 2018.

Figure 5.1-2
Viewpoint Locations
Map 4 of 7



Source: SCE, 2018.

Figure 5.1-2
Viewpoint Locations
Map 5 of 7

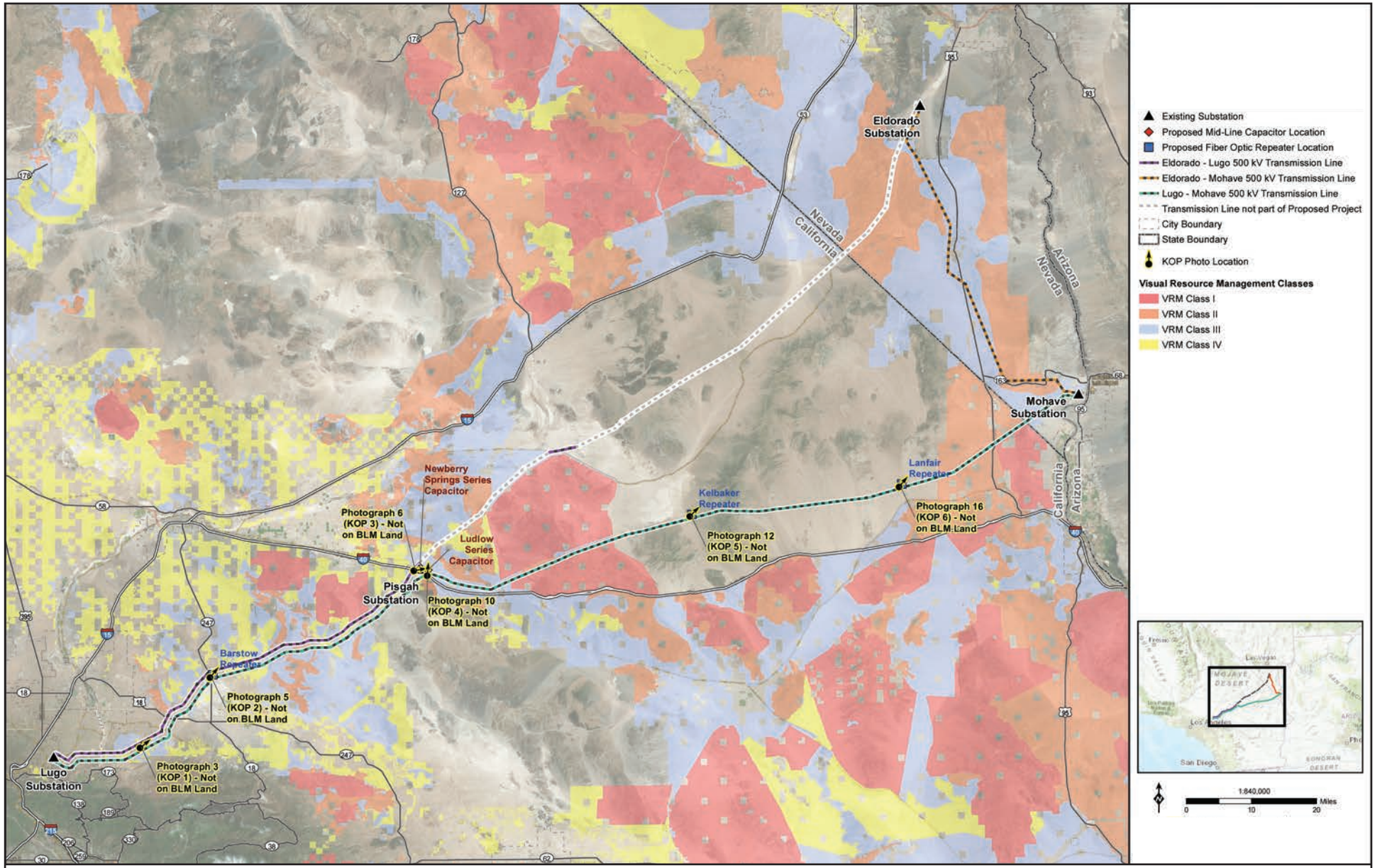


Source: SCE, 2018.

Figure 5.1-2
Viewpoint Locations
Map 6 of 7

Source: SCE, 2018.

Figure 5.1-2
Viewpoint Locations
Map 7 of 7



Source: SCE, 2018.

Figure 5.1-3
BLM Visual Resource Management Classes Map

Photograph 1: Existing view looking west from Fuente Avenue toward Lugo Substation.

Photograph 2: Existing view looking north along Arrowhead Lake Road.

Photograph 3: Existing view looking northeast from Bowen Ranch Road.*

*Key Observation Point (KOP) Simulation Photograph

Photograph 4: Existing view looking west along State Route (SR-) 18.

Photograph 5: Existing view looking northeast from SR-247 (Barstow Road) toward the site of the proposed Barstow Fiber Optic Repeater.*

* KOP Simulation Photograph

Photograph 6: Existing view looking east northeast from the National Trails Highway toward the site of the proposed Newberry Springs Series Capacitor*

* KOP Simulation Photograph

Photograph 7: Existing view looking south-southwest from Pisgah Crater Road.

Photograph 8: Existing view looking northeast from Pisgah Crater Road toward Pisgah Substation.

Photograph 9: Existing view looking east along National Trails Highway.

Photograph 10: Existing view looking north from Interstate 40 toward the site of the proposed Ludlow Series Capacitor.*

* KOP Simulation Photograph

Photograph 11: Existing view looking north-northwest from Kelbaker Road.

Photograph 12: Existing view looking northeast from Kelbaker Road toward the site of the proposed Kelbaker Fiber Optic Repeater.*

* KOP Simulation Photograph

Photograph 13: Existing view looking west from Essex Road.

Photograph 14: Existing view looking east from Black Canyon Road.

Photograph 15: Existing view looking southeast along Lanfair Road.

Photograph 16: Existing view looking northeast from Lanfair Road toward the site of the proposed Lanfair Fiber Optic Repeater.*

* KOP Simulation Photograph

Photograph 17: Existing view looking west-southwest from Needles Highway.

Photograph 18: Existing view looking south-southeast along Needles Highway.

Photograph 19: Existing view looking south-southwest toward Mohave Substation.

Photograph 20: Existing view looking south from Eldorado Valley Drive.

Photograph 21: Existing view looking north-northwest from Eldorado Valley Drive toward Eldorado Substation.

Form 8400-4

Attachment 5.1-B: BLM Contrast Rating Forms

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
VISUAL CONTRAST RATING WORKSHEET

Date: September 24, 2016

District/ Field Office: Barstow

Resource Area: N/A (Private)

Activity (program): Transmission Line Modification

SECTION A. PROJECT INFORMATION

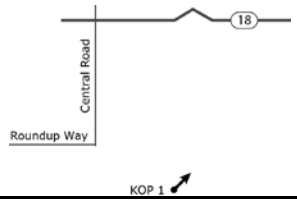
1. Project Name
Eldorado-Lugo-Mohave Series Capacitor Project

2. Key Observation Point
KOP 1 on Bowen Ranch Road

3. VRM Class
Class III

4. Location
Township 4N
Range 2W
Section 31

5. Location Sketch



SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Steep, rugged terrain	Low, small, asymmetrical	Tall, regular, transparent
LINE	Curved, undulating	Asymmetrical, jagged, semicircular	Vertical, silhouette
COLOR	Tans, browns, and grays	Soft colors of gold, medium olive green, and gray/brown	Dark gray/black
TEX-TURE	Coarse	Medium, random, patchy	Uniform, directional

SECTION C. PROPOSED ACTIVITY DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Steep, rugged terrain	Low, small, asymmetrical	Tall, regular, transparent
LINE	Curved, undulating, silhouette	Asymmetrical, jagged, semicircular	Vertical, silhouette
COLOR	Tans, browns, and grays	Soft colors of gold, medium olive green, and gray/brown	Dark gray/black
TEX-TURE	Coarse	Medium, random, patchy	Uniform, directional

SECTION D. CONTRAST RATING __SHORT TERM X LONG TERM

1. DEGREE OF CONTRAST		FEATURES: LAND/WATER BODY (1) STRONG	MODERATE	WEAK	NONE	VEGETATION (2) STRONG	MODERATE	WEAK	NONE	STRUCTURES (3) STRONG	MODERATE	WEAK	NONE
ELEMENTS	FORM				X				X				X
	LINE				X				X			X	
	COLOR				X				X				X
	TEXTURE				X				X				X

2. Does project design meet visual resource management objectives? __X__Yes ___No
(Explain on reverses side)

3. Additional mitigating measures recommended
___Yes __X__No (Explain on reverses side)

Evaluator's Names
Stephanie Hansen

Date
9/24/16

SECTION D. (Continued)

Comments from item 2.

The change to the landscape as a result of the modified tower is low, as is the distance of the conductor, which is further from the ground. Because of the presence of existing towers along the right-of-way, the change in height of Tower M14-T1 does not result in a major changed in the character of the area. The repetition of the towers, which is a dominant feature in the landscape, continues with the Proposed Project, thereby resulting in a minor change to the existing character of the area. The Proposed Project is consistent with the VRM Class III objective, which is to partially maintain the character of the landscape and allow management changes that repeat the basic element found in the existing environment.

Additional Mitigating Measures (See item 3)

None required.

Form 8400-4

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
VISUAL CONTRAST RATING WORKSHEET

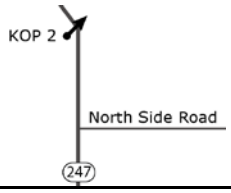
Date: September 23, 2016

District/ Field Office: Barstow

Resource Area: N/A (Private)

Activity (program): Transmission Line Modification

SECTION A. PROJECT INFORMATION

1. Project Name	4. Location	5. Location Sketch
Eldorado-Lugo-Mohave Series Capacitor Project	Township 5N	
2. Key Observation Point KOP 2 on Barstow Road	Range 1W	
3. VRM Class Class III	Section 12	

SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Flat with rugged terrain in the background	Low, small, asymmetrical	Simple, solid, low, small; and tall, regular, transparent
LINE	Horizontal and jagged in the background, with a banded edge	Asymmetrical, jagged, semicircular	Vertical and horizontal
COLOR	Tan (foreground); tans, browns, and grays (background)	Soft colors of gold, medium olive green, and gray/brown	Dark browns and dark gray/black
TEX-TURE	Medium in the foreground; coarse in the background	Medium, random, patchy	Sparse, random, clumped; and uniform, directional

SECTION C. PROPOSED ACTIVITY DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Flat with rugged terrain in the background	Low, small, asymmetrical	Simple, solid, low, small; and tall, regular, transparent
LINE	Horizontal and jagged in the background, with a banded edge	Asymmetrical, jagged, semicircular	Vertical and horizontal
COLOR	Tan (foreground); tans, browns, and grays (background)	Soft colors of gold, medium olive green, and gray/brown	Light browns and dark gray/black
TEX-TURE	Medium in the foreground; coarse in the background	Medium, random, patchy	Sparse, random, clumped; and uniform, directional

SECTION D. CONTRAST RATING __SHORT TERM X LONG TERM

1. DEGREE OF CONTRAST		FEATURES: LAND/WATER BODY (1)				VEGETATION (2)				STRUCTURES (3)			
		STRONG	MODERATE	WEAK	NONE	STRONG	MODERATE	WEAK	NONE	STRONG	MODERATE	WEAK	NONE
ELEMENTS	FORM				X				X			X	
	LINE				X				X			X	
	COLOR				X				X			X	
	TEXTURE				X				X			X	

2. Does project design meet visual resource management objectives? X Yes ___No
(Explain on reverses side)

3. Additional mitigating measures recommended
___Yes X No (Explain on reverses side)

Evaluator's Names: Stephanie Hansen
Date: 9/23/16

SECTION D. (Continued)

Comments from item 2.

The change to the landscape as a result of the addition of the Barstow Fiber Optic Repeater is low. The main feature that is visible from KOP 2 is the enclosed equipment building. The form, bulk, and color of the building integrates into the random pattern, size, color, and bulk of the existing buildings that are scattered throughout this area along the same plane. The Proposed Project retains the existing character of the area, and is consistent with the VRM Class III objective, which is to partially maintain the character of the landscape and allow management changes that repeat the basic element found in the existing environment.

Additional Mitigating Measures (See item 3)

None required.

Form 8400-4

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
VISUAL CONTRAST RATING WORKSHEET

Date: January 5, 2017

District/ Field Office: Barstow

Resource Area: Open Access

Activity (program): Transmission Line Modification

SECTION A. PROJECT INFORMATION

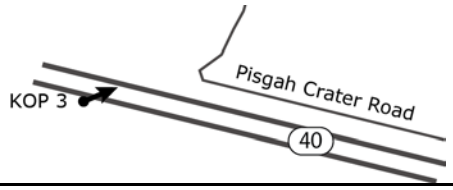
1. Project Name
Eldorado-Lugo-Mohave Series Capacitor Project

2. Key Observation Point
KOP 3 on Interstate 40

3. VRM Class
Class III

4. Location
Township___8N___
Range____6E_____
Section____18_____

5. Location Sketch



SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Flat with moderately rugged terrain in the background	Low and medium, small, asymmetrical	Tall, regular, transparent (Lattice Steel Towers [LSTs]); square, transparent (substation)
LINE	Horizontal; jagged in the background, with a transitional edge	Asymmetrical, jagged, semicircular	Vertical (LSTs) and horizontal (roadways, railroads)
COLOR	Gray, olive, and tan (foreground); tan and olive (middle ground); tans and grays (background)	Soft colors of gold, medium olive green, and gray/brown	Dark gray and black
TEX-TURE	Coarse in the foreground and middle ground; medium in the background	Medium, random, patchy	Sparse, uniform, directional

SECTION C. PROPOSED ACTIVITY DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Flat with moderately rugged terrain in the background	Low and medium, small, asymmetrical	Tall, regular, transparent (LSTs); square, transparent (substation); square and semi-transparent (mid-line capacitor)
LINE	Horizontal; jagged in the background, with a butt edge	Asymmetrical, jagged, semicircular	Vertical (LSTs and midline capacitor) and horizontal (roadways, railroads, and mid-line capacitor)
COLOR	Tan and gray (foreground); greens and grays (middle ground); tans and grays (background)	Soft colors of gold, medium olive green, and gray/brown	Dark gray/black (LSTs and substation); medium and dark gray (mid-line capacitor)
TEX-TURE	Coarse in the foreground; medium in the background	Medium, random, patchy	Sparse, uniform, and directional

SECTION D. CONTRAST RATING __SHORT TERM X LONG TERM

1. DEGREE OF CONTRAST		FEATURES											
		LAND/WATER BODY (1)				VEGETATION (2)				STRUCTURES (3)			
		STRONG	MODERATE	WEAK	NONE	STRONG	MODERATE	WEAK	NONE	STRONG	MODERATE	WEAK	NONE
ELEMENTS	FORM				X				X		X		
	LINE				X				X			X	
	COLOR				X				X			X	
	TEXTURE				X				X			X	

2. Does project design meet visual resource management objectives? _X_Yes ___No
(Explain on reverses side)

3. Additional mitigating measures recommended
___Yes _X__No (Explain on reverses side)

Evaluator's Names
Stephanie Hansen

Date
1/5/17

SECTION D. (Continued)

Comments from item 2.

The addition of the Newberry Springs Series Capacitor adds a new, semi-transparent, square feature to the landscape. The texture and color are similar to the existing elements in the viewshed, including Pisgah Substation, and the LSTs of the 500 and 220 kilovolt transmission lines. The form of the structure, however, is more solid, bulkier, and less transparent that the existing facilities in the landscape. Because the mid-line series capacitor is located within the transmission right-of-way and in proximity to existing LSTs and a substation, the effect is somewhat incremental. The Proposed Project retains the existing character of the area, and is consistent with the VRM Class III objective, which is to partially maintain the character of the landscape and allow management changes.

Additional Mitigating Measures (See item 3)

None required.

Form 8400-4

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
VISUAL CONTRAST RATING WORKSHEET

Date: January 5, 2017

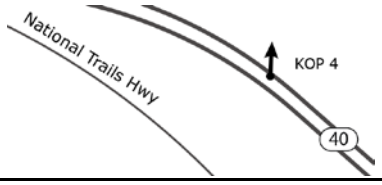
District/ Field Office: Barstow

Resource Area: Open Access

Activity (program): Transmission Line Modification

SECTION A. PROJECT INFORMATION

1. Project Name Eldorado-Lugo-Mohave Series Capacitor Project	4. Location Township___8N___	5. Location Sketch
2. Key Observation Point KOP 4 on Interstate 40	Range____6E_____	
3. VRM Class Class III	Section____21_____	



SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Flat with moderately rugged terrain in the background	Low and medium, small, asymmetrical	Tall, regular, transparent
LINE	Horizontal; jagged in the background, with a transitional edge	Asymmetrical, jagged, semicircular	Vertical (Lattice Steel Towers [LSTs]) and horizontal (conductor)
COLOR	Tan and gray (foreground); tan and brown (middle ground); browns and grays (background)	Soft colors of gold, medium olive green, and gray/brown	Dark gray and black
TEX-TURE	Coarse in the foreground; medium in the background	Medium, random, patchy	Sparse, uniform, directional

SECTION C. PROPOSED ACTIVITY DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Flat with moderately rugged terrain in the background	Low and medium, small, asymmetrical	Tall, regular, transparent (LSTs); semi-transparent square (mid-line capacitor); and low, rectangular (Mechanical Electrical Equipment Room [MEER] building)
LINE	Horizontal; jagged in the background, with a transitional edge	Asymmetrical, jagged, semicircular	Vertical (LST) and horizontal (conductor)
COLOR	Tan and gray (foreground); tan and brown (middle ground); browns and grays (background)	Soft colors of gold, medium olive green, and gray/brown	Dark gray/black, tan
TEX-TURE	Coarse in the foreground; medium in the background	Medium, random, patchy	Sparse, uniform, and directional

SECTION D. CONTRAST RATING __SHORT TERM X LONG TERM

1. DEGREE OF CONTRAST		FEATURES: LAND/WATER BODY (1) STRONG	MODERATE	WEAK	NONE	VEGETATION (2) STRONG	MODERATE	WEAK	NONE	STRUCTURES (3) STRONG	MODERATE	WEAK	NONE
ELEMENTS	FORM				X				X		X		
	LINE				X				X			X	
	COLOR				X				X			X	
	TEXTURE				X				X			X	

2. Does project design meet visual resource management objectives? _X_Yes ___No (Explain on reverses side)

3. Additional mitigating measures recommended ___Yes _X__No (Explain on reverses side)

Evaluator's Names: Stephanie Hansen

Date: 1/5/17

SECTION D. (Continued)

Comments from item 2.

The addition of the Ludlow Series Capacitor adds a new, semi-transparent, square feature to the landscape. The texture and color are similar to the existing elements in the viewshed, the LSTs of the Lugo-Mohave 500 kilovolt Transmission Line. The form of the structure, however, is lower to the ground and more solid, bulkier, and less transparent that the existing LSTs in the landscape. Also visible is the MEER building associated with the facility. This building is a low, solid, rectangular structure, which is singular in its shape and bulk in the landscape. Because the mid-line series capacitor is located within the transmission right-of-way and in proximity to existing LSTs and conductor, the effect is somewhat incremental. The Proposed Project retains the existing character of the area, and is consistent with the VRM Class III objective, which is to partially maintain the character of the landscape and allow management changes.

Additional Mitigating Measures (See item 3)

None required.

Form 8400-4

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
VISUAL CONTRAST RATING WORKSHEET

Date: October 31, 2016

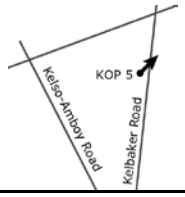
District/ Field Office: Barstow

Resource Area: N/A (Private)

Activity (program): Transmission Line Modification

SECTION A. PROJECT INFORMATION

1. Project Name Eldorado-Lugo-Mohave Series Capacitor Project	4. Location Township 9N	5. Location Sketch
2. Key Observation Point KOP 5 on Kelbaker Road	Range 13E	
3. VRM Class Class III	Section 6	



SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Flat with rugged terrain in the background	Low, small, asymmetrical	Tall and transparent
LINE	Horizontal; jagged in the background, with a banded edge	Asymmetrical, jagged, semicircular	Vertical (Lattice Steel Tower [LST]); and horizontal (conductor)
COLOR	Tan (foreground); greens (middle ground); grays and reddish grays (background)	Soft colors medium olive green, with some gray/gold in the foreground	Dark and medium grays and black
TEX-TURE	Coarse in the foreground and background; medium in the middle ground	Medium, random, patchy; finer in the middle ground	Sparse, uniform, and directional

SECTION C. PROPOSED ACTIVITY DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Flat with rugged terrain in the background	Low, small, asymmetrical	Simple, solid, low, small (repeater building); Tall and transparent (LST)
LINE	Horizontal and jagged in the background, with a banded edge	Asymmetrical, jagged, semicircular	Vertical and horizontal; Horizontal (repeater building)
COLOR	Tan (foreground); tans, browns, and grays (background)	Soft colors of gold, medium olive green, and gray/brown	Dark and medium grays and black (LST); Dark brown (repeater building)
TEX-TURE	Medium in the foreground; coarse in the background	Medium, random, patchy	Sparse, uniform, and directional (LST); Smooth and dense (repeater building)

SECTION D. CONTRAST RATING __SHORT TERM X LONG TERM

1. DEGREE OF CONTRAST		FEATURES: LAND/WATER BODY (1)				VEGETATION (2)				STRUCTURES (3)			
		STRONG	MODERATE	WEAK	NONE	STRONG	MODERATE	WEAK	NONE	STRONG	MODERATE	WEAK	NONE
ELEMENTS	FORM				X				X		X		
	LINE				X				X		X		
	COLOR				X				X		X		
	TEXTURE				X				X		X		

2. Does project design meet visual resource management objectives? X Yes ___No
(Explain on reverses side)

3. Additional mitigating measures recommended
___Yes X No (Explain on reverses side)

Evaluator's Names
Stephanie Hansen

Date
10/31/16

SECTION D. (Continued)

Comments from item 2.

The addition of the Kelbaker Fiber Optic Repeater facility adds a new, solid, dark feature to the landscape. The main structure that is visible from KOP 5 is the enclosed equipment building. The form, bulk, and color of the building contrasts somewhat with the softer textures of the desert grasses and the transmission tower. It adds a small and low, but solid feature to the landscape. Because the fiber optic repeater is located within the transmission right-of-way and in proximity to an existing LST, the effect is somewhat incremental. The Proposed Project retains the existing character of the area, and is consistent with the VRM Class III objective, which is to partially maintain the character of the landscape and allow management changes.

Additional Mitigating Measures (See item 3)

None required.

Form 8400-4

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
VISUAL CONTRAST RATING WORKSHEET

Date: October 31, 2016

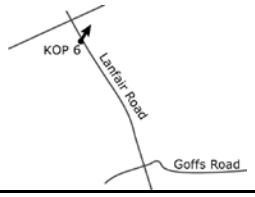
District/ Field Office: Barstow

Resource Area: N/A (Private)

Activity (program): Transmission Line Modification

SECTION A. PROJECT INFORMATION

1. Project Name Eldorado-Lugo-Mohave Series Capacitor Project	4. Location Township___10N___	5. Location Sketch
2. Key Observation Point KOP 6 on Lanfair Road	Range____18E_____	
3. VRM Class Class III	Section____15_____	



SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Flat with moderately rugged terrain in the background	Low and medium, small, asymmetrical	Tall, regular, transparent
LINE	Horizontal; jagged in the background, with a butt edge	Asymmetrical, jagged, semicircular	Vertical (Lattice Steel Towers [LSTs]) and horizontal (conductor)
COLOR	Tan and gray (foreground); greens and grays (middle ground); tans and grays (background)	Soft colors of gold, medium olive green, and gray/brown	Dark gray and black
TEX-TURE	Coarse in the foreground; medium in the background	Medium, random, patchy	Sparse, uniform, directional

SECTION C. PROPOSED ACTIVITY DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Flat with moderately rugged terrain in the background	Low and medium, small, asymmetrical	Tall, regular, transparent (LSTs); simple, solid, low, small (repeater building)
LINE	Horizontal; jagged in the background, with a butt edge	Asymmetrical, jagged, semicircular	Vertical (Lattice Steel Tower [LST]) and horizontal (conductor)
COLOR	Tan and gray (foreground); greens and grays (middle ground); tans and grays (background)	Soft colors of gold, medium olive green, and gray/brown	Dark gray/black (LSTs and conductor) and light brown (repeater building)
TEX-TURE	Coarse in the foreground; medium in the background	Medium, random, patchy	Sparse, uniform, and directional (LSTs); Smooth and dense (repeater building)

SECTION D. CONTRAST RATING __SHORT TERM X LONG TERM

1. DEGREE OF CONTRAST		FEATURES: LAND/WATER BODY (1)				VEGETATION (2)				STRUCTURES (3)			
		STRONG	MODERATE	WEAK	NONE	STRONG	MODERATE	WEAK	NONE	STRONG	MODERATE	WEAK	NONE
ELEMENTS	FORM				X				X			X	
	LINE				X				X			X	
	COLOR				X				X			X	
	TEXTURE				X				X			X	

2. Does project design meet visual resource management objectives? _X_Yes ___No
(Explain on reverses side)

3. Additional mitigating measures recommended
___Yes _X__No (Explain on reverses side)

Evaluator's Names
Stephanie Hansen

Date
10/31/16

SECTION D. (Continued)

Comments from item 2.

The addition of the Lanfair Fiber Optic Repeater facility adds a new, solid, dark feature to the landscape. The main structure that is visible from KOP 6 is the enclosed equipment building. The form, bulk, and color of the building contrasts somewhat with the softer textures of the desert grasses and the transmission towers. It adds a small and low, but solid feature to the landscape. Because the fiber optic repeater is located within the transmission right-of-way and in proximity to existing LSTs, the effect is somewhat incremental. The Proposed Project retains the existing character of the area, and is consistent with the VRM Class III objective, which is to partially maintain the character of the landscape and allow management changes.

Additional Mitigating Measures (See item 3)

None required.

KOP 1: Existing view looking northeast from Bowen Ranch Road

KOP 1: Visual simulation of the Proposed Project
Raised tower M14-T4 along the Eldorado-Lugo 500 kV Transmission Line

KOP 2: Existing view looking northeast from Barstow Road

KOP 2: Visual simulation of the Proposed Project
Barstow Fiber Optic Repeater Site along the Lugo-Mohave 500 kV Transmission Line

KOP 3: Existing view looking east-northeast from the National Trails Highway.

KOP 3: Visual simulation of the Proposed Project
Newberry Springs Series Capacitor along the Eldorado-Lugo 500 kV Transmission Line

KOP 4: Existing view looking north-northeast from Interstate 40.

KOP 4: Visual simulation of the Proposed Project
Ludlow Series Capacitor along the Lugo-Mohave 500 kV Transmission Line

KOP 5: Existing view looking northeast from Kelbaker Road

KOP 5: Visual simulation of the Proposed Project
Kelbaker Fiber Optic Repeater along the Lugo-Mohave 500 kV Transmission Line

KOP 6: Existing view looking northeast from Lanfair Road

KOP 6: Visual simulation of the Proposed Project
Lanfair Fiber Optic Repeater along the Lugo-Mohave 500 kV Transmission Line

5.2 Agriculture and Forestry Resources

AGRICULTURE AND FORESTRY RESOURCES In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment Project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. **Would the project:**	Potentially Significant Impact	Less Than Significant 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 non-agricultural use?	☐	☐	☐	☒
b. Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒
c. Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	☐	☐	☐	☒
d. Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☒	☐
e. Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☒	☐

Significance criteria established by CEQA Guidelines, Appendix G.

5.2.1 Environmental Setting

The following describes the existing conditions along the Proposed Project right-of-way for agriculture, grazing, and forestry.

Agriculture

The California Department of Conservation (DOC) established the Farmland Mapping and Monitoring Program (FMMP) in 1982 to assess the location, quantity, and quality of agricultural lands and conversion of these lands to other uses. Every even-numbered year, FMMP issues a Farmland Conversion Report. FMMP data are used in preparing elements of some county and city general plans, in regional studies on agricultural land conversion, and in environmental documents as a way of assessing project-specific impacts on Prime Farmland.

The U.S. Department of Agriculture, Natural Resources Conservation Service (NRCS) (formerly Soils Conservation Service), classifies notable agricultural lands as follows:

- **Prime Farmland:** Land that has the best combination of physical and chemical properties for the production of crops
- **Farmland of Statewide Importance:** Similar to Prime Farmland, but with minor shortcomings (e.g., steeper slopes, inability to hold water)
- **Unique Farmland:** Land of lesser quality soils, but recently used for the production of specific high economic value crops. Land is usually irrigated, but may include nonirrigated orchards or vineyards as found in some climatic zones in California
- **Farmland of Local Importance:** Farmlands of Local Importance are considered vital to the local agricultural economy, as identified by each county's local advisory committee and board of supervisors.

The DOC's FMMP has not designated any prime farmland, farmland of statewide importance, unique farmland, or farmland of local importance within 3 miles of the Proposed Project in California (SCE, 2018).

The Proposed Project traverses land zoned for agriculture-related use in San Bernardino County. Specifically, the Lugo-Mohave 500 kV line crosses the following (SCE, 2018):

- 0.1 miles of land zoned as Floodway-Agriculture Preserve (FW-AP) intended to protect vital agriculture and related uses and/or agriculture by-products
- 0.1 miles of land zoned as Rural Living – 10 Acre Minimum-Agriculture Preserve (RL 10-AP) intended to protect vital agriculture and related uses and/or agriculture byproducts while allowing residential development
- 0.1 miles of land zoned as Lucerne Valley/Agriculture (LV/AG-20) for commercial agricultural operations, agriculture support services, rural residential uses and similar and compatible uses at tower M18-T4
- 1.5 miles of land zoned LV/AG near the Barstow Repeater site
- 0.7 miles of land zoned Lucerne Valley/Agriculture-40 Acre Minimum (LV/AG-40)

The Proposed Project does not cross land designated as agriculture in the City of Hesperia or in Nevada. In Hesperia, at Arrowhead Lake Road west of tower M8-T1, the Proposed Project is adjacent to land designated as Agriculture (A2) in the Hesperia General Plan (Hesperia, 2017). This location would include a temporary guard structure at Arrowhead Lake Road.

The Williamson Act allows local governments to establish agricultural preserves, which are lands set aside for continued agricultural use under a land conservation contract. The Proposed Project crosses 0.1 miles of land under Williamson Act contract at Arrowhead Lake Road and is within 30 feet of land under Williamson Act contract but it would not require any ground disturbance on lands under Williamson Act contract.

The Eldorado-Lugo 500 kV line crosses 0.1 miles of land zoned as FW-AP and 0.1 miles of lands zone as RL 10-AP.

Forestry

The Lugo-Mohave 500 kV Transmission Line crosses approximately 0.4 miles of area mapped as Joshua tree woodland in San Bernardino County near tower M14-T4, near a proposed helicopter landing zone, and scattered east of M15-T3 near two proposed helicopter landing zones. The Proposed Project crosses no other forest land in California and Nevada.

Grazing

The Lugo-Mohave 500 kV Transmission Line and Eldorado-Lugo 500 kV Transmission Line cross the following BLM grazing allotments:

- Cady Mountain grazing allotment (over 232,000 acres in size)
- Johnson Valley grazing allotment (over 118,000 acres in size)
- Ord Mountain grazing allotment (nearly 155,000 acres in size)
- Round Mountain grazing allotment (over 18,000 acres in size)

The Lugo-Mohave Transmission Line also crosses the Colton Hills grazing allotment in the Mojave Preserve. The Colton Hills allotment is over 190,000 acres (NPS, 2002).

The Proposed Project does not cross any grazing allotments in Nevada.

5.2.2 Regulatory Background

State and Local

California

California Land Conservation Act of 1965 (Williamson Act). The Williamson Act preserves agricultural and open space lands from conversion to urban land uses by establishing a contract between local governments and private landowners to voluntarily restrict their landholdings to agricultural or open space use. In return, landowners receive property tax assessments based on farming or open space use. Williamson Act contracts are valid for a minimum of 10 years and, in the absence of a notice of nonrenewal, they are automatically renewed each year for an additional 10-year term.

The Williamson Act also allows local governments to establish agricultural preserves, which must include a minimum of 100 acres (Cal. Govt. Code §51230). Government Code Section 51238 states, "notwithstanding any determination of compatible uses by the county or city pursuant to this article, unless the board or council after notice and hearing makes a finding to the contrary, 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."

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

Chapter 6.7 of the Government Code (§§ 51100 to 51155) regulates timberlands within the State of California. According to the code, examples of compatible uses are watershed management; grazing; and the erection, construction, alteration, or maintenance of electric transmission facilities.

"Timberland production zone" (TPZ) is defined in Section 51104(g) as an area that has been zoned pursuant to California Government Code (CGC) Sections 51112 or 51113 and is devoted to and used for growing and harvesting timber and compatible uses. In this context, "compatible uses" include any use

that "does not significantly detract from the use of the property for, or inhibit, growing and harvesting timber." (CGC §51104[h]).

Local

The CPUC has sole and exclusive jurisdiction over the siting and design of the Proposed Project components located in the State of California. Pursuant to CPUC G.O. 131-D, Section XIV.B, "Local jurisdictions acting pursuant to local authority are preempted from regulating electric power line projects, distribution lines, substations, or electric facilities constructed by public utilities subject to the CPUC's jurisdiction. However, in locating such projects, the public utilities shall consult with local agencies regarding land use matters." Consequently, public utilities are directed to consider local regulations and consult with local agencies, but the county and cities' regulations are not applicable as the county and cities do not have jurisdiction over the Proposed Project. For informational purposes, local regulations in California jurisdictions are provided in Appendix C. The Proposed Project is subject to local regulations in the State of Nevada. However, the Proposed Projects does not cross agricultural, forest, or grazing lands in Nevada. Therefore, Nevada regulations for these resources have not been included.

Federal

Bureau of Land Management

Public Land Grazing Administration 43 CFR 4100. The BLM administers the public lands grazing program under regulations that implement provisions in the Taylor Grazing Act of 1934, the Federal Land Policy and Management Act (FLPMA) of 1976, and the Public Rangelands Improvement Act of 1978. The Taylor Grazing Act set forth regulations intended to stop injury to the public grazing lands by preventing overgrazing and soil deterioration; provide for the lands' orderly use, improvement, and development; and stabilize the livestock industry dependent upon the public range. FLPMA provides authority and direction for the multiple use and sustained yield of public lands. FLPMA also provides specific guidance for range management (FLPMA Subchapter IV). The Public Rangelands Improvement Act establishes a national policy to improve public rangeland conditions to support all rangeland values. The act also requires a national inventory, consistent federal management policies and funding for range improvement projects.

National Park Service

The California Desert Protection Act of 1994 that created Mojave National Preserve stated, that "[t]he privilege of grazing domestic livestock on lands within the preserve shall continue to be exercised at no more than the current level, subject to applicable laws and National Park Service regulations." Mojave National Preserve's General Management Plan states that, for permit holders unwilling to sell, grazing privilege will continue at no more than existing level under existing BLM management plans, subject to NPS regulations and policy and relevant Biological Opinions, with emphasis on preservation and protection of resources.

5.2.3 Applicant Proposed Measures

The Proposed Project does not include any APMs related to Agriculture and Forestry.

5.2.4 CEQA Significance Criteria

Appendix G of the CEQA Guidelines (14 CCR 15000 et seq.) provides guidance on assessing whether a project would have significant impacts on the environment. Consistent with Appendix G, the Proposed Project would have significant agriculture and forestry resources impacts if it would:

a. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use

b. Conflict with existing zoning for agricultural use, or a Williamson Act contract

c Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?

d. Result in the loss of forest land or conversion of forest land to non-forest use

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

5.2.5 Methodology

This analysis reviews the existing agriculture, grazing, and forestry land along the Proposed Project alignment and in particular at the location of ground disturbance. It then reviews whether the Proposed Project would permanently convert or temporarily impact agriculture, grazing, or forestry land. BLM and NPS lands include grazing but do not include agriculture or forestry lands.

5.2.6 Project Impacts and Mitigation Measures

a. 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 Non-agricultural use?

Construction

NO IMPACT. The DOC's FMMP has not designated any farmland as Prime, Unique, or Farmland of Statewide Importance along the Proposed Project corridor so there would be no impacts to these lands. These designations do not apply to federal lands administered by the BLM and the NPS.

Operation and Maintenance

NO IMPACT. The DOC's FMMP has not designated any farmland as Prime, Unique, or Farmland of Statewide Importance along the Proposed Project corridor so there would be no impacts to these lands from operation and maintenance of the project.

Mitigation Measures

No mitigation is required.

b. Would the project conflict with existing zoning for agricultural use, or a Williamson Act contract?

Construction

NO IMPACT. Although the Proposed Project alignment crosses lands under Williamson Act contract, no ground disturbance or other impact is proposed on these lands.

The Proposed Project would result in the permanent conversion of 0.13 acres of land zoned for agriculture at the Barstow Repeater Station. It would result in the temporary use of 13.3 acres of land zoned for agriculture. This land would be restored to as close to the original state as possible after the project. While the Proposed Project would result in a minor amount of conversion of land zoned as agriculture, the amount of land converted is minimal. Additionally, for agriculture land, electric transmission facilities fall under the San Bernardino zoning code 85.02.050 that states that no Conditional Use Permit is required for the project when it has completed alternate review procedures including having been approved at a public hearing by a State or Federally appointed body or commission empowered to approve or license the land use (Policy 85.02.050(a)(1)). Because the project would not conflict with the existing zoning for agricultural use or a Williamson Act contract, there would be no impact. Federal lands do not include zoning nor do the agencies enter into Williamson Act contracts.

Operation and Maintenance

NO IMPACT. Operation and Maintenance (O&M) activities associated with the Proposed Project would be similar to those currently performed by SCE for existing facilities. They include repairing conductors, washing or replacing insulators, repairing or replacing other hardware components, repairing or replacing poles and towers, tree trimming, brush and weed control, and access road maintenance. O&M practices would also include routine inspections and emergency repair within substations and rights-of-way (ROWs), which would require the use of vehicles and equipment. SCE inspects the transmission and subtransmission overhead facilities in a manner consistent with CPUC G.O. 165, which requires observation a minimum of once per year, but inspection typically occurs more frequently to ensure system reliability. Following construction of the mid-line series capacitors, additional O&M activities would consist of monthly and annual inspections, as well as equipment testing and maintenance of emergency generators ranging from once a year to once every five years. SCE would conduct additional testing, inspections and maintenance of the building, site, generator, and fuel tank at the new fiber optic repeater facilities every six months to once a year. While O&M activities would occur along the portions of the alignment that cross Williamson Act lands, these would be the same as what currently occurs because none of the Proposed Project components are located within these lands. Therefore, no impact would occur.

Mitigation Measures

No mitigation is required.

c. Would the project conflict with existing zoning for, or cause rezoning of, forest land, timberland, or timberland zoned Timberland Production?

Construction

NO IMPACT. The Proposed Project alignment crosses areas mapped as Joshua tree woodland but these areas are not zoned as forest lands, timberland, or timberland zoned Timberland Production. The areas are zoned as Resource Management and Rural Residential. Electric transmission facilities fall under the San Bernardino zoning code 85.02.050 on Resource Management and Rural Residential zoning. The zoning code states that no Conditional Use Permit is required for the project when it has completed alternate review procedures including having been approved at a public hearing by a State or Federally appointed body or commission empowered to approve or license the land use (Policy 85.02.050(a)(1)). Because the project would not conflict with the existing zoning for the forest land there would be no impact. Federal lands do not include zoning, so this criterion does not apply.

Operation and Maintenance

NO IMPACT. O&M activities associated with the Proposed Project would be similar to those currently performed for the existing facilities, with additional O&M activities associated with the proposed mid-line series capacitors and fiber optic repeater facilities. Because O&M activities would be similar to current practices and would not conflict with zoning of forest lands, no impact would result from the Proposed Project.

Mitigation Measures

No mitigation is required.

d. Would the project result in the loss of forest land or conversion of forest land to non-forest use?

Construction

LESS THAN SIGNIFICANT. As previously discussed, the existing Eldorado-Lugo and Lugo-Mohave 500 kV Transmission Lines span approximately 0.4 miles of mapped forest land. Two proposed potential helicopter landing zones would be located within mapped forest land. Following construction, if they are used the proposed landing zones would be restored to as close to pre-construction conditions as possible. Restoration in the desert can be challenging and be lengthy to complete. However, given the small acreage of land used for the landing zones (less than 1 acre) and because the use would not be permanent, the impact would be less than significant. There is no forest land on the BLM and NPS portions of the Proposed Project.

Operation and Maintenance

NO IMPACT. O&M activities associated with the Proposed Project would be similar to those currently performed for the existing facilities, with additional O&M activities associated with the proposed mid-line series capacitors and fiber optic repeater facilities. Because O&M activities would be similar to current practices and would not involve the loss of forest land, no impact would result from the Proposed Project.

Mitigation Measures

No mitigation is required.

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 non-agricultural use?

Construction

State and Local

LESS THAN SIGNIFICANT. As noted under Impact b above, the Proposed Project would result in the permanent conversion of 0.13 acres of land zoned for agriculture at the Barstow Repeater Station. It would result in the temporary use of 13.3 acres of land zoned for agriculture. This land would be restored to as close to the original state as possible after the project. While the project would result in the conversion of farmland to non-agricultural use, the amount of land converted would be substantially less than an acre and would be adjacent to existing energy infrastructure. Therefore, the impact would be less than significant.

Bureau of Land Management

LESS THAN SIGNIFICANT. The Proposed Project would result in a permanent loss of an estimated 2.9 acres in the Cady Mountain grazing allotment, as well as in temporary losses of an estimated 34.9 acres in the Cady Mountain grazing allotment, 13 acres in the Ord Mountain allotment, and 3.4 acres in the Round Mountain allotment. Temporary losses would be restored to as close to the original state as possible after project construction and grazing would continue at these locations. While the project would result in permanent conversion of 4 acres of grazing land to non-agricultural use, this would be less than 0.01 percent of the grazing allotment and would be unlikely to change the existing number of animals allowed to graze at the allotment. Therefore, the loss would be less than significant.

National Park Service

LESS THAN SIGNIFICANT. The Proposed Project activities would occur on the Colton Hills grazing allotment in the Mojave National Preserve. Activities would include OPGW modification and splicing towers from M118-T2 to M137-T3, some of which include modifications to the body of the facilities. Ground disturbance associated with this work would be temporary and limited. Temporarily used land would be restored to as close to the original state as possible after project construction and animals would continue to graze at these locations. Therefore, impacts would be less than significant.

Operation and Maintenance

NO IMPACT. O&M activities associated with the Proposed Project would be similar to those currently performed for the existing facilities, with additional O&M activities associated with the proposed mid-line series capacitors and fiber optic repeater facilities. Because O&M activities would be similar to current practices and would not result in a conversion of forest or farmland, no impact would result from the Proposed Project.

Mitigation Measures

No mitigation is required.

5.2.7 References

Hesperia (City of Hesperia). 2017. General Plan Land Use Map. Effective Date: April 18, 2017.

NPS (National Park Service). 2002. Mojave General Management Plan Figure 13. Cattle Grazing Permits. https://www.nps.gov/moja/learn/management/loader.cfm?csModule=security/getfile&PageID=115057. Accessed November 29, 2018.

SCE (Southern California Edison). 2018. Eldorado-Lugo-Mohave Series Capacitor Project: Proponent's Environmental Assessment (PEA). Volumes 1 through 8. April.

5.3 Air Quality

AIR QUALITY Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the following determinations. **Would the project:**	Potentially Significant Impact	Less Than Significant 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?	☐	☐	☒	☐

Significance criteria established by CEQA Guidelines, Appendix G.

5.3.1 Environmental Setting

Existing Conditions

Air Basin and Local Air Districts. The Proposed Project would be in California's Mojave Desert Air Basin within the jurisdiction of the Mojave Desert Air Quality Management District (MDAQMD) and in the undeveloped, open lands in southern Clark County, Nevada. The local agencies that regulate sources of air pollution and establish the programs to protect and improve air quality in the project area are the MDAQMD in the San Bernardino County, California and, for portions of the project in Nevada, the Clark County Department of Air Quality (DAQ). The Mojave Desert Air Basin is characterized by a low population density within an assemblage of mountain ranges interspersed with long broad valleys that often contain dry lakes. Prevailing winds in the Mojave Desert Air Basin are out of the west and southwest (MDAQMD, 2016).

Criteria Air Pollutants. Air quality is determined by measuring ambient concentrations of certain criteria air pollutants. The criteria pollutants are ozone, respirable particulate matter (PM10), fine particulate matter (PM2.5), carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), and lead. Ozone is an example of a secondary pollutant that is not emitted directly from a source (e.g., an automobile tailpipe), but it is formed in the atmosphere by chemical and photochemical reactions. Reactive organic gases (ROG), including volatile organic compounds (VOC), are regulated as precursors to ozone formation.

The California Air Resources Board (ARB) and the U.S. Environmental Protection Agency (U.S. EPA) have independent authority to develop and establish health-protective ambient air quality standards, although the different legislative and scientific contexts cause some diversity between State and Federal standards currently in effect in California. The standards of ambient air quality in Nevada also differ from the U.S. EPA NAAQS, and the Nevada Division of Environmental Protection provides oversight of the Clark County DAQ to ensure that the Nevada standards are not exceeded.

The monitored levels of the pollutants are compared to the current National and California Ambient Air Quality Standards (NAAQS and CAAQS) to determine degree of existing air quality degradation. The ambient air quality standards are shown in Table 5.3-1.

Table 5.3-1. National and California Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards	National Standards
Ozone	1-hour 8-hour	0.09 ppm 0.070 ppm	— 0.070 ppm
Respirable Particulate Matter (PM10)	24-hour Annual Mean	50 µg/m^3 20 µg/m^3	150 µg/m^3 —
Fine Particulate Matter (PM2.5)	24-hour Annual Mean	— 12 µg/m^3	35 µg/m^3 12.0 µg/m^3
Carbon Monoxide (CO)	1-hour 8-hour	20 ppm 9.0 ppm	35 ppm 9 ppm
Nitrogen Dioxide (NO_2)	1-hour Annual Mean	0.18 ppm 0.030 ppm	0.100 ppm 0.053 ppm
Sulfur Dioxide (SO_2)	1-hour 24-hour Annual Mean	0.25 ppm 0.04 ppm —	0.075 ppm 0.14 ppm 0.030 ppm

Notes: ppm = parts per million; µg/m^3= micrograms per cubic meter; "—" =no standard.
Source: ARB (http://www.arb.ca.gov/research/aaqs/aaqs2.pdf, May 2016.

Ambient Air Quality Attainment Status. The U.S. EPA, ARB, and the local air district classify an area as attainment, unclassified, or nonattainment with regard to certain pollutants, and these designations dictate the air quality management planning activities needed to make future air pollutant reductions. The classification depends on whether the monitored ambient air quality data show compliance, insufficient data available, or non-compliance with the ambient air quality standards, respectively.

Table 5.3-2 summarizes attainment status for the San Bernardino County portion of the Mojave Desert Air Basin as designated for the criteria air pollutants relative to the state and federal standards.

Table 5.3-2. Attainment Status for Mojave Desert Air Basin, San Bernardino County

Pollutant	California Designation	Federal Designation
Ozone	Nonattainment-Moderate	Nonattainment–Severe (West Mojave Desert) and Unclassifiable/Attainment (remainder)
PM10	Nonattainment	Nonattainment–Moderate (24-hour standard)
PM2.5	Nonattainment (West Mojave Desert) and Unclassified/Attainment (remainder)	Unclassified/Attainment
CO	Unclassifiable/Attainment	Unclassifiable/Attainment
NO_2	Unclassifiable/Attainment	Unclassifiable/Attainment
SO_2	Attainment	Attainment

Source: ARB, 2018; U.S. EPA, 2018.

Proposed Project components in southern Clark County, Nevada would be within a "maintenance" area for ozone (under the 1997 NAAQS), and no components of the Proposed Project would be within the Las Vegas, Nevada federal ozone nonattainment area. All other portions of southern Clark County are designated by U.S. EPA as in attainment or unclassifiable for the criteria air pollutants.

Air Quality Management Plans. The most recent air quality management plan for the Mojave Desert air basin addresses the Western Mojave Desert federal ozone nonattainment designation (MDAQMD, 2017). The plan presents the latest planning assumptions regarding population, vehicle activity and industrial

activity, and demonstrates how management of existing and forecasted ozone precursor-producing activities within the MDAQMD would achieve attainment of the 2008 ozone NAAQS in 2027. The current ozone attainment plan (MDAQMD, 2017) builds upon previous planning efforts including the 2004 and 2008 Ozone Attainment Plans.

The MDAQMD air quality management plan for PM10 contains a control strategy that provides for the adoption and implementation of federally approved Reasonably Available Control Measures to reduce PM10 emissions arising from human activities (MDAQMD, 1995). Reducing PM10 emissions from construction/demolition activities, disturbed areas, and unpaved road travel is a focus of MDAQMD Rule 403 and Rule 403.2, which specify the dust control requirements applicable to construction of the Proposed Project.

Ambient Air Quality Data. The most-recent three years of air quality measurements from stations near western end of the project area are shown in Table 5.3-3. The Phelan and Hesperia monitoring stations are closest to Proposed Project activities and typically have the highest historical ozone concentrations within the MDAQMD due to the proximity of the stations to the South Coast Air Basin, which is the source of the majority of transported ozone and ozone precursors (MDAQMD, 2017).

Table 5.3-3. Ambient Air Quality Data for the Project Area

Pollutant	Air Quality Indicator	2015	2016	2017
Data from Phelan (Beekley and Phelan Roads)				
Ozone	Highest 1-hour (ppm)	0.129	0.132	0.156
	Days above 1-hour California Standard (0.09 ppm)	9	15	33
	Highest 8-hour (ppm)	0.092	0.109	0.118
	Days above 8-hour National Standard (0.070 ppm)	42	51	66
Data from Hesperia (Olive Street)				
Ozone	Highest 1-hour (ppm)	0.125	0.119	0.114
	Days above 1-hour California Standard (0.09 ppm)	7	25	18
	Highest 8-hour (ppm)	0.105	0.098	0.094
	Days above 8-hour National Standard (0.070 ppm)	50	65	75
PM10	Highest 24-hour (µg/m^3)	64.1	203.5	163.6
	Days above 24-hour National Standard (150 µg/m^3)*	0	1	2
	Annual Average (µg/m^3)	23.8	25.3	26.9
Data from Lucerne Valley-Middle School (Aliento Road)				
PM10	Highest 24-hour (µg/m^3)	79.5	199.6	135.7
	Days above 24-hour National Standard (150 µg/m^3)*	0	1	0
	Annual Average (µg/m^3)	14.6	18.1	21.1

Source: California Air Resources Board: iADAM: Air Quality Data Statistics (ARB, 2018).
Note: * These PM10 stations provide measurements for comparison with the 24-hour National Standard (150 µg/m^3) rather than the California Standard (50 µg/m^3).

Toxic Air Contaminants. Toxic air contaminants (TACs) are air pollutants that may lead to serious illness or increased mortality, even when present in relatively low concentrations. Potential human health effects of TACs include birth defects, neurological damage, cancer, and death. There are hundreds of different types of TACs with varying degrees of toxicity. Individual TACs vary greatly in the health risk they present; at a given level of exposure, one TAC may pose a hazard that is many times greater than another's. TACs do not have ambient air quality standards but are regulated by the local air districts using a risk-based approach. The Proposed Project would not be considered a stationary source subject

to risk assessment programs, and surveys will be necessary to determine whether demolition or renovation work at the substations could encounter asbestos. Diesel particulate matter (DPM) is classified as a TAC, and statewide programs focus on managing this pollutant through motor vehicle fuels, engine, and tailpipe standards because many toxic compounds adhere to diesel exhaust particles. California's local air districts support these programs by issuing permits and requiring controls for larger stationary sources of DPM, including diesel powered engines rated over 50 horsepower.

Sensitive Receptor Land Uses. The MDAQMD defines certain land uses as sensitive to air pollution. Residences, schools, daycare centers, playgrounds and medical facilities are considered sensitive receptor land uses (MDAQMD, 2016). Areas with residential land use designations are listed in Section 5.11, Land Use and Planning, Table 5.11-1. Several occupied residential dwellings would be approximately 300 feet to 500 feet from Proposed Project activities (SCE, 2018).

The locations of sensitive land uses near Proposed Project components include:

- Low-density residential land uses throughout unincorporated San Bernardino County in the vicinity of the Eldorado-Lugo and Lugo-Mohave 500 kV Transmission Lines.
- Residential development north of Lugo Substation.
- Residential development west of Mohave Substation near Needles Highway in Laughlin, Nevada.
- Residential development in the northern portion of the City of Boulder City, Nevada.

5.3.2 Regulatory Background

State and Local

California

California Clean Air Act. Implemented by the ARB, the California Clean Air Act establishes broad authority for California to regulate emissions from mobile sources and requires regions to develop and enforce strategies to attain California Ambient Air Quality Standards (CAAQS). In the project area, the local (regional) air district is responsible for demonstrating how these standards are met.

ARB Off-Road Mobile Sources Emission Reduction Program. The California Clean Air Act mandates that ARB achieve the maximum degree of emission reductions from all off-road mobile sources to attain the state ambient air quality standards. Off-road mobile sources include construction equipment. The earliest (Tier 1) standards for large compression-ignition engines used in off-road mobile sources became effective in California in 1996. Since then, the Tier 3 standards for large compression-ignition engines used in off-road mobile sources went into effect in California for most engine classes in 2006. In a 2004 rulemaking, the U.S. EPA established a phase-in of Tier 4 standards for certain "nonroad" engines beginning in 2008, and the Tier 4 or Tier 4 Interim (4i) standards apply to all off-road diesel engines model year 2012 or newer. These standards and standards applicable to fleets that are already in-use address emissions of NOx and toxic particulate matter from diesel combustion.

ARB In-Use Off-Road Diesel-Fueled Fleets Regulation. The regulations for in-use off-road diesel equipment are designed to reduce nitrogen oxides (NOx) and toxic diesel particulate matter (DPM) from existing fleets of equipment. Depending on the size of the fleet, the owner would need to ensure that the average emissions performance of the fleet meets certain state-wide standards. In lieu of improving the emissions performance of the fleet, electric systems can be installed to replace diesel equipment in the fleet average calculations. Presently, all equipment owners are subject to a five-minute idling restriction in the rule (13 California Code of Regulations, Chapter 10, Section 2449).

ARB Portable Equipment Registration Program (PERP). This program allows owners or operators of portable engines and associated equipment commonly used for construction or farming to register their units under a statewide portable program that allows them to operate their equipment throughout California without having to obtain individual permits from local air districts.

Nevada

Nevada Division of Environmental Protection (NDEP) and Clark County DAQ. The Clark County DAQ implements and enforces the air pollution control program in Clark County with oversight provided by the NDEP. The Clark County DAQ enforces the local air pollution control rules and regulations, which include Section 41 (Fugitive Dust), Section 94 (Permitting and Dust Control for Construction Activities). These local air quality regulations prohibit excessive fugitive dust from becoming airborne, require taking reasonable precautions to abate fugitive dust, and require non-exempt construction activities such as the Proposed Project to apply for and obtain a dust control permit from the Clark County DAQ, which will include an enforceable list of best management practices (per Section 94.3.5).

Local

The CPUC has sole and exclusive jurisdiction over the siting and design of the Proposed Project components located in the State of California. Pursuant to CPUC G.O. 131-D, Section XIV.B, "Local jurisdictions acting pursuant to local authority are preempted from regulating electric power line projects, distribution lines, substations, or electric facilities constructed by public utilities subject to the CPUC's jurisdiction. However, in locating such projects, the public utilities shall consult with local agencies regarding land use matters." Consequently, public utilities are directed to consider local regulations and consult with local agencies, but the county and cities' regulations are not applicable as the county and cities do not have jurisdiction over the Proposed Project. However, regional air quality management districts are not considered local authorities, having been created by the state to implement state and federal regulations.

Relevant regional requirements in California include:

Mojave Desert Air Quality Management District Permitting Requirements. New stationary sources of air pollutants are subject to the New Source Review (NSR) permitting program, which gives the MDAQMD the authority to review and regulate equipment or facilities to ensure they are constructed and operated in a manner consistent with the air quality management planning strategies. The requirements for stationary sources are established in MDAQMD Rule 201 (Permits to Construct) and Rule 203 (Permit to Operate), and Rule 1303 (NSR Requirements) sets the thresholds and requirements for best available control technology and for obtaining offsets.

MDAQMD Visible Emissions and Fugitive Dust Control Requirements. The MDAQMD implements a series of rules and regulations to prevent excessive visible emissions (Rule 401) and prohibit excessive particulate matter from becoming airborne. MDAQMD Rule 403 (Fugitive Dust) and Rule 403.2 (Fugitive Dust Control for the Mojave Desert Planning Area) specify how activities including construction must be conducted to prevent anthropogenic fugitive dust from causing NAAQS violations for PM10 in the Mojave Desert Planning Area. These rules ensure that the measures adopted within the Mojave Desert Planning Area Federal PM10 Attainment Plan are implemented. Some of the measures include the application of dust suppressants, covering bulk materials during hauling and in storage piles, and limiting vehicle speeds on unpaved roads.

MDAQMD Asbestos Notification Requirements. Projects involving demolition or renovation must determine whether the proposed activity would involve removal or disturbing building materials that

contain asbestos, which is a California-listed toxic air contaminant and a hazardous air pollutant. To ensure that demolition activities implement proper controls for removal and disposal of asbestos, the MDAQMD would require SCE to survey the substation work sites and complete a checklist and, if applicable, submit a Notification of Demolition/Renovation with a payment of the fee under MDAQMD Rule 302(E), Asbestos Demolition/Renovation Fees.

Federal

The federal regulatory framework for air quality includes many requirements for state and local action. Actions by federal agencies, including BLM and NPS, must comply with the Federal Clean Air Act, which is implemented by a combination of federal, state, and local rules.

Federal Clean Air Act (CAA). The National Ambient Air Quality Standards (NAAQS) for criteria air pollutants were established in 1970 with a mandate for periodic updating. The CAA places responsibility on state and local air agencies to maintain these ambient air quality standards. In the project area, the local air districts have the responsibility to establish regulations, enforce air pollution control requirements, and develop the necessary air quality management plans and strategies to achieve the NAAQS. Each local air district administers its rules and regulations to protect air quality and ensure progress towards attainment. The U.S. EPA implements most aspects of the CAA and provides oversight of local and state air quality management plans, rules and regulations to ensure attainment with the NAAQS.

The federal CAA provides the authority for programs to ensure that all areas of the country achieve the federal ambient air quality standards and to protect those areas that already meet the federal ambient air quality standards. Federal Class I areas are provided the greatest protection, and the CAA prevents air quality deterioration for these areas.

The nearest Federal Class I area to the Proposed Project activities would be the Cucamonga Wilderness Area, managed by the U.S. National Forest Service, approximately 11.5 miles (18.5 kilometers) from the western edge of the project. The San Gorgonio Wilderness Area (at least 17 miles away) and Joshua Tree National Park (at least 40 miles away) are also Class I areas outside of the region of Proposed Project activities.

Federal General Conformity Rule. Federal lead agencies must make a determination of whether approval of the Proposed Project (i.e., a federal action) would cause or contribute to a violation of the NAAQS or interfere with attainment planning (40 CFR Part 93, Subpart B, et seq.). The westernmost portions of the Proposed Project would be in the federally designated West Mojave Desert severe ozone nonattainment area and moderate PM10 nonattainment area. Southern Clark County, Nevada is a "maintenance" area for ozone, under the 1997 NAAQS. Federal agency actions in these areas are subject to the federal general conformity review requirements, and a conformity determination is required where the total of direct and indirect emissions of criteria pollutants or precursors in the nonattainment or maintenance area caused by a Federal action would equal or exceed certain *de minimis* emission rates (40 CFR 93.153).

5.5.3 Applicant Proposed Measures

The Proposed Project includes five APMs regarding Air Quality.

APM AIR-01: Fugitive Dust. During construction, fugitive dust would be controlled by implementing the following measures:

- Surfaces disturbed by construction activities would be covered or treated with a dust suppressant or water until the completion of activities at each site of disturbance.

- Inactive disturbed (e.g., excavated or graded areas) soil and soil piles would be sufficiently watered or sprayed with a soil stabilizer to create a surface crust or would be covered.
- Drop heights from excavators and loaders would be minimized to a distance of no more than 5 feet. Vehicles hauling soil and other loose material would be covered with tarps or maintain at least 6 inches of freeboard.
- Within Nevada, vehicle speeds on unpaved traffic and parking areas would be restricted to 15 miles per hour. In California, vehicle speeds on unpaved roadways would adhere to all posted speed limits.
- Within Nevada, unpaved non-public traffic and parking areas designated for utilization during Proposed Project construction would be effectively stabilized to control dust emissions (e.g., using water or chemical stabilizer/suppressant). In California, unpaved non-public traffic and parking areas designated for utilization during Proposed Project construction would be effectively stabilized to control dust emissions with a chemical stabilizer/suppressant.

APM AIR-02: Tier 4 Engines. Off-road diesel construction equipment with a rating between 100 and 750 horsepower would be required to use engines compliant with the U.S. Environmental Protection Agency's final Tier 4 non-road engine standards. In the event that a Tier 4 engine is not available, the equipment would be equipped with a Tier 3 engine and documentation would be provided from a local rental company stating that the rental company does not currently have the required diesel-fueled, off-road construction equipment, or that the vehicle is specialized and is not available to rent. Similarly, if a Tier 3 engine is not available, that equipment would be equipped with a Tier 2 or 1 engine, and documentation of unavailability would be provided.

APM AIR-03: Idling. Equipment would not be left idling in excess of five minutes, except when idling is required for the equipment to perform its task or has a California clean-idle sticker.

APM AIR-04: Equipment Maintenance. Diesel engines would be maintained in good working order and according to manufacturer's specifications to reduce emissions.

APM AIR-05: Ridesharing. Workers would be encouraged to carpool to work sites, and/or utilize public transportation for employee commutes.

5.3.4 CEQA Significance Criteria

Appendix G of the CEQA Guidelines (14 CCR 15000 et seq.) provides guidance on assessing whether a project would have significant impacts on the environment. Consistent with Appendix G, where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make determination as to whether the project would:

a. Conflict with or obstruct implementation of the applicable air quality plan

b. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable Federal or State ambient air quality standard

c. Expose sensitive receptors to substantial pollutant concentrations

d. Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

5.3.5 Methodology

All construction- and operation-related emissions are quantified based on the best available forecast of activities. For each of the activities of the Project Description, the Applicant (SCE, 2018) developed emissions estimates within a database that draws emissions factors from the California Emissions Estimator Model (CalEEMod; version 2016.3.2) software developed by the California Air Pollution Control Officers Association (CAPCOA). The emission factors were drawn from the most recent version of the CalEEMod software, which relies upon mobile source emission factors from the Air Resources Board (ARB) OFFROAD inventory and EMFAC2014 models. The activity assumptions, emission factors, and resulting quantities of emissions appear in Appendix B, Air Quality/Greenhouse Gas Emissions Data Tables.

State and Local

For emissions in California, the quantities of direct and indirect air pollutant emissions are compared against the CEQA threshold of significance as recommended by the MDAQMD. The MDAQMD quantitative thresholds are on the basis of tons per year (tpy) or pounds per day (lb/day) of a given pollutant, although the daily value would not apply to the Proposed Project because the construction phase would extend for more than one year (MDAQMD, 2016). For emissions in Nevada, the thresholds of 100 tpy are drawn from federal programs. The CEQA thresholds for significant emissions are shown in Table 5.3-4.

Table 5.3-4. MDAQMD Significant Emissions Thresholds

	NOx	VOC	PM10	PM2.5	CO	SOx
Annual Significance Thresholds (tpy)	25	25	15	12	100	25
Daily Significance Thresholds (lb/day)	137	137	82	65	548	137

Source: MDAQMD, 2016.

Federal

Bureau of Land Management

For portions of the Proposed Project that cause emissions due to federal agency actions the following *de minimis* thresholds would apply for establishing the applicability of the requirement to prepare a general conformity determination, as shown in Table 5.3-5.

Table 5.3-5. Federal General Conformity Rule De Minimis Emissions Thresholds (tons per year)

	NOx	VOC	PM10	PM2.5	CO	SOx
West Mojave Desert portion of San Bernardino County	25	25	100	—	—	—
Remainder of San Bernardino County	—	—	—	—	—	—
Southern Clark County, outside Las Vegas planning area	100	100	—	—	—	—

Note: "—" means area attains all federal standards and no *de minimis* threshold applies.

National Park Service

The information provided above for BLM also applies to NPS-managed lands of the Mojave National Preserve.

5.3.6 Project Impacts and Mitigation Measures

a. Would the project conflict with or obstruct implementation of the applicable air quality plan?

LESS THAN SIGNIFICANT. Each of California's local air districts is responsible for managing local air quality and administering other California and federal programs ensuring implementation of the air quality management plan. A project could be inconsistent with the applicable air quality management plan or attainment plan if it could cause population and/or employment growth or growth in vehicle-miles traveled in excess of the growth forecasts included in the attainment plan.

The Proposed Project would create no additional permanent full-time positions for providing routine operation and maintenance. The construction workforce would involve an average of 159 workers daily and up to 346 workers during peak periods with multiple crews working concurrently at different locations along the project. Operation and maintenance would require some additional worker-trips, which would cause minor amounts of emissions from motor vehicles, and installation of only minor stationary sources, namely emergency-use, standby generators fired on propane, which would be subject to air permit requirements.

Regional air quality management plans anticipate a baseline level of construction activity and some permanent population growth. The anticipated growth includes the construction of some new infrastructure, such as the Proposed Project. All activities associated with Proposed Project construction and O&M would be subject to compliance with applicable air quality rules and regulations, which are administered by the local air districts to ensure progress towards achieving air quality attainment and implementation of air pollution control requirements. This means that all construction activity would be required to comply with local air district rules regarding dust control such as MDAQMD Rule 403.2 and Clark County Air Quality Regulations Section 94, and operation-phase stationary sources would be subject to the MDAQMD permitting authority. Therefore, the Proposed Project would not conflict with or obstruct implementation of the applicable air quality plan. This impact would be less than significant, and no mitigation is required.

Mitigation Measures

No mitigation is required.

b. Would the project 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?

Construction

State and Local

LESS THAN SIGNIFICANT WITH MITIGATION. This discussion addresses whether the Proposed Project would result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment. Within the West Mojave planning area of the MDAQMD, emissions which exceed quantitative thresholds for ozone precursors, PM10, or PM2.5 could represent a cumulatively considerable net increase by contributing to existing violations of the ambient air quality standards for ozone or particulate matter.

Construction-phase emissions would be the result of Proposed Project activity on unpaved and paved surfaces, ground disturbance, and materials hauling, which cause fugitive dust, and the necessary use of

equipment and motor vehicles that cause tailpipe emissions through the use of motor gasoline or diesel fuel. Typical fugitive dust sources include earth-moving activities (e.g., grading and equipment foundations for the two proposed mid-line series capacitors, excavation for tubular steel pole foundations, as well as excavation of the underground duct bank trenches, and repeater sites), the loading and unloading of fill and spoil materials, and vehicle travel across unpaved areas and paved roads. Tailpipe emissions result from the combustion of fuels in off-road construction equipment, helicopters, and on-road vehicles (SCE, 2018).

Overall construction-phase emissions would span two calendar years. The total quantities of criteria air pollutants that could be emitted over the full duration of construction, without consideration of the APMs or additional controls, are shown in Table 5.3-6.

Table 5.3-6. Overall Proposed Project Construction Emissions, without APMs or Mitigation (tons)

Sources	NOx	VOC	PM10	PM2.5	CO	SOx
Helicopters	10.2	1.6	4.2	3.8	10.2	2.6
Off-Road Equipment and Fugitive Dust	26.9	2.5	1.6	1.1	22.9	0.1
On-Road Motor Vehicles and Fugitive Dust	4.1	0.9	182.7	18.7	8.5	0.0
Total, Duration of Construction	**41.2**	**5.0**	**188.5**	**23.5**	**41.6**	**2.7**

Source: Appendix B (SCE, 2018; Responses to Data Requests).

The Proposed Project construction emissions would be reduced through the Applicant Proposed Measures for air quality (Table 5.3-4), which include steps to control fugitive dust, use equipment with Tier 4 engines, limit idling of equipment, maintain equipment properly, and encourage ridesharing. Basic dust control strategies for PM10 and PM2.5 include application of water or dust suppressants on disturbed areas, and the proposed engine exhaust controls would reduce NOx and PM10 that could otherwise be emitted with off-road equipment exhaust.

With implementation of Applicant-Proposed Measures APM-AIR-01, APM-AIR-02, APM-AIR-03, APM-AIR-04, and APM-AIR-05, overall construction emissions would be substantially reduced, as quantified in Table 5.3-7.

Table 5.3-7. Overall Proposed Project Construction Emissions, with APMs and Mitigation (tons)

Sources	NOx	VOC	PM10	PM2.5	CO	SOx
Helicopters	10.2	1.6	4.2	3.8	10.2	2.6
Off-Road Equipment and Fugitive Dust	4.7	0.7	0.4	0.1	28.4	0.1
On-Road Motor Vehicles and Fugitive Dust	4.1	0.9	39.3	4.3	8.5	0.0
Total, Duration of Construction	**19.0**	**3.2**	**43.9**	**8.3**	**47.2**	**2.7**

Source: Appendix B (SCE, 2018; Responses to Data Requests).

Even with implementation of APM AIR-01, the steps taken to control fugitive dust would need careful oversight to be effective. Because the Proposed Project overall land disturbance (Project Description, Section 4.6.7) would involve 375.4 acres being disturbed by project activities, this analysis identifies additional mitigation to ensure formal oversight of dust control efforts by the lead agencies and MDAQMD. For construction activities disturbing 100 acres or more, MDAQMD Rule 403.2 requires implementation of a Dust Control Plan that describes the applicable control measures. Similarly, Clark County Air Quality Regulations Section 94 (Permitting and Dust Control for Construction Activities) requires the Proposed Project to apply for and obtain a dust control permit from the Clark County DAQ that will include an enforceable list of best management practices for dust abatement. Mitigation Measure MM AQ-1 speci-

fies the applicable control measures and other features to be included with the Dust Control Plan for presentation to the air quality management agencies.

The potential for the Proposed Project to violate or contribute substantially to violations of ambient air quality standards would depend on the location of the sources of construction emissions. For this Proposed Project, construction emissions would span across portions of two states. The western-most components of the Proposed Project are within the West Mojave Desert federal ozone nonattainment-(severe) area. These include the Lugo Substation, the western-most 100 miles of the Lugo-Mohave and Eldorado-Lugo 500 kV Transmission Lines, and the proposed Newberry Springs Series Capacitor and Ludlow Series Capacitor sites. Components of the Proposed Project in Nevada would occur almost entirely on federal lands under BLM jurisdiction.

The annual construction emissions in each state are quantified in Table 5.3-8.

Table 5.3-8. Annual Construction Emissions by State, with APMs and Mitigation (tons per year)

Sources	NOx	VOC	PM10	PM2.5	CO	SOx
California; 2020	3.4	0.5	9.2	1.3	11.2	0.3
California; 2021	8.7	1.5	12.8	3.4	19.1	1.5
Thresholds of Significance (tons per year)	**25**	**25**	**15**	**12**	**100**	**25**
Significant?	No	No	No	No	No	No
Nevada; 2020	5.8	1.0	16.1	2.8	13.5	0.8
Nevada; 2021	1.1	0.2	5.7	0.7	3.4	0.1
Thresholds of Significance (tons per year)	**100**	**100**	**100**	**100**	**100**	**100**
Significant?	No	No	No	No	No	No

Source: Appendix B (SCE, 2018; Responses to Data Requests).

Project construction activities would need to be compliant with federal, state, and local air district rules and regulations and would adhere to the APMs. Table 5.3-8 shows that during construction, the emissions generated would not exceed the applicable significance threshold levels for any air pollutants. Mitigation for this impact (MM AQ-1) would formalize the controls of APM AIR-01 and ensure that dust control efforts would be consistent with local air district rules adopted for the purpose of preventing violations of the PM10 ambient air quality standards. With the Proposed Project APMs and additional mitigation, the construction emissions would not result in a cumulatively considerable new increase of any criteria pollutants and would not be likely to violate any air quality standard. Accordingly, this impact resulting from construction-related emissions would be less than significant with mitigation for dust control.

Federal

LESS THAN SIGNIFICANT WITH MITIGATION. On both BLM and NPS lands, mitigation recommended for this impact (MM AQ-1) would ensure that dust control efforts would be consistent with local air district rules adopted for the purpose of preventing violations of the PM10 ambient air quality standards. With mitigation, the construction emissions would not violate any air quality standard or contribute substantially to an existing or projected air quality violation, and the impacts resulting from construction-related emissions would be less than significant with mitigation.

Operation and Maintenance

LESS THAN SIGNIFICANT. O&M activities associated with the Proposed Project would be similar to those currently performed by SCE for existing facilities. Beyond a continuation of existing O&M activities, additional equipment use and motor vehicle emissions would occur with maintenance necessary for the new mid-line series capacitors and fiber optic repeater sites.

Following construction of the mid-line series capacitors, additional O&M activities would consist of monthly and annual inspections, as well as equipment testing, and propane fuel deliveries and maintenance of the emergency generators, once a year or less frequently. Additional testing, inspections, and maintenance of the new fiber optic repeater facilities, including the building, site, generator, and propane fuel tank refilling would also be required at every six months to once a year (SCE, 2018). A minor increase in emissions would occur due to the periodic inspections and upkeep of the mid-line series capacitors and fiber optic repeater sites (SCE, 2018).

Minor emissions increases would also occur from propane combustion by the following emergency-use proposed stationary sources of air pollutants:

- Each of the three fiber optic repeater facilities in the existing Lugo-Mohave 500 kV Transmission Line ROW would include emergency generators, each rated to produce approximately 37 kW output and equipped with 499-gallon propane fuel tanks.
- Each of the two mid-line series capacitor sites would include propane powered emergency generators, each rated to produce approximately 351 kW output and equipped with 499-gallon propane fuel tanks.

These five emergency-use, standby generators would be powered by engines that are stationary sources of air pollutants, and MDAQMD may require air permits for each of these engine-generator sets. Depending on final selection of these generators, the engines proposed for the fiber optic repeater sites may qualify as having a rating of less than 50 brake-horsepower, which would not require a permit (according to the terms in MDAQMD Rule 219). Because the generators at the repeater and capacitor sites would provide a backup supply of emergency power, the non-emergency use of the engines would amount to less than 100 hours annually for each unit. As such, these stationary sources would be exempt from emissions standards for engines in MDAQMD Rule 1160 (Internal Combustion Engines).

Emissions from these engine-generator sets would be below the thresholds for triggering any requirements for best available control technology or for obtaining offsets under MDAQMD Rule 1303 (NSR Requirements). Table 5.3-9 shows that the emissions from the proposed engines would not exceed the significance threshold levels for any air pollutants. The quantities of emissions appear in Appendix B, Air Quality/Greenhouse Gas Emissions Data Tables.

Table 5.3-9. Operation Emissions, Standby Generators

Sources, Daily Emissions during Testing	NOx (lb/day)	VOC (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO (lb/day)	SOx (lb/day)
Each Generator at Fiber Optic Repeater Sites (3 each rated at ~37 kW output)	0.31	0.05	< 0.01	< 0.01	2.82	< 0.01
Each Generator at Series Capacitor Sites (2 each rated at ~351 kW output)	6.27	3.11	< 0.01	< 0.01	10.21	< 0.01
Thresholds of Significance (lb/day)	**137**	**137**	**82**	**65**	**548**	**137**
Significant?	No	No	No	No	No	No

Table 5.3-9. Operation Emissions, Standby Generators

Sources, Annual Emissions	NOx (tpy)	VOC (tpy)	PM10 (tpy)	PM2.5 (tpy)	CO (tpy)	SOx (tpy)
Total, All Five Standby Generators	0.03	0.01	< 0.01	< 0.01	0.24	< 0.01
Thresholds of Significance (tons per year)	**25**	**25**	**15**	**12**	**100**	**25**
Significant?	No	No	No	No	No	No

Source: Appendix B (SCE, 2018; Responses to Data Requests).

The operation and maintenance emissions would be less than the level of emissions during construction activities, which would also be less than the significance thresholds. These O&M emissions would not result in a cumulatively considerable net increase of any criteria pollutant and would not be likely to violate any air quality standard. Therefore, during operation and maintenance this impact would be less than significant, and no additional mitigation is required.

Mitigation Measures

AQ-1 **Prepare and implement a Dust Control Plan.** SCE shall ~~avoid~~ minimize visible fugitive dust emissions by implementing the following dust control measures derived from MDAQMD Rule 403.2. Prior to commencing earth-moving activity, SCE shall prepare and submit to the MDAQMD, Clark County DAQ, CPUC, BLM and NPS a Dust Control Plan that describes all dust control measures that will be implemented for the project, including, but not limited to:

- Use periodic watering for short-term stabilization of disturbed surface area to minimize visible fugitive dust emissions. If used, non-water-based or chemical soil stabilizers and dust suppressants shall be non-toxic and must not cause loss of vegetation, adverse odors, or additional emissions of ozone precursor reactive organic gases (ROG) or volatile organic compounds (VOC).
- Provide stabilized access route(s) to the project site as soon as is feasible and enforce a maximum 15 mile per hour vehicle speed limit on any unpaved surface.
- Stabilize graded site surfaces upon completion of grading when subsequent development is delayed or expected to be delayed more than thirty days, except when such a delay is due to precipitation that dampens the disturbed surface sufficiently to eliminate visible fugitive dust emissions.
- Maintain natural topography to the extent possible.
- Construct parking lots and paved areas first, where feasible.
- Take actions sufficient to prevent project-related trackout or spills onto paved surfaces and cleanup within 24 hours.
- Cover loaded haul vehicles while operating on publicly maintained paved surfaces.
- Reduce non-essential earth-moving activity under high wind conditions, gusts exceeding 25 miles per hour.

c. Would the project expose sensitive receptors to substantial pollutant concentrations?

Construction

LESS THAN SIGNIFICANT. Sensitive receptors include the nearest residences, and a number of occupied residential dwelling(s) would be as close as 300 to 500 feet from Proposed Project activities (PEA Table 4.3-1; SCE, 2018). Construction activities would result in locally increased concentrations of construction-related emissions, including diesel particulate matter (DPM) and other toxic air contaminants, which would cause increased health risk and hazards near the site. The construction-related emissions would be short-term and dispersed across the region, ensuring that no single location would be exposed to substantially increased pollutant concentrations, and that the duration of exposure would be limited to approximately 15 months or less at any single location. Because the nearest sensitive receptor would be at least 300 feet from the project activities that could cause locally increased construction-related pollutant concentrations, construction-phase emissions would not expose any sensitive receptors to substantial concentrations.

Installation of new equipment at existing substations could require demolition work that may encounter asbestos-containing building materials. Because asbestos is a toxic air contaminant, SCE will survey the substation work sites and submit a notification to the MDAQMD for any proposed demolition activities at substations that could encounter asbestos; if applicable, payment of the fee under MDAQMD Rule 302(E), Asbestos Demolition/Renovation Fees, would also be required.

For any given proposed industrial land use development that is within 1,000 feet of an existing residential use, the MDAQMD recommends conducting an evaluation of whether the project would expose sensitive receptors to substantial pollutant concentrations (MDAQMD, 2016), which can result in cancer risks or health hazards. The Proposed Project would not be a new industrial land use development or install new sources that could emit substantial levels of toxic air contaminants. Accordingly, the Proposed Project would not warrant further analysis of air quality health risks or hazards. The impact of potentially exposing sensitive receptors to substantial pollutant concentrations would be less than significant, and no mitigation is required.

Operation and Maintenance

LESS THAN SIGNIFICANT. During operation, the emissions produced by the Proposed Project components and O&M activities would be limited to the use of vehicles for routine maintenance and occasional testing of emergency-use, standby generators. These emissions would not expose sensitive receptors to substantial concentrations of air pollutants. The impact would be less than significant.

Mitigation Measures

No mitigation is required.

d. Would the project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

LESS THAN SIGNIFICANT. The Proposed Project would not include any notable source of odors except for very small quantities of cleaners, solvents or architectural coatings that may include organic compounds. Construction odors would be minimal because of the mandatory use of ultra-low sulfur diesel fuel. Project-related activities would occur in compliance with local air district rules and regulations prohibiting nuisances and would not create objectionable odors affecting a substantial number of people. This impact would be less than significant, and no mitigation is required.

Mitigation Measures

No mitigation is required.

5.3.7 References

MDAQMD (Mojave Desert Air Quality Management District). 2017. Federal 75 ppb Ozone Attainment Plan (Western Mojave Desert Nonattainment Area). Adopted on February 27, 2017.

_____. 2016. California Environmental Quality Act (CEQA) and Federal Conformity Guidelines. August.

_____. 1995. Mojave Desert Planning Area, Federal Particulate Matter (PM10) Attainment Plan. July 31, 1995.

SCE (Southern California Edison). 2018. Eldorado-Lugo-Mohave Series Capacitor Project: Proponent's Environmental Assessment (PEA). Volumes 1 through 8. April.

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5.4 Biological Resources

BIOLOGICAL RESOURCES Would the project:	Potentially Significant Impact	Less Than Significant 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 Game or U.S. Fish and Wildlife Service?	☐	☒	☐	☐
b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☒	☐	☐
c. Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☒	☐	☐
d. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☒	☐
e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☒	☐	☐
f. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or State habitat conservation plan?	☐	☐	☒	☐

Significance criteria a through f established by CEQA Guidelines, Appendix G.

5.4.1 Environmental Setting

This section describes the biological resources that occur in the Proposed Project area. It includes a description of the existing biotic environment, including sensitive habitats and natural communities as well as special-status species and their locations in relation to the Proposed Project. Section 5.4.2 presents an analysis of potential impacts to biological resources and, where necessary, specifies mitigation measures to reduce potential impacts to less-than-significant levels. Information used in preparing this section was derived from:

- SCE Eldorado-Lugo-Mohave Series Capacitor Project: Proponent's Environmental Assessment (PEA). Volumes 1 through 8 (SCE, 2018);
- Revised Biological Resources Technical Report for the Eldorado-Lugo-Mojave Series Capacitor Project (Insignia, 2018);
- Eldorado-Lugo-Mohave Series Capacitor Project Spring 2019 Rare Plant Survey Summary (Insignia, 2019);
- A search of the California Natural Diversity Database (CNDDB) (CDFW, 2018) for special-status species records within 5 miles of the Proposed Project;
- A search of the Nevada Natural Heritage Program (NNHP) database (NDCNR, 2018);
- A search of California Native Plant Society (CNPS) Inventory of Rare and Endangered Plans of California for all U.S. Geological Survey 7.5-minute quadrangles surrounding or spanned by the Proposed Project;

- A search of U.S. Fish and Wildlife Service (USFWS) Environmental Conservation Online System critical habitat data;
- A search of USFWS Information, Planning, and Conservation System for federally endangered, threatened, and candidate species that may occur within or near the Proposed Project; and
- Review of local government plans and ordinances for the County of San Bernardino and the City of Hesperia in California, and for Clark County and the City of Boulder City in Nevada.
- Environmental documents of other projects in the Proposed Project area.

Each of the background documents was reviewed for content and accuracy and a site visit was conducted on December 4, 2018. Information contained in these documents and observations made during the site visit provide the basis for the environmental setting for biological resources.

Regional Setting

The ELM Project route crosses largely undeveloped federal lands, including lands under the jurisdiction of the Bureau of Land Management (BLM), the National Park Service (NPS), the Bureau of Reclamation (BOR), and the Department of Defense (DOD). The Proposed Project also crosses rural and low-density residential land uses on non-federal land in San Bernardino County, California, and Clark County, Nevada.

The Project route is within the Mojave Desert, a hot, dry desert region south of the Sierra Nevada Mountains and east-northeast of the Transverse Ranges. It is characterized by widely scattered mountain ranges and desert plains (basins). General climate conditions are characterized by large fluctuations in daily temperature, high seasonal winds, and low humidity. Summers in the Mojave Desert typically reach maximum temperatures of 119 degrees Fahrenheit, whereas winter temperatures can reach lows in the single digits. The average annual precipitation is approximately 5 inches. The elevation in the project area ranges from 1,200 to 5,000 feet along the Eldorado-Lugo 500 kV Transmission Line, 680 to 4,600 feet on the Lugo-Mohave 500 kV Transmission Line alignment, and 680 to 3,600 feet along the Eldorado-Mohave 500 kV Transmission Line alignment.

Throughout this section, the "Project footprint" refers to all areas that may be directly affected by the Proposed Project, including work areas within the ROW, access routes, and off-site work areas such as equipment yards and helicopter landing zones. The *Biological Resources Technical Report* (Insignia, 2018) summarizes field surveys completed during 2016 and 2017. It defines the Proposed Project Biological Resources Survey Area (BRSA) as the Proposed Project area (or "footprint") and a buffer of variable widths to allow for changes in Proposed Project engineering. Therefore, the BRSA conservatively comprises a larger area than would actually be impacted by the Proposed Project.

Vegetation Communities

Vegetation in the Proposed Project area is generally characterized by the dominance of creosote (*Larrea tridentata*) shrubs, although other shrubs and emergent trees may be present at low densities.

Common Vegetation Communities

The BRSA consists mostly of undeveloped lands, with few urbanized areas. Vegetation within the Project vicinity (i.e., the BRSA) was surveyed and mapped to the alliance level described in *A Manual of California Vegetation Online* (CNPS, 2018). Thirty-seven vegetation community alliances and land cover types were identified within the BRSA.

The three creosote bush communities (creosote bush scrub, creosote bush–brittle bush scrub, creosote bush–white bursage scrub) were observed throughout the majority of the BRSA, accounting for approximately 52 percent of the BRSA. These alliances are characterized by the dominance of creosote bush, although other shrubs and emergent trees may be present at low densities. These alliances support a variety of wildlife species, consisting mainly of rodents, reptiles, and invertebrates, as well as nesting and foraging birds and raptors.

Sensitive Natural Communities

Sensitive natural communities are defined as communities that are of limited distribution within California[1] or within a county or region and are often vulnerable to environmental effects of projects. These communities may or may not contain special-status species or their habitats.

There are six sensitive natural communities within the Proposed Project footprint as described in the Biological Resources Technical Report (Insignia, 2018). Acreages of each sensitive natural community located within the project footprint are indicated in Table 5.4-1; descriptions of each community are presented in Appendix D (Biological Resources).

Table 5.4-1. Sensitive Natural Communities

Vegetation Alliance	State Ranking	Acres within Project Footprint
Desert needlegrass grassland (*Achnatherum speciosum* – Herbaceous Alliance)	S2 (Imperiled)	0.1
Teddy bear cholla patches (*Cylindropuntia bigelovii* – Shrubland Alliance)	S3 (Vulnerable)	0.1
Black-stem rabbitbrush scrub (*Ericameria paniculata* – Shrubland Alliance)	S3 (Vulnerable)	0.3
Desert almond – Mexican bladdersage scrub (*Prunus fasciculata–Salazaria mexicana* – Shrubland Alliance)	S3 (Vulnerable)	2.0
Bush seepweed scrub (*Suaeda moquinii* – Shrubland Alliance)	S3 (Vulnerable)	0.3
Joshua tree woodland (*Yucca brevifolia* – Woodland Alliance)	S3 (Vulnerable)	4.9
Total Acres of Sensitive Natural Communities		**7.7**

Note: Subsequent to conducting biological surveys, selected potential yard sites and helicopter landing zones were eliminated. As a result, values in this table may be somewhat overstated.

Special-Status Plants and Animals

Special-status species are defined as plants or animals that meet one or more of the following criteria:

- Have been designated as either rare, threatened, or endangered by CDFW or the USFWS, and are protected under the California or federal Endangered Species Act (CESA or ESA);
- Are candidate species being considered or proposed for listing under these same acts;
- Are designated Species of Special Concern by CDFW;

[1] The California Department of Wildlife's (CDFW's) list of California Sensitive Natural Communities was used to evaluate sensitive natural communities within the Proposed Project area in both California and Nevada. No equivalent list for sensitive natural communities in Nevada is available. All six sensitive natural communities occur in both California and Nevada. Nomenclature for sensitive communities here follows CDFW rankings. The word "community" is a general term for vegetation or habitat types. BLM generally refers to "vegetation communities," while CDFW refers to "natural communities" and classifies them into smaller units such as alliances.

- Are fully protected by the California State Fish and Game Code, Sections 3511, 4700, 5050, or 5515, or Title 14 of the California Code of Regulations Section 460;
- Are species considered to be "sensitive" by the BLM;
- State-listed species considered to be critically imperiled, imperiled, or vulnerable under the Nevada Natural Heritage Program;
- Are classified as California Rare Plant Rank (CRPR) 1, 2, 3, or 4 by CDFW and the California Native Plant Society (CNPS);
- Are listed on watch lists or provided with special conservation designations by professional working groups/societies (e.g., Western Bat Working Group).

Special-Status Plant Species

Insignia (2018) reviewed data sources to identify all special-status plants reported within 5 miles of the BRSA, which covered a much greater extent than the BRSA. Based on this review, a list was developed of 135 special-status plants potentially present in the BRSA. Most of these species are ranked 1B or 2B in the California Rare Plant Ranking (CRPR) system adopted by CDFW and the California Native Plant Society. CRPR 1B species are defined as Rare, threatened, or endangered in California and throughout their ranges; CRPR 2B species are defined as rare, threatened, or endangered in California but more common elsewhere. In general, the CRPR 2B species identified below are found in eastern California where they are relatively rare, but are more common in Nevada, where they do not have special conservation status. Additionally, three CRPR 4 plant species were identified during field surveys. CRPR 4, while considered a special-status designation, is defined as a watch list and does not indicate rarity or threat. These three plants are golden-rayed pentachaeta, Mojave Indian paintbrush, and revolute spurge.

A detailed project route map showing all tower numbers and work areas can be found in SCE's PEA Volume 5 Appendix E Part 1 and 2. The Special-Status Plant Survey Reports and maps in the Revised Biological Resources Technical Report can be found in SCE's PEA Volume 6, Appendix G.

During Insignia's field surveys, botanists identified 20 of these potential 135 species as being within the BRSA and reported the others as "absent" (Table 9 of the Revised Biological Resources Technical Report [BRTR]). While "absent" appears to be an accurate conclusion for those species whose habitats and geographic ranges are entirely outside the BRSA, it does not accurately reflect potential for occurrence within the BRSA or within the Project footprint for many other species. BRTR Attachment 5.4-A (Special-Status Plants that Could Occur in the Project Vicinity) refines the potential for occurrence of all 135 species in consideration of the habitat and range of each species and the results of Insignia's pre-survey field research, seasonal rainfall preceding the surveys, and the survey dates themselves. The species observed in the BRSA and their locations are described in detail in MND Appendix D, and include the following:

- Abram's spurge (2B.2)
- Appressed muhly (2B.2)
- Clokey's cryptantha (1B.2)
- Cove's cassia (2B.2)
- Johnson's bee-hive cactus (2B.2)
- Matted cholla (2B.2)
- Mojave menodora (1B.2)
- Mojave milkweed (2B.1)
- Narrow-leaved yerba santa (2B.3)
- Parry's spurge (2B.3)
- Pink funnel lily (2B.2)
- Playa milk-vetch (2B.2)
- Rosy two-toned beardtongue (1B.2 and NV S2)
- Rusby's desert-mallow (1B.2)
- Salina Pass wild-rye (2B.3)
- Short-jointed beavertail (1B.2)
- Slender cottonheads (2B.2)
- Spiny cliff-brake (2B.3)
- Spiny-hair blazing star (2B.1)
- Yucca buckwheat (NV S3)

Similarly, 50 additional special-status plant species may be found within the project footprint during future surveys, depending on rainfall and other seasonal factors.

- Abert's sanvitalia (2B.2)
- Arizona cottontop (2B.3)
- Aven Nelson's phacelia (2B.3)
- Beaver dam breadroot (1B.2)
- Booth's evening primrose (2B.3)
- Burro grass (2B.3)
- Cima milk-vetch (1B.2)
- Clark Mountain spurge (2B.1)
- Creamy blazing star (1B.3)
- Darlington's blazing star (2B.2
- Desert beardtongue (2B.2)
- Desert pincushion (2B.1)
- Dwarf abutilon (2B.3)
- Glandular ditaxis (2B.1)
- Harwood's eriastrum (1B.3)
- Jackass-clover (2B.2)
- Juniper sulfur-flowered buckwheat (2B.3)
- Latimer's woodland-gilia (1B.2)
- Limestone beardtongue (1B.3)
- Lobed groundcherry (2B.3)
- Long-stem evening-primrose (2B.2)
- Mojave Desert plum (1B.2)
- Mojave monkeyflower (1B.2)
- Mormon needle grass (2B.3)
- Nevada onion (2B.3)
- Nine-awned pappus grass (2B.2)
- Orocopia Mountains spurge (1B.1)
- Plains flax (2B.3)
- Providence Mountains lotus (1B.3)
- Purple-nerve cymopterus (2B.2)
- Red four o'clock (2B.3)
- Reveal's buckwheat (2B.3)
- Rough menodora (2B.3)
- Roughstalk witch grass (2B.1)
- Sagebrush loeflingia
- Scaly cloak fern (2B.3)
- Scrub lotus (1B.3)
- Sky-blue phacelia (2B.3)
- Small-flowered bird's-beak (2B.3)
- Small-flowered sand-verbena (2B.3)
- Southern Mountains skullcap (1B.2)
- Spearleaf (2B.3)
- Stephens' beardtongue (1B.3)
- Sticky ringstem (S2 NV)
- Thorny milkwort (2B.3)
- Three-awned grama (2B.3)
- Utah beardtongue (2B.3)
- Utah daisy (2B.3)
- Violet twining snapdragon (2B.3)
- White-margined beardtongue (1B.1)

Special-Status Wildlife Species

A detailed project route map showing all tower numbers and work areas can be found in SCE's PEA Volume 5, Appendix E, Parts 1 and 2. Special-status wildlife surveys and maps in the Revised Biological Resources Technical Report can be found in SCE's PEA Volume 6 Appendix G.

Two special-status wildlife species were observed within or immediately adjacent to the BRSA during site visits for the Proposed Project:

- Desert bighorn sheep
- Desert tortoise

An additional ~~nine~~ eleven special-status wildlife species were not observed in surveys but are likely to occur within or immediately adjacent to the Proposed Project footprint. Summary descriptions of each of the following species are presented in MND Appendix D:

- Banded Gila monster
- Desert rosy boa
- Mojave fringe-toed lizard
- Loggerhead shrike
- Bendire's thrasher
- Golden eagle

- Western burrowing owl
- Pallid bat
- American badger
- Ringtail
- Desert kit fox

Following are summary descriptions of the wildlife species that are most likely to require protection during ELM Project construction. The specific potential habitat locations for these species along the Lugo-Mohave 500 kV Transmission Line project are presented in MND Appendix D.

Desert bighorn sheep. Desert bighorn sheep is a BLM sensitive species and Fully Protected species that inhabits rocky, steep, and open terrain encompassing plateaus and springs. It occurs in desert mountain ranges in eastern California, much of Nevada, northwestern Arizona, New Mexico, southern Utah, southern Colorado, and Mexico. Desert bighorn sheep graze on a wide variety of plants, especially green, succulent grasses and forbs. They are often found in herds that are dependent on their proximity to water during the summer and may disperse during the winter. Desert bighorn sheep are susceptible to livestock diseases, and entire herds may be lost to disease. They are also threatened by habitat loss and competition from feral ungulates and livestock for forage.

Within the BRSA, suitable habitat for desert bighorn sheep is limited to desert mountain ranges, including the Providence Mountains, the Dead Mountains, and the Newberry Mountains. Desert bighorn sheep were observed in 2016 within the BRSA in Nevada. In California, there are two recent CNDDB occurrence records within 0.25 miles of the BRSA. Desert bighorn sheep could occur in any of the mountainous or lower foothill portions of the ELM route.

Desert tortoise. The Mojave species of desert tortoise is federally and state listed as threatened. The species includes those animals living north and west of the Colorado River, primarily in the Mojave Desert of California and Nevada, with small portions of the range occurring in northwestern Arizona and southwestern Utah. Desert tortoise inhabits sandy flats, rocky foothills, alluvial fans, washes, and canyons with sandy or gravelly soils. Soils must be loose for den construction, but firm enough that dens do not collapse. Desert tortoise occurs at elevations ranging from below sea level to 7,300 feet, but most optimal habitat exists between 1,000 and 3,000 feet. Desert tortoises could occur nearly anywhere along the ELM route, excluding urbanized areas. Fourteen live desert tortoises were observed within the BRSA during protocol-level surveys in October 2016. These observations were documented in Clipper Valley, the Dead Mountains, and in the vicinity of the Kelso Dunes. All tortoises were observed north of I-40.

Banded Gila monster. The banded Gila monster is a BLM sensitive species, a California Species of Special Concern, and a Nevada Protected Reptile. The banded Gila monster inhabits rocky crevices and steep canyons associated with high-elevation desert mountain ranges. It utilizes desert washes and associated riparian vegetation for foraging, where it feeds on young mammals, birds, reptiles, and eggs. Banded Gila monster generally winters at more elevated locations on rocky slopes, and spends summers in adjacent valleys or bajadas. Banded Gila monsters face some pressure from habitat loss, due to their restrictive habitat needs.

Suitable habitat for banded Gila monster, coinciding with recent CNDDB or NNHP occurrence records, is found in the Providence Mountains (California), Highland Range (Nevada), and Newberry Mountains (Nevada).

Mojave fringe-toed lizard. Mojave fringe-toed lizard is a BLM sensitive species and a California Species of Special Concern. It is known almost exclusively from California, primarily in San Bernardino and eastern Riverside Counties, but is also found to the north in southeastern Inyo County and historically to the

west in northeastern Los Angeles County in California and in La Paz County in Arizona. Mojave fringe-toed lizard is found in arid, sandy, sparsely vegetated habitats. Sand dunes and sand fields are its primary habitat, although it can also be found on the margins of dry lakebeds and washes, and in or around isolated sand pockets against hillsides or at the margins of more extensive windblown sand systems. At a minimum, it requires scattered patches of fine, loose, windblown sand, into which it burrows to avoid predators and to thermoregulate. It has been documented in the CNDDB within 0.25 miles of the BRSA in California. Suitable habitat for Mojave fringe-toed lizard is located within the Project area in California, including large dune or sandfield systems at the Kelso Dunes. Additionally, suitable habitat is found in smaller, scattered areas of windblown sand and adjacent shrublands where sand accumulates. Mojave fringe-toed lizard may occur in or near any suitable windblown sand habitat within its geographic range along the ELM route.

Desert rosy boa. Desert rosy boas occur in rocky shrublands from sea level to about 6700 feet elevation, throughout most of the Mojave Desert and much of the Sonoran Desert, eastward into Nevada and Arizona. They are active during warm seasons, mostly nocturnally. The rosy boa is a protected species in Nevada. It has been recognized as a "special animal" in California but it is no longer included in the CDFW Special Animals compendium. It has no formal status under state or federal Endangered Species Acts.

Loggerhead shrike. Loggerhead shrike is a California Species of Special Concern and a USFWS bird of conservation concern. It is an uncommon year-round resident throughout most of the southern portion of its range, including southern California. In southern California, loggerhead shrikes are generally much more common in interior desert regions than along the coast. In the Mojave Desert it appears to be most numerous in flat or gently sloping foothills and bajadas, especially along the eastern slopes of mountainous areas. Loggerhead shrike begins breeding in February and may continue with raising a second brood as late as July. Loggerhead shrike inhabits lowland, open habitat types, including creosote scrub and other desert habitats, sage scrub, non-native grasslands, chaparral, riparian, croplands, and areas characterized by open scattered trees and shrubs. Fences, posts, or other potential perches are typically present. It feeds on large insects, small birds, amphibians, reptiles, and small rodents over open ground within areas of short vegetation, usually by impaling prey on thorns, wire barbs, or sharp twigs to cache for later feeding. Suitable habitat for loggerhead shrike occurs throughout the scrub habitats within the project area and they have been observed during surveys for adjacent projects. They may occur anywhere along the project route, except perhaps the higher elevation mountain sites.

Bendire's thrasher. Bendire's thrasher is a BLM sensitive species, a USFWS bird of conservation concern, and a California Species of Special Concern. In California, Bendire's thrasher is known from scattered locations in Kern, Inyo, San Bernardino, and Riverside Counties, and with one occurrence in San Diego County. Bendire's thrasher inhabits open grassland, desert scrub, shrubland, or woodland with scattered trees. It is closely associated with plants of the *Yucca* and *Opuntia* genera, and it selectively occupies areas with higher densities of these plants. Bendire's thrasher typically avoids rocky outcrops or areas with steep slopes, apparently favoring flat areas with densely packed dirt. It forages mainly on the ground, feeding on arthropods, seeds, and berries. This species is known to inhabit elevations from 1,900 to 5,800 feet, but mostly occurs between 3,100 and 5,000 feet.

Golden eagle. Golden eagle is a BLM sensitive species and a USFWS bird of conservation concern. It is federally protected under the Bald and Golden Eagle Protection Act (BGEPA) and is a fully protected species by the State of California. Golden eagle is a year-round resident throughout most of its range in the western U.S., including the project region. In the southwest, it is more common during winter when eagles that nest in Canada migrate south into the region. It breeds from late January through August,

mainly during late winter and early spring in the California deserts. In the desert, nests are typically in steep, rugged terrain, often on sites with overhanging ledges, cliffs, or large trees that are used as cover. Golden eagles have also been documented nesting on transmission line towers. The golden eagle prefers mountainous or hilly terrain, and hunts over open spaces for small mammals, snakes, birds, and some carrion. It may vacate hot deserts during the summer months to nest in desert mountains, then return to winter in basin areas. In the desert, an individual's territory may extend as far as 119 square miles.

Suitable foraging habitat for the golden eagle is present throughout the Proposed Project area in California and Nevada. Nesting habitat is present within mountainous and hilly areas, and possibly also on transmission towers, as indicated by recent and historic CNDDB and NNHP records of nests within 5 miles of the Proposed Project area. The entire Proposed Project area is located within suitable habitat, with the exception of urbanized areas that would lack a prey base.

Wide-ranging Raptors. In addition to golden eagle, several special-status wide-ranging or migratory raptors could occasionally fly over the Project area. These could include Swainson's hawk, peregrine falcon, and bald eagle. The site is outside the nesting range and/or provides no suitable nesting habitat for these species. They are not expected to nest in the Project vicinity and would be foraging in the vicinity only during brief seasonal overflights.

Western burrowing owl. Western burrowing owl is a BLM sensitive species and a California Species of Special Concern. It is found across the Mojave and Colorado deserts of Inyo, eastern Kern, northern Los Angeles, San Bernardino, eastern Riverside, eastern San Diego, and Imperial Counties. Burrow sites occur in open, dry annual or perennial grasslands, deserts, and scrublands with low-growing vegetation. It nests in burrows that are often dug by small mammals, typically those of the California ground squirrel (*Otospermophilus beecheyi*). It can also occur in open areas of farmland, levee banks, and other disturbed or managed habitats where burrows or burrow-like refuges (e.g., small-diameter pipes, rock piles with voids, or similar hollow spaces) are present. It breeds from February 1 through August 30. Young are capable of full flight at six weeks of age and are fed by parents for approximately one year. Western burrowing owl is generally found at elevations from 200 to 5,000 feet.

The Project area is located within the breeding range of western burrowing owl in California and Nevada. Suitable habitat is present throughout the BRSA, and recent CNDDB occurrences were documented within 5 miles of the BRSA in California. An active burrow was incidentally observed near the BRSA near the community of Ludlow during special-status plant surveys conducted in the spring of 2016. Burrowing owl surveys were conducted in 2018.

Pallid bat. The pallid bat is a BLM sensitive species, a California Species of Special Concern, and a Nevada Protected Mammal. The pallid bat inhabits low desert shrublands, juniper woodlands, grasslands, and cottonwood-riparian zones through western North America. It is generally found at elevations between 100 and 7,000 feet. It needs open, dry areas with rocky areas for roosting. Pallid bat may also roost in abandoned, man-made structures.

Suitable roosting habitat for the pallid bat is distributed throughout the Proposed Project area in California and Nevada in the many rocky areas and mineshafts. The abundance of open, dry areas surrounding the rocky areas provide ample foraging habitat throughout the Proposed Project area, as well. Due to the large range size of this species, the entire Proposed Project area is located within suitable habitat for the species, with the exception of disturbed and developed areas that would lack a prey base.

American badger. American badger is a California Species of Special Concern that occupies open, uncultivated habitats. It occurs primarily in grasslands, parklands, farms, and other treeless areas with friable

soil and a supply of rodent prey. It is also found in forest glades and meadows, marshes, brushy areas, hot deserts, and mountain meadows. It is sometimes found at elevations up to 12,000 feet, but is usually found at elevations lower and warmer than those characterized by coniferous forests. American badgers are occasionally found in open chaparral (with less than 50-percent plant cover) and riparian zones. American badgers create burrows for sleeping and concealment, protection from weather, and natal dens. Burrows typically range from 4 to 10 feet in depth and 4 to 6 feet in width. Breeding generally occurs between December and February, and cubs are born between March and April.

The proposed project is located within the range of American badger. Suitable habitat occurs throughout the project area, and recent occurrences have been documented within 5 miles of the BRSA in California.

Ringtail. The ringtail is fully protected in California. Suitable habitat for ringtail is forest and shrubland with rocky areas, usually near permanent water and riparian areas. It could occur anywhere along the project alignment, particularly in steep rocky shrubland habitats, where springs, seeps, or anthropogenic water sources may provide drinking water. Ringtails den and rear their cubs in rock crevices, hollow logs, abandoned burrows, or woodrat middens.

Desert kit fox. The desert kit fox is protected under Title 14 of the California Code of Regulations § 460 which prohibits the take of certain furbearing mammals. It is found throughout the Mojave and Colorado Deserts in California and occupies desert scrub habitat. The desert kit fox inhabits desert habitat where there is an abundance of small mammals, its main food source. It lives in burrows and burrow complexes and requires soils with appropriate composition for burrow construction. Desert kit fox is nocturnal and generally forages within a few miles of its den. Desert kit fox is generally found at elevations of 1,300 feet to 6,000 feet. Suitable habitat for desert kit fox occurs throughout the project area.

Critical Habitat

Under the ESA, and to the extent prudent and determinable, the USFWS is required to designate critical habitat for endangered and threatened species (16 USC § 1533 [a][3]). Critical habitat is defined as areas of land, water, and airspace containing the physical and biological features essential for the survival and recovery of endangered and threatened species. Designated critical habitat includes sites for breeding and rearing, movement or migration, feeding, roosting, cover, and shelter. The critical habitat designation delineates all suitable habitat, occupied or not, that is essential to the survival and recovery of the species.

Approximately 67 acres of the project footprint areas are located in designated critical habitat for desert tortoise. Between the Barstow Repeater site (northeast of Lucerne Valley) and I-40, the route crosses desert tortoise critical habitat in two sections of ROW. The majority of the Mojave National Preserve crossed by the Lugo-Mohave 500 kV Transmission Line is designated as critical desert tortoise habitat and most of the Eldorado-Mohave 500 kV Transmission Line ROW in Nevada also is within critical habitat.

Critical habitat for the following six additional species is located within 5 miles of the Proposed Project route, but not within the BRSA or the Project footprint. Moreover, no suitable habitat for these species is found within the BRSA or the Project footprint:

- Cushenbury buckwheat
- Cushenbury oxytheca
- Arroyo toad
- Razorback sucker

- Bonytail chub
- Southwest willow flycatcher

Other special-status wildlife species with potential to occur within or adjacent to the Project area, along with the ones listed above, are presented in BRTR Attachment 5.4-B (Special-status Wildlife that Could Occur in the Project Vicinity).

Wildlife Corridors

Wildlife corridors are defined as areas that connect suitable habitat for a species in a region otherwise fragmented by rugged terrain, changes in vegetation, or human disturbance. Natural features (e.g., canyon drainages, ridgelines, or areas with vegetation cover) provide corridors for wildlife travel. Wildlife corridors are important because they provide access to mates, food, and water; allow the dispersal of individuals away from high-population-density areas; and facilitate gene flow between populations. Wildlife corridors are considered sensitive by resource and conservation agencies. No specific wildlife corridors are identified along the Project route, although wildlife are expected to move freely throughout the area, beneath the existing transmission lines.

Jurisdictional Waters

With the exception of the Mojave River and several smaller intermittent streams, streams on the ELM Project route consist of ephemeral dry washes that carry water for short periods of time as the result of seasonal precipitation.

Major drainages crossed by the ELM Project route include the Mojave River, Budweiser Wash, and Piute Wash. Within the vicinity of Lugo Substation, water generally flows from south to northeast, toward the Mojave River, and from there to isolated basins in the interior of the Mojave. Near Mohave Substation, water flows from west to east, toward the Colorado River. In the vicinity of Eldorado Substation, water generally flows from southwest to northeast and into the Eldorado Dry Lake.

In 2016 and 2017, Insignia biologists delineated water features in the BRSA that are potentially under the jurisdiction of the USACE, SWRCB, NDEP, and CDFW. A total of 588 water features were mapped. This included 582 ephemeral drainages and five intermittent drainages. No perennial streams occurred within the BRSA. One wetland was also delineated, measuring approximately 0.2 acres. CDFW-jurisdictional riparian vegetation was also mapped within the BRSA.

5.4.2 Regulatory Background

State and Local

California

California Endangered Species Act (CESA; Fish and Game Code Section 2050 et seq.). The CESA prohibits take of state-listed threatened or endangered species, or candidates for listing, except as authorized by the CDFW. Authorization may be issued as an Incidental Take Permit or, for species listed under both CESA and the federal ESA, through a Consistency Determination with the federal incidental take authorization.

Fully Protected Designations (Fish and Game Code Sections 3511, 4700, 5050, and 5515). The California Fish and Game Code designates 36 fish and wildlife species as "fully protected" from take, including hunting, harvesting, and other activities. The CDFW may only authorize take of designated fully protected species through a Natural Community Conservation Plan (NCCP) or for necessary scientific research.

Birds (Fish and Game Code Sections 3503, 3503.5, and 3513). The California Fish and Game Code prohibits take, possession, or needless destruction of bird nests or eggs except as otherwise provided by the code. Section 3513 provides for the adoption of the MBTA's provisions (above).

Protected Furbearers (California Code of Regulations Title 14 Section 460). Specifies that several furbearing mammals, including desert kit fox, may not be taken at any time. The CDFW may permit capture or handing of these species for scientific research but does not issue Incidental Take Permits for other purposes.

Native Plant Protection Act (Fish and Game Code Sections 1900-1913). Prior to enactment of CESA and the federal ESA, California adopted the Native Plant Protection Act (NPPA). The CESA (above) generally replaces the NPPA for plants originally listed as endangered under the NPPA. However, plants originally listed as rare retain that designation, and take is regulated under provisions of the NPPA. The California Fish and Game Commission adopted revisions to the NPPA allowing CDFW to issue incidental take authorization for listed rare plants, effective January 1, 2015.

Lake and Streambed Alteration (Fish and Game Code Sections 1600 1616). The CDFW regulates project activities that would divert, obstruct or change the natural flow, bed, channel, or bank of any river, stream, or lake.

Porter-Cologne Water Quality Control Act of 1969 (California Water Code Sections 13000 et seq.). This Act provides Regional Water Quality Control Boards (RWQCBs) regulation of Waters of the State including State coordination with the Clean Water Act where federally jurisdictional waters are present. The Project site is within the Colorado River RWQCB area.

Nevada

Nevada Revised Statutes Section 527.260-527.300. This statute section protects native plant species that are threatened by extinction with fully protected status. These species may only be removed under special permit issued by the State Forester Fire Warden.

Nevada Revised Statutes Section 503.585. NRS Section 503.585 requires a special purpose permit from the NDOW for the capture, removal, or destruction of any State-listed wildlife species. The special purpose permit specifies the relocation methods required on a project site.

Nevada Revised Statutes Chapter 445A. NRS Chapter 445A requires permits for discharges of any pollutant, including dredged soil and biological material, into any water of the State. A general permit is available for all projects that involve similar categories of discharges as previous projects. Individual permits may be granted if a proposed project does not fall within the parameters of the general permit.

Nevada Administration Code 503. The Nevada Administrative Code (NAC) 503 establishes the State's list of endangered, threatened, sensitive, and protected species. A permit issued by the Nevada Department of Wildlife (NDOW) is required to handle, move, or temporarily possess any wildlife species classified as endangered, threatened, sensitive, or protected.

Local

The CPUC has sole and exclusive jurisdiction over the siting and design of the Proposed Project components located in the State of California. Pursuant to CPUC G.O. 131-D, Section XIV.B, "Local jurisdictions acting pursuant to local authority are preempted from regulating electric power line projects, distribution lines, substations, or electric facilities constructed by public utilities subject to the CPUC's jurisdiction. However, in locating such projects, the public utilities shall consult with local agencies regarding

land use matters." Consequently, public utilities are directed to consider local regulations and consult with local agencies, but the county and cities' regulations are not applicable as the county and cities do not have jurisdiction over the Proposed Project. For informational purposes, local regulations in California jurisdictions are provided in Appendix C. The Proposed Project is subject to local regulations in the State of Nevada.

Clark County Comprehensive Plan. The Conservation and Open Space Element contains the following policies that are relevant to biological resources for the Proposed Project:

- Land Conservation Policy 3: Encourage preservation and protection of washes and waterways.
- Species Protection Policy 1: Encroachment upon endangered species habitats and unique biological resource areas should be avoided or mitigated.
- Species Protection Policy 3: Clark County and Federal agencies should coordinate land uses and disposals near federally designated management areas to reduce environmental and habitat impacts within protected areas.
- Species Protection Policy 4: Protect existing threatened or endangered species and those species that may be listed under the provisions of the Federal Endangered Species Act.
- Species Protection Policy 5: Throughout the 30-year term of the permit, Clark County will administer and maintain Permit TE 034927-0 for the Clark County Multiple Species Habitat Conservation Plan (MSHCP), under Section 10(a)1(B) of the Endangered Species Act of 1973.
- Water Quality Policy 8: Actively pursue efforts to ensure the quality of water entering the Colorado River.

Clark County Code of Ordinances, Chapter 30.32.050, Incidental Take Permit. Compliance with Endangered Species Act, details the process required by developers to comply with the Clark County Multiple Species HCP (MSHCP).

Clark County Multiple Species Habitat Conservation Plan. Provides federal ESA Section 10 incidental take authorization for qualifying activities; requires specific protective measures by permittee agencies. Applicable on BLM lands outside the utility corridor ROW and on non-federal lands in Nevada.

- Limit motorized use in the Eldorado/Piute "Conserved Habitat" to designated trails.
- Protect snags as important ecological features.
- Work with the Nevada Power Company and other utilities to modify existing power line towers or poles to meet BLM standards for the prevention of raptor mortality.
- Protect key nesting areas, migration routes, important prey base areas, and concentration areas for birds of prey on public lands through the mitigation of activities during National Environmental Policy Act compliance.
- Limit the construction of new roads for the development of utility lines within special status species habitat.
- Protect important resting/nesting habitat, such as riparian areas and mesquite/acacia woodlands. Do not allow projects that may adversely impact the water table supporting these plant communities.
- Within desert tortoise critical habitat, require reclamation of activities that result in loss or degradation of habitat, with habitat to be reclaimed to pre-disturbance condition.

- During development of all activity plans, give special attention to protecting riparian zones as wildlife habitat and to protecting associated native wildlife.
- Prohibit collection or harassment of any wildlife in Nevada State Parks.
- Prohibit unconstrained pets or domestic animals in Nevada State Parks.

Clark County Laughlin Land Use Plan. The Natural Environment Section Policy 39.4 encourages preservation of natural washes and unlined channels to an extent practical and consistent with the need for flood protection, erosion control, and water quality. Policy 39.6 encourages the preservation of natural washes and waterways. The Conservation Areas Section Goal 44 encourages the conservation of wilderness and preservation lands.

South Clark County Land Use Plan. The Natural Environment Section Policy 46.4 encourages preservation of natural washes and unlined channels to an extent practical and consistent with the need for flood protection, erosion control, and water quality. The Conservation section encourages preservation and protection of washes and waterways and buffering of environmentally sensitive lands with adjacent low intensity uses, among other goals.

City of Boulder City Master Plan. The Conservation and Open Space Elements of the Boulder City Master Plan include the following relevant policies: NRC 5, continue to preserve, wherever possible, natural habitat for wildlife and plants native to the region through compliance with the Clark County Multiple Species Habitat Conservation Plan, and NRC 9, continue to work with the Regional Flood Control District to ensure that future development projects provide multi-purpose flood control systems.

City of Boulder City – City Code. Chapter 43 requires that development comply with the Clark County MSHCP. Chapter 40 of prohibits the alteration of natural floodplains, stream channels, and natural protective barriers, which help channel flood waters and sediments.

Federal

Federal – Applicable in California and Nevada

Federal Land Policy and Management Act (FLPMA; 43 USC Sections 1701-1787). FLPMA directs management of public lands managed by the U.S. Forest Service, National Park Service, and BLM; it addresses land use planning, rights-of-way, wilderness, and multiple use policies. The Act provides a regulatory framework for land management and establishes the authority of the BLM to grant rights-of-way for generation, transmission, and distribution of electrical energy. The FLPMA also gives authority to the BLM to manage sensitive species on BLM lands.

Endangered Species Act (ESA) of 1973, USC, Title 16, Sections 1531 through 1543. The EAS establishes requirements for the conservation of endangered and threatened species and the ecosystems upon which they depend. Section 9 of the ESA prohibits the taking of ESA-listed wildlife and lists prohibited actions. The ESA defines take as "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in such conduct" (50 *Code of Federal Regulations* [CFR] 17.3). The ESA also governs the removal, possession, malicious damage, or destruction of endangered plants on federal land. Taking is allowed only when incidental to an otherwise legal activity through the ESA Section 7 process for federal agencies and through the ESA Section 10 habitat conservation plan process for private entities.

Migratory Bird Treaty Act (MBTA; 16 USC Sections 703-711). The MBTA prohibits take of any migratory bird, including eggs or active nests, except as permitted by regulation (e.g., licensed hunting of waterfowl or upland game species). Under the MBTA, "migratory bird" is broadly defined as "any species or

family of birds that live, reproduce or migrate within or across international borders at some point during their annual life cycle" and thus applies to most native bird species. The U.S. Department of Interior has recently issued a solicitor's opinion interpreting the MBTA prohibitions as being inapplicable to "incidental take."

Bald and Golden Eagle Protection Act (BGEPA; 16 USC Section 668). The BGEPA prohibits the take, possession, and commerce of bald eagles and golden eagles. Under the BGEPA and subsequent rules published by the USFWS, "take" may include actions that injure an eagle or affect reproductive success (productivity) by substantially interfering with normal behavior or causing nest abandonment. The USFWS can authorize incidental take of bald and golden eagles for otherwise lawful activities.

Desert Tortoise Recovery Plan and Critical Habitat Designation. This plan and designation establish a strategy for the recovery and eventual delisting of the desert tortoise. It establishes five recovery units that cover the entire range of the desert tortoise. It also delineates 12 Critical Habitat Units established by the USFWS. The ELM Project route crosses the Colorado Desert, Western Mojave, and Eastern Mojave Recovery Units and is partly located in critical habitat. The plan outlines specific restoration and revegetation standards

Clean Water Act. (33 USC 1251 et seq.). the CWA establishes requirements for the restoration and maintenance of the chemical, physical, and biological integrity of the nation's waters.

Section 401. Requires that an applicant for a federal license or permit that allows activities resulting in a discharge to waters of the United States must obtain a State certification that the discharge complies with other provisions of the Clean Water Act. The Regional Water Quality Control Boards (RWQCBs) administer the certification program in California.

Section 404. Establishes a permit program administered by the U.S. Army Corps of Engineers (USACE) regulating the discharge of dredged or fill material into waters of the United States, including wetlands. Implementing regulations by the USACE are found at 33 CFR Parts 320-330. Guidelines for implementation are referred to as the Section 404(b)(1) Guidelines and were developed by the EPA in conjunction with the USACE (40 CFR Parts 230). The Guidelines allow the discharge of dredged or fill material into the aquatic system only if there is no practicable alternative that would have less adverse impacts.

Invasive Species, Executive Order 13112 (February 3, 1999). Executive Order (EO) 13112 directs federal agencies to prevent and control the spread of invasive plants and animals, and avoid direct or indirect impacts whenever there is a practicable alternative.

Executive Order 13186, Responsibilities of Federal Agencies to Protect Migratory Birds. This EO directs federal agencies to review the effects of actions and agency plans on migratory birds according to NEPA or other established environmental review processes, with emphasis on species of concern (Section 6 of the order) and identify unintentional take reasonably attributable to agency actions, focusing first on species of concern, priority habitats, and key risk factors and to develop and use principles, standards, and practices to lessen the amount of unintentional take (Section 9).

Plant Protection Act of 2000. This Act prevents importation, exportation, and spread of pests that are injurious to plants, and provides for the certification of plants and the control and eradication of plant pests. The Act consolidates requirements previously contained within multiple federal regulations including the Federal Noxious Weed Act, the Plant Quarantine Act, and the Federal Plant Pest Act.

Federal – Applicable in California

California Desert Conservation Area Plan, As Amended (CDCA Plan). The CDCA Plan guides the management of approximately 12 million acres of BLM-administered lands in the California Desert District, including the Mojave, Sonoran, and a small portion of the Great Basin Deserts. BLM lands within the Project area in California are within the CDCA Plan Area. The CDCA Plan directs management policy for multiple resources, including wildlife and vegetation.

Desert Renewable Energy Conservation Plan (DRECP), Land Use Plan Amendment to the CDCA. The purpose of the DRECP is to conserve and manage plant and wildlife communities in the desert regions of California while facilitating the timely permitting of compatible renewable energy projects. The DRECP covers over 10 million acres of BLM land. The BLM Record of Decision (ROD) for the DRECP was issued in September 2016.

Mojave National Preserve General Management Plan. This plan seeks to perpetuate native plant life as critical components of the Mojave Desert ecosystem within the MNP. Specifically, it allows the manipulation of plant and plant communities only when necessary and requires that all disturbed vegetation be restored to pre-disturbance conditions. This plan also seeks to identify, inventory, and promote conservation for any plant, as well as USFWS-designated critical habitat for any ESA-listed species or State- and locally listed threatened, endangered, rare, or candidate species. Outlines specific management policies and goals for desert tortoise and desert bighorn sheep, as follows:

- Management of trash and litter that may attract common ravens;
- Prohibition of surface disturbance, unless it is appropriately restored or mitigated;
- No new roads will be constructed in desert tortoise critical habitat;
- ROWs and easements will be reduced on MNP lands;
- Holders of ROWs and easements may be required to install tortoise fencing through critical habitat;
- An active restoration program will be established on previously disturbed lands.

5.4.3 Applicant Proposed Measures

SCE proposes 8 APMs regarding Biological Resources:

APM BIO-01: Revegetation Plan. [Superseded by Mitigation Measure BR-4.] To the extent feasible, SCE would minimize temporary impacts and permanent loss to sensitive natural vegetation communities and special-status plants. Impacts would be minimized at construction sites by clearly demarcating work areas and flagging resources to be avoided. If unable to avoid impacts to sensitive natural vegetation communities and special-status plants, a revegetation plan would be prepared in coordination with the applicable agencies. The revegetation plan would describe, at a minimum, which vegetation restoration method (e.g., natural revegetation, planting, or reseeding with native seed stock in compliance with the Proposed Project's SWPPPs) would be implemented in the Proposed Project area. The revegetation plan would also include the plant species or habitats to be restored or revegetated, the replacement or restoration ratios (as appropriate), the restoration methods and techniques, and the monitoring periods and success criteria.

APM BIO-02: Special-Status Plant Species Protection. [Superseded by Mitigation Measure BR-6.] Prior to construction and during the appropriate phenological (i.e., blooming) periods, a qualified biologist would flag the locations of any special-status plants present within a work area. These flagged areas would be avoided to the extent possible and monitored by a qualified biologist during construction activities. Where disturbance to these areas cannot be avoided, SCE would develop and implement a

revegetation plan (APM BIO-01). Weed species would be removed, where necessary, from areas to be revegetated to ensure successful revegetation to pre-construction conditions.

APM BIO-03: Noxious and Invasive Weed Management Plan. [Superseded by Mitigation Measure BR-5.] Prior to construction, SCE would prepare a Noxious and Invasive Weed Management Plan (NIWMP) that is intended to minimize the spread of noxious and invasive weeds during construction. The NIWMP would include, but would not be limited to, ensuring that construction (earth-moving or ground-disturbing) vehicles arrive to work sites clean and weed-free prior to entering the ROW in cross-country areas, ensuring straw wattles used to contain stormwater runoff are weed-free, and documenting the extent of noxious weeds within the construction areas prior to construction. Noxious weeds are defined as species rated as High on the California Invasive Plant Inventory Database, published by the California Invasive Plant Council. Construction within urban/developed areas and intensive agricultural areas would be exempt from the NIWMP requirements.

APM BIO-04: Desert Tortoise Protection. [Superseded by Mitigation Measure BR-9.] The following list of measures is designed to avoid and minimize impacts to desert tortoise and would apply to all construction activities in areas with the potential to support the species:

1. Pre-activity Surveys: No more than seven days prior to the onset of ground-disturbing activities, an agency-approved biologist — with experience monitoring and handling desert tortoise — would conduct a pre-activity survey in all work areas within potential desert tortoise habitat, plus an approximately 300-foot buffer. All desert tortoise burrows within the pre-activity survey area (including desert tortoise pallets) would be prominently flagged at that time so that they may be avoided during work activities. Proposed actions would avoid disturbing desert tortoise burrows to the extent possible. However, burrows would be excavated if they would be impacted by construction activities. If a potential tortoise burrow must be excavated, the biologist would proceed according to the Desert Tortoise Council's Guidelines for Handling Desert Tortoise during Construction Projects.
2. Monitoring: The approved tortoise biologist would be available on site to monitor any work areas for desert tortoise, as needed. The approved tortoise biologist would be responsible for performing surveys prior to Proposed Project activities in suitable desert tortoise habitat. The approved tortoise biologist would have the authority to halt all non-emergency actions (as soon as safely possible) that may result in harm to desert tortoise and would assist in the overall implementation of APMs for the tortoise.
3. Desert Tortoise in Work Area: In the event that a desert tortoise is encountered in the work area, all work would cease, and the approved biologist would be contacted. Work would not commence until the animal has voluntarily moved to a safe distance away from the work area. Desert tortoises may be moved by an agency-approved biologist if necessary, to move them out of harm's way. Encounters with desert tortoise would be reported to an approved biologist. Encounters with desert tortoise would be documented and provided to the California Department of Fish and Wildlife (CDFW), BLM, and U.S. Fish and Wildlife Service (USFWS). In the event that a dead or injured desert tortoise is observed, the approved biologist would be responsible for notifying SCE's herpetologist and reporting the incident to the CDFW, BLM, and USFWS.
4. Under Vehicle Checks: Desert tortoises commonly seek shade during the hottest times of the day. Employees working within the geographic range of this species would be required to check under their equipment or vehicles before they are moved. If desert tortoises are encountered, the vehicle is not to be moved until the animals have voluntarily moved to a safe distance away from the parked vehicle. Desert tortoises may be moved by the approved biologist, if necessary, to move them out of harm's way.

5. Handling Desert Tortoise: Only an agency-approved biologist may move or handle desert tortoises. When a desert tortoise is moved, the approved biologist would be responsible for taking appropriate measures to ensure that the animal is not exposed to harmful temperature extremes. The approved biologist would follow the appropriate protocols outlined in the Desert Tortoise Council's Guidelines for Handling Desert Tortoises During Construction Projects when handling desert tortoises or excavating their burrows.
6. Excavation of Desert Tortoise Burrows: Should it prove necessary to excavate a desert tortoise from its burrow to move it out of harm's way, excavation would be done using hand tools, either by or under the direct supervision of an approved biologist. Excavation of desert tortoise burrows would occur no more than seven days before the onset of construction or O&M activities. All desert tortoises removed from burrows would be placed in an unoccupied burrow that is approximately the same size as the one from which it was removed. If an existing burrow is unavailable, the approved biologist would construct or direct the construction of a burrow of similar shape, size, depth, and orientation as the original burrow. To ensure their safety, desert tortoises moved during inactive periods would be monitored for at least two days after placement in the new burrows or until the end of the construction activity.

   If desert tortoises need to be moved at a time of day when ambient temperatures could harm them (i.e., at temperatures lower than 40 degrees Fahrenheit (°F) or higher than 90°F), they would be held overnight in a clean cardboard box. These desert tortoises would be kept in the care of the approved biologist under appropriate controlled temperatures and released the following day when temperatures are favorable. All cardboard boxes would be appropriately discarded after one use.
7. Disposal of Trash: Trash and food items would be contained in closed containers and removed daily to reduce attractiveness to opportunistic predators, such as common ravens (Corvus corax), coyotes (Canis latrans), and feral dogs (Canis lupus familiaris).
8. Pets Prohibited: Employees would not bring pets to the Proposed Project area.
9. Vehicle Travel: Motor vehicles would be limited to maintained roads and designated routes. If additional routes are needed, they would be surveyed by the approved biologist.
10. Raven Management: SCE would implement a Raven Management Plan (RMP) to minimize avian predation of desert tortoise for the Proposed Project. The purpose of the RMP is to utilize methods that deter raven depredation of juvenile desert tortoises, and other wildlife species. The RMP is not intended to eliminate or control raven populations but would target offending ravens that have been found to prey upon desert tortoises. The RMP would incorporate an adaptive management strategy for immediate implementation following construction of the Proposed Project. The RMP would be evaluated after three years of implementation, or as needed, if avian predation becomes apparent. The following activities may be implemented as part of the RMP: (1) Common raven nest/power line monitoring, (2) Funding of offending raven control via contract with the U.S. Department of Agriculture, and (3) Alternative control strategies developed in coordination with USFWS (e.g. egg-oiling, laser deterrents, etc.). Mutual and timely cooperation between SCE and the BLM, USFWS, and CDFW is central to effective implementation of the RMP.

APM BIO-05: Compensation for Impacts to Desert Tortoise Critical Habitat. [Superseded by Mitigation Measure BR-8.] Compensation for temporary and permanent impacts to desert tortoise habitat disturbance is proposed at the following ratios:

- A 5-to-1 ratio for impacts to desert tortoise critical habitat.
- A 1-to-1 ratio for impacts to desert tortoise habitat, excluding critical habitat.

No compensatory mitigation is required for disturbed areas (i.e., totally denuded, mostly denuded with scattered shrub-like vegetation, active agricultural, residential, and urban) that provide no habitat value to the species. Although much of the desert tortoise habitat disturbance resulting from Proposed Project activities would be temporary, compensatory mitigation would be provided at a permanent ratio due to the slow recovery time of habitats in desert ecosystems. No mitigation would occur for impacts to developed land within the Proposed Project area.

APM BIO-06: Nesting Birds. [Superseded by Mitigation Measure BR-10.] SCE would conduct pre-construction clearance surveys no more than seven days prior to construction to determine the location of nesting birds and territories, during the nesting bird season (typically February 1 to August 31, or earlier for species such as raptors). An avian biologist would establish a buffer area around active nest(s) and would monitor the effects of construction activities to prevent failure of the active nest. The buffer would be established based on construction activities, potential noise disturbance levels, and behavior of the species. Monitoring of construction activities that have the potential to affect active nest(s) would continue until the adjacent construction activities are completed or until the nest is no longer active.

APM BIO-07: Western Burrowing Owl (*Athene cunicularia*) Protection. [Superseded by Mitigation Measure BR-11.] Pre-construction burrowing owl surveys would be conducted within suitable habitat in accordance with Appendix D of the Staff Report on Burrowing Owl Mitigation (CDFW, 2012). Prior to construction activities SCE would prepare a survey report in accordance with the requirements of the staff report. If a breeding territory or nest is confirmed, the CDFW would be notified and SCE would avoid impacts to burrowing owl to the extent feasible. If unavoidable impacts to western burrowing owl are anticipated, SCE would implement mitigation methods as outlined in the staff report and in coordination with the CDFW.

APM BIO-08: Compensation for Permanent Impacts to Jurisdictional Water Resources. All necessary authorizations must be obtained from the applicable jurisdictional agencies for impacts to aquatic resources. Permanent impacts to all jurisdictional water resources would be compensated for at a one-to-one ratio, or as agreed upon with the U.S. Army Corps of Engineers, State Water Resources Control Board, NDEP, and CDFW.

5.4.4 CEQA Significance Criteria

The significance criteria for biological resources impacts are based on the questions included in Appendix G of the California Environmental Quality Act Guidelines, which provides guidance on assessing whether a project would have significant impacts on the environment. Consistent with Appendix G, the Proposed Project would have significant impacts on biological resources if it would:

a. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service. [2]

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

[2] Because of the broad coverage of significance criterion a, impacts are addressed in the MND in several categories, allowing separate analysis of the following: (1) reduction of habitat, (2) effects on special-status plants, and (3) effects on special-status wildlife, including nesting birds.

c. Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means

d. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.

e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.

f. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or State habitat conservation plan?

5.4.5 Methodology

SCE's consultant, Insignia Environmental (Insignia) collected biological resources data for the Proposed Project's BRSA (described in Section 5.4.1, Environmental Setting, under subheadings Regional Setting, Vegetation Communities, and Special-Status Plants and Wildlife) to evaluate and inventory biological resources. Background resources data were obtained through a literature review of aerial photographs, U.S. Geological Survey (USGS) topographic maps, USFWS National Wetland Inventory maps (USFWS, 2016); survey reports for the Proposed Project, and literature and database searches. In addition, Insignia conducted field visits including a habitat assessment, vegetation community mapping, special-status plant and wildlife surveys, and jurisdictional delineations of wetlands and waters to assess biological and aquatic resources in the BRSA.

Special-status plant surveys were conducted in two passes during the spring of 2016 on approximately 2,511 acres of the BRSA. Between October 2015 and May 2016, the Mojave Desert experienced approximately 64 percent of its average rainfall, which is around 5 inches. The surveys were conducted in accordance with guidelines published by the CNPS (2001), CDFW (2009), and USFWS (2000). Following these guidelines, surveys were conducted during the flowering seasons for special-status plant species from the region; however, plants may not be evident and flowering in any given year due to weather variations or other factors. All areas of the BRSA were examined by walking transects through potential habitat, and by closely examining any existing microhabitats that are more likely to support special-status plants. Nomenclature used for plant names follow The Jepson Manual: Vascular Plants of California, Second Edition (Baldwin et al., 2012). Nomenclature changes made after the publication date of The Jepson Manual follow the Jepson eFlora (2016) website.

Several supplemental surveys were completed in spring 2017. New botanical surveys were completed twice during 2017 on approximately 74 acres that had not been previously surveyed, based on project design refinements. Approximately 50 additional acres in the Pisgah-Broadwell Valley area were re-surveyed once in 2017 due to potential occurrence of special-status plants and improved rainfall compared to the previous year. Finally, following late summer rainfall in 2017, follow-up surveys were conducted in the eastern half of the Proposed Project alignment on approximately 774 acres.

Two rounds of supplemental special-status plant surveys were conducted in the spring of 2019, and one more round of surveys is anticipated following the 2019 monsoon season. The spring 2019 surveys were conducted following above-average rains in the preceding winter and spring months, which caused an increase in blooms across the Mojave Desert.

A wildlife habitat assessment was conducted within 1,000 feet (i.e., 500 feet on either side) of the entire approximately 240-mile Proposed Project alignment on February 22 through 24, 2016. Insignia biologists flew above the alignment in a helicopter moving at low speed. The biologists verified the publicly available vegetation data layer and made refinements where needed, mapped nests within tower sites, noted wind-blown sand areas (i.e., potential habitat for the Mojave fringe-toed lizard), and described the general characteristics of the drainage features.

Special-status wildlife surveys were conducted for the following species:

- Least Bell's vireo, federally endangered (FE)
- Southwestern willow flycatcher (FE)
- Desert tortoise, federally threatened (FT)

Phoenix Biological Consulting conducted presence/absence surveys for least Bell's vireo within the BRSA in eight rounds between April 20 and July 19, 2016. The surveys were conducted in accordance with USFWS (2001) survey protocol. Surveys were conducted within 10 acres of the BRSA in four riparian habitat sites that were previously identified by Insignia personnel as potential suitable habitat. Least Bell's vireo protocol surveys and dates are provided in the Biological Resources Technical Report (BRTR).

Phoenix Biological Consulting conducted presence/absence surveys for southwestern willow flycatcher within the BRSA in five rounds between May 23 and July 6, 2016. They surveys were conducted in accordance with USFWS (2000 and 2001) and Sogge et al. (2010) survey guidelines. Surveys were conducted within 10 acres of the BRSA in four riparian habitat sites that were previously identified by Insignia personnel as potential suitable habitat. Southwestern willow flycatcher protocol surveys and dates are provided in the BRTR.

Insignia conducted presence/absence surveys for desert tortoise in the BRSA between October 3 and 29, 2016; between May 11 and 15, 2017; and on October 4 and 5, 2017. The surveys were conducted in accordance with the USFWS's survey guidelines (2010), as modified with approval by the USFWS. Surveys were conducted within a 20-meter buffer around the perimeter of each work area. This 20-meter survey buffer was approved by the USFS which did not require additional surveys for buffers of 200, 400, or 600 meters. Survey methods for desert tortoise surveys are provided in the BRTR.

Impact Assessment Methodology. This section of the Initial Study (IS) identifies and describes the potential impacts of the project to the biological resources of the project areas, described in Section 5.4.1, Setting. Each potential impact is evaluated to determine if it would be significant and, if so, if mitigation would reduce its impact to less than significant. There are two overall categories of measures designed to minimize or mitigate project impacts to biological resources, listed below.

- Project-Specific Applicant Proposed Measures (APMs) – Measures incorporated by SCE as a part of project design.
- Mitigation Measures (MMs) – This Initial Study identifies additional mitigation measures to supplement the APMs where needed, to reduce potential impacts to less than significant.

Additional protection for biological resources may result from BLM implementation of Conservation and Management Actions (CMAs), which have been incorporated into the California Desert Conservation Area (CDCA) Plan, as amended by the Desert Renewable Energy Conservation Plan (DRECP). If applicable, these measures will be imposed by the BLM through its NEPA compliance actions. Because implementation of CMAs is uncertain and would not apply to private lands, this analysis relies only on APMs and mitigation measures.

It should be noted that SCE must obtain multiple permits and approvals for the Proposed Project, and authorizations issued by regulatory agencies (such as CDFW, BLM, and USFWS) would likely include conditions of approval for the same species and resources analyzed in this IS. Those additional conditions may be more or less stringent than the measures required to minimize, avoid, and mitigate impacts identified in this IS. If SCE's project is approved, it would be required to implement all conditions of authorizations, and where multiple authorizations address the same resource, the most stringent avoidance and minimization measures would be required in addition to the less stringent measures.

The following discussion of impacts to biological resources is organized to:

- Describe each potential impact to biological resources according to a series of significance criteria identified herein;
- Identify which APMs, if any, would serve to mitigate the impact and if they would reduce the impact to less than significant levels;
- If needed, identify additional mitigation measures that would further reduce the impact; and
- Provide a conclusion stating whether each potential impact would be less than significant without need for mitigation, mitigated to less than significant through implementation of mitigation measures identified; or potentially significant even with available mitigation.

5.4.6 Project Impacts and Mitigation Measures

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 Game or U.S. Fish and Wildlife Service?

Note: Impacts during construction for criterion a. are discussed below for various special-status plants and special status wildlife. Because impacts during operations and maintenance are similar for these categories, O&M impacts are discussed at the end of the analysis for criterion a.

Construction

LESS THAN SIGNIFICANT WITH MITIGATION. Because of the breadth of this checklist question, this analysis is divided into the following subtopics:

- Reduction of Habitat
- Special-Status Plants
- Special-Status Wildlife
  - Invertebrates
  - Fish
  - Amphibians
  - Reptiles
  - Birds
  - Mammals

All recommended mitigation measures are presented at the end of this impact discussion.

Construction impacts to special-status plant and animal species are described in the sections that follow, and mitigation is identified as needed for each resource. Where mitigation measures are recommended

to supersede SCE's APMs (presented in Section 5.4.3 above), the shortcomings of the APMs are explained.

Reduction of Habitat

The total area disturbed by the Proposed Project is approximately 378.1 acres. Of this total, project impacts are characterized by SCE as either permanent (7.0 acres) or temporary (371.1 acres). Permanent impacts would be areas that are paved or otherwise modified for project purposes throughout the life of the project (e.g., series capacitor sites and fiber optic repeater sites). Temporary impacts refer to areas temporarily disturbed during project construction (e.g., lay-down areas, yards, helicopter landing zones). The temporarily disturbed areas include approximately 125.5 acres of previously disturbed land (e.g., areas around existing towers, existing access and spur roads, and previously disturbed yard areas) as well as approximately 245.6 acres of land not previously disturbed, which would require restoration. However, depending on pre-disturbance conditions, temporary ground disturbance will lead to permanent or long-term loss or degradation of habitat or other biological resources. For example, creosote bushes can re-sprout a full canopy within five years after damage from heavy vehicle traffic (Gibson et al., 2004), but more severe damage involving vegetation removal and soil disturbance can take from 50 to 300 years for partial recovery; complete ecosystem recovery may require much longer (Lovich and Bainbridge, 1999). Consequently, due to the slow recovery rates of plant communities in desert ecosystems, all permanent and temporary habitat loss or degradation impacts of the proposed project are conservatively considered permanent (a total of 252.6 acres, which excludes previously disturbed areas).

The total ground disturbance (temporary and permanent) resulting from construction of the Proposed Project within each habitat or land use type is shown in Table 5.4-2. This ground disturbance includes the Newberry Springs and Ludlow Series Capacitors, the fiber optic repeater sites, and grading of new access roads. As shown in the first three rows of the tables, about 176.8 acres of estimated ground disturbance would occur on agricultural, barren, or developed lands. The remaining 198 acres of estimated disturbance would occur on natural lands.

Table 5.4-2. Estimated Acres of Ground Disturbance.

Habitat or Land Type	Total Project Disturbance (Acres)
Active agriculture	1.0
Barren	47.7
Developed	128.1
California juniper woodland	1.2
Joshua tree woodland (S3)[1] = *Yucca brevifolia* woodland alliance	4.9
Desert needlegrass grassland (S2)[1]=*Achnatherum speciosum* woodland alliance	0.1
Unlabeled provisional alliance	1.7
Allscale scrub	18.9
Black brush scrub	0.3
Black-stem rabbitbrush scrub (S3)[1] = *Ericameria paniculata* shrubland alliance	0.3
Brittle bush scrub	1.2
Bush seepweed (scrub (S3)[1] = *Suaeda moquinii* shrubland alliance	0.3
California buckwheat scrub	11.5
Catclaw acacia–desert lavender–chuparosa scrub	1.2

Table 5.4-2. Estimated Acres of Ground Disturbance.

Habitat or Land Type	Total Project Disturbance (Acres)
Cheesebush–sweetbush scrub	1.5
Creosote bush–brittle bush scrub	3.8
Creosote bush–white bursage scrub	115.4
Creosote bush scrub	23.3
Desert almond–Mexican bladdersage scrub (S3)[1] = *Prunus fasciculata–Salazaria mexicana* shrubland alliance	2.0
Desert pavement	1.1
Mojave yucca scrub	3.9
Mormon tea scrub	0.0
Narrowleaf goldenbush–bladderpod scrub	0.5
Rubber rabbitbrush scrub	4.0
Shadscale scrub	0.6
Teddy bear cholla patches (S3)[1] = *Cylinderopuntia bigelovii* shrubland alliance	0.1
White bursage scrub	0.3
Total	374.8

1 - Sensitive natural community; see Table 5.4-1.
Note: Subsequent to conducting biological surveys, selected potential yard sites and helicopter landing zones were eliminated. As a result, values in this table may be somewhat overstated.

Proposed Project impacts to natural vegetation and habitat would substantially degrade habitat for several animals identified as a candidate, sensitive, or special status species. Without mitigation, these impacts would be significant. SCE proposes APM BIO-01 (Revegetation Plan) and APM BIO-03 (Noxious and Invasive Weed Management Plan) to mitigate these impacts. However, APM BIO-01 does not include sufficient performance standards, or details of restoration and monitoring, to ensure effective habitat replacement. APM BIO-03 does not include sufficient detail regarding prevention, and does not address control and monitoring, to prevent invasive weeds from becoming established and spreading in Project disturbance areas or spreading to adjacent undisturbed habitat. None of the APMs address on-site methods to minimize disturbance, train Project workers in the various avoidance and mitigation requirements, or monitor project activities.

Additional mitigation measures listed below are needed to mitigate the potential special-status species habitat impacts to less than significant.

Mitigation Measure BR-1 (Conduct biological monitoring and reporting) contains multiple components for avoidance, minimization, and protection of special-status species habitat, including monitoring to ensure that authorized construction areas and sensitive areas are monitored to prevent unnecessary impacts to habitat.

Mitigation Measure BR-2 (Prepare and implement a Worker Environmental Awareness Program) would inform Project workers of Project requirements and worker responsibilities regarding avoidance and minimization of habitat impacts.

Mitigation Measure BR-3 (Minimize native vegetation and habitat loss) contains multiple components for avoidance, minimization, and protection of special-status species habitat, including marking

authorized construction areas and sensitive areas are prevent disturbance outside authorized work areas.

Mitigation Measure BR-4 (Restore or revegetate temporary disturbance areas) supersedes APM BIO-01 (Revegetation Plan). Mitigation Measure BR-4 requires revegetation of temporarily disturbed sites to minimize erosion, dust, and vulnerability to weed invasions; provides performance standards and needed implementation details to effectively minimize the impacts.

Mitigation Measure BR-5 (Prepare and implement an Integrated Weed Management Plan) supersedes APM BIO-03 (Noxious and Invasive Weed Management Plan). Mitigation Measure BR-5 provides additional performance standards to minimize likelihood that new invasive species are introduced to the Project area, and existing invasive species are detected and adequately controlled to prevent on-site or off-site habitat degradation.

Implementation of Mitigation Measures BR-1 (Conduct biological monitoring and reporting), BR-2 (Prepare and implement a Worker Environmental Awareness Program (WEAP)), BR-3 (Minimize native vegetation and habitat loss), BR-4 (Restore or revegetate temporary disturbance areas), and BR-5 (Prepare and implement an Integrated Weed Management Plan), would minimize Proposed Project impacts and would mitigate remaining potential impacts to habitat to less than significant.

Special-Status Plants

No listed threatened or endangered plant species are expected to occur within the Project ROW or footprint (as defined in BRTR Attachment 5.4-A 1). Twenty special-status plants (see Section 5.4.1 above), ranked as CRPR 1 or 2 (conservation status rankings are presented in BRTR Attachment 5.4-A 1) have been located during field surveys within the ROW and surrounding buffer area. One of them, Rosy two-toned beardtongue, is also ranked S2 in Nevada. One of them, Yucca buckwheat, is not ranked in California but ranked S3 in Nevada. Three of these (Mojave menodora, Pink funnel lily, and Rusby's desert-mallow) have been located within project footprint sites.

Due to the seasonality of plant occurrences and dependence on fluctuations in annual rainfall, special-status plants not observed at project footprint sites, but located elsewhere in the survey area, may occur as dormant seed, bulbs, or below-ground rootstocks within project footprint sites. Thus, all 20 species could be found during future surveys of the project footprint.

Similarly, 50 additional special-status plant species (listed in Section 5.4.1) were not found in project surveys, but may be found within the project footprint during future surveys, depending on rainfall and other seasonal factors.

Potential direct impacts to special-status plants as a result of grading, vegetation clearing and grubbing, excavation, and vehicle and foot traffic can include burying, crushing, or uprooting individual plants, root damage from soil compaction and disturbance, and disturbing seed banks. Although many of the project footprint areas would be only temporarily disturbed by project activities (i.e., the sites would be disturbed during construction but would not be permanently converted to project facilities), the direct effects on special-status plants could nonetheless be permanent. Indirect impacts to special-status plants may result from construction-related runoff, sedimentation and erosion, which could alter site conditions sufficiently to favor the establishment of other native and non-native species. Indirect impacts may also result from equipment and vehicles introducing invasive weeds that compete with special-status species. Increased fugitive dust could reduce the growth and vigor of special-status plants.

Determining potential significance of impacts to special-status plants is based on the conservation status for each species, as well as the extent of the impact and the species' local or regional distribution. Most of the special-status plants documented during field surveys have relatively low conservation status (e.g., CRPR 2 or 4), potential impacts are small, or both (see MND Appendix D). Therefore, potential impacts to most special-status plants would be less than significant.

- Without mitigation, impacts to Mojave menodora and Rusby's desert-mallow (both California Rare Plant Rank 1B.2; defined as rare, threatened or endangered throughout their respective ranges) would be significant if a substantial proportion of a local occurrence is affected. Alternately, if surrounding habitat supports large numbers of either species and the project impact is small relative to the overall occurrence, then the impact would be less than significant.
- Potential impacts to pink funnel-lily (CRPR 2B.2, defined as rare in California but more common elsewhere in its range), documented at or near the primary land disturbance areas at the proposed series capacitor sites, would be less than significant due to the large number of plants throughout the surrounding vicinity as documented for numerous projects (California Energy Commission, 2010). The large numbers of plants in the region are not accurately reflected in the CRPR status.

Potential impacts to other special-status plants not currently documented within the project footprint by the field surveys conducted to date must be evaluated on a case by case basis, depending primarily on numbers of plants or extent of occupied habitat surrounding the project site. Impacts to BLM Sensitive Species, CRPR 1B species, and Nevada Natural Heritage S1, S2, or S3 species would necessitate mitigation if the impacts substantially reduce a local occurrence. This analysis conservatively estimates that if ten percent of a local occurrence is lost, then the impact would be significant because a loss of more than ten percent of the local occurrence could affect local genetic diversity and demographic population viability. However, if the local occurrence extends beyond the bounds of the project footprint and the project directly affects less than 10 percent of the occurrence, then impacts would not need mitigation. Impacts to CRPR 2B plants in the Nevada portion of the footprint would be less than significant, unless the plants are also listed by Nevada Natural Heritage.

Mitigation for Impacts to Special-Status Plants. SCE proposes APM BIO-01 (Revegetation Plan) and APM BIO-02 (Special-status Plant Species Protection) to minimize and mitigate impacts to special-status plants. APM BIO-02 includes pre-construction surveys, avoidance, and monitoring to minimize impacts as feasible. For unavoidable impacts in temporary disturbance areas, APM-BIO-01 would prepare a plan to revegetate natural communities. In addition, SCE proposed APM BIO-03 (Noxious and Invasive Weed Management Plan), which would reduce the indirect effects of invasive weeds on all resources, including special-status plants.

With incorporation of SCE's APMs, impacts to special-status plants may remain significant for the following reasons:

- APM BIO-01 (Revegetation Plan) would revegetate disturbed areas but would not replace or mitigate special-status plant occurrences lost during construction. Mitigation Measure BR-4 (Restore or revegetate temporary disturbance areas) supersedes APM BIO-01 to reduce potential impacts to special-status plant species.
- APM BIO-02 (Special-status Plant Species Protection) would flag and protect known special-status plant locations as feasible and would revegetate disturbed special-status plant occurrence. The flagging does not provide for needed field surveys to update existing data, and the proposed revegetation would not mitigate or offset impacts to special-status that are not avoided. Mitigation Measure

BR-6 (Minimize and mitigate impacts to special-status plants) supersedes APM BIO-02 to reduce potential impacts to special-status plant species.

- APM BIO-03 (Noxious and Invasive Weed Management Plan) does not include sufficient detail regarding prevention, and does not address control and monitoring, to prevent invasive weeds from becoming established and spreading in Project disturbance areas or spreading to adjacent undisturbed habitat. Mitigation Measure BR-5 (Prepare and implement an Integrated Weed Management Plan) supersedes APM BIO-3 and provides the necessary detail.

Even with implementation of the APMs described above, the Proposed Project's impacts to special-status plant species could be significant.

Mitigation Measure BR-6 (Minimize and mitigate impacts to special-status plants) would avoid or mitigate potential impacts to special-status plants by (1) requiring seasonal pre-construction surveys to identify plants, (2) avoiding occurrences where possible, and (3) determining which impacts, if any, would be significant based on a threshold of ten-percent of the local occurrence, and (4) mitigating unavoidable impacts to the specific plant that is impacted through one or more of several methods identified in the measure (avoidance, off-site compensation, salvage, or horticultural propagation — with off-site introduction).

Implementation of Mitigation Measures BR-1 through BR-5 (described under Reduction of Habitat) and Mitigation Measure BR-6, would minimize Proposed Project impacts and would ensure that remaining potential impacts to special-status plants would be less than significant.

Special-Status Wildlife

This analysis considers the following types of wildlife: invertebrates, fish, amphibians, reptiles, birds, and mammals.

One listed California and federally threatened species, desert tortoise, is expected to occur within the Project ROW or footprint (BRTR Attachment 5.4-B). Other special-status species present or with a high potential to occur within or near the Project ROW or footprint include the following:

- Banded Gila monster (BLM Sensitive Species, CA Species of Special Concern, NV Protected Species)
- Desert rosy boa (NV Protected Species)
- Mojave fringe-toed lizard ([Not expected in NV] BLM Sensitive Species, CA Species of Special Concern)
- Golden eagle (Fully Protected, CA Fish and Game Code; federal Bald and Golden Eagle Protection Act)
- Swainson's hawk – migratory flyover (CA Threatened)
- Gray vireo (BLM Sensitive Species, CA Species of Special Concern)
- Western burrowing owl (CA Species of Special Concern)
- American badger ([Low potential in NV] CA Species of Special Concern)
- Desert bighorn sheep (BLM Sensitive Species, Fully Protected, CA Fish and Game Code)
- Pallid bat ([Not expected in NV] BLM Sensitive Species, CA Species of Special Concern)
- Western mastiff bat (BLM Sensitive Species, CA Species of Special Concern)

Special-status species with a moderate potential to occur within or adjacent to the Project ROW or footprint include:

- Bald eagle (CA Endangered, Fully Protected; federal Bald and Golden Eagle Protection Act)
- Peregrine falcon (Fully Protected, CA Fish and Game Code)
- Bendire's thrasher ([Low potential in NV] BLM Sensitive Species, DRECP, CA Species of Special Concern)
- Pallid San Diego pocket mouse ([Not expected in NV] CA Species of Special Concern)

In addition to the special-status species identified above, most birds and their nests are protected under the federal Migratory Bird Treaty Act and the California Fish and Game Code (see Section 5.4.2, Regulatory Background). Therefore, potential impacts to common birds species, such as nest destruction or collision hazard with transmission structures and conductors, are addressed under Birds, below.

Mitigation for Special Status Wildlife. The potential project effects on these protected species are described below, under subheadings for each category of wildlife. Mitigation is required to ensure that these protected species are not significantly affected by project activities.

While SCE has identified several APMs addressing special-status wildlife (see Section 5.4.3 above), these measures would not fully reduce impacts to less than significant levels. Therefore, the following mitigation measures are recommended to ensure protection of special status wildlife. The full text of all mitigation measures is presented at the end of this section.

- **Mitigation Measure BR-1 (Conduct biological monitoring and reporting)** would reduce impacts by requiring on-site biologists to document resources that may be in harm's way, coordinate avoidance as needed, ensure various wildlife protection measures are in place, and establish a communication and reporting schedule. No APM was presented for this purpose.
- **Mitigation Measure BR-2 (Prepare and implement a Worker Environmental Awareness Program (WEAP))** would reduce impacts to special-status wildlife by instructing construction crews on avoidance and minimization requirements for each relevant species and its habitat. No APM was presented for this purpose.
- **Mitigation Measure BR-3 (Minimize native vegetation and habitat loss)** would protect special-status wildlife habitat by requiring clear on-site marking of authorized construction or disturbance areas and requiring avoidance of any other areas. No APM was presented for this purpose.
- **Mitigation Measure BR-4 (Restore or revegetate temporary disturbance areas)** would protect special status wildlife habitat by minimizing erosion, dust, and vulnerability to weed invasions; provides performance standards and needed implementation details to reduce the impacts. This mitigation measure supersedes APM BIO-01 (Revegetation Plan), because the APM does not include performance standards, details of restoration, monitoring, and success standards.
- **Mitigation Measure BR-5 (Prepare and implement an Integrated Weed Management Plan)** would protect special-status wildlife habitat by specifying performance standards to minimize likelihood that new invasive species are introduced to the Project area. It would ensure that existing invasive species are detected and adequately controlled to prevent on-site or off-site habitat degradation. This mitigation measure supersedes APM BIO-03 (Noxious and invasive weed management plan) because the APM does not include complete performance standards, nor does it does address control measures or monitoring of invasive weed occurrences.
- **Mitigation Measure BR-7 (Ensure wildlife impact avoidance and minimization)** would protect special-status wildlife by requiring multiple protective measures for all wildlife, including special-status species, reducing likelihood of significant mortality or injury, disturbance, or other adverse effects of construction. No APM was presented for this purpose.
- **Mitigation Measure BR-8 (Compensate for habitat loss)** would protect desert tortoise and its habitat and other native wildlife species by specifying details of habitat compensation. These details include selecting and proposing compensation lands, defining real estate transaction requirements, implementing short-term habitat improvements as needed, and implementing long-term conservation management to ensure that significant habitat loss is offset. This mitigation measure supersedes APM

BIO-05 (Compensation for Impacts to Desert Tortoise Critical Habitat) because the APM does not include adequate specificity regarding scheduling and site management details. However, the proposed compensation ratios defined by SCE in APM BIO-05 are not modified.

- **Mitigation Measure BR-9 (Conduct surveys and avoidance for special-status reptiles)** would protect desert tortoise and other reptiles. It would require pre-construction surveys for desert tortoise, banded Gila monster, rosy boa, and Mojave fringe-toed lizard to prevent potentially significant mortality or injury impacts to both species. This mitigation measure supersedes APM BIO-04 (Desert tortoise protection) because the APM does not minimize or avoid potential impacts to the broader category of protected reptiles, including the banded Gila monster, desert rosy boa, and Mojave fringe-toed lizard.
- **Mitigation Measure BR-10 (Prepare and implement a Nesting Bird Management Plan)** would protect nesting birds by specifying performance standards such as biologist qualifications, field survey scheduling, and assessment of potential impacts according to species and project activities. It also establishes a standard buffer distance with specific measures for adjusting the distance according to circumstances, and a method to amend the Plan if needed. This mitigation measure supersedes APM BIO-06 (Nesting birds) because the APM lacks specificity regarding nest buffer distances and it does not present a means for modifying buffers if needed. Also, the APM does not define how active nests would be monitored and how reporting of monitoring data would occur, nor does it address potential use of nest deterrents or protection of golden eagle nests.
- **Mitigation Measure BR-11 (Conduct surveys and avoidance for burrowing owl)** would protect burrowing owls by specifying pre-construction survey requirements, avoidance measures, passive relocation measures, and provision of alternate burrow sites in the event that active burrowing owl burrows are located on or near project work areas. This mitigation measure supersedes APM BIO-07 (Western burrowing owl protection) because the APM lacks details including buffer distances from active burrows, means of conducting passive exclusion from an active burrow if needed, assessment of replacement burrow availability, construction of replacement burrows, and follow-up reporting requirements.
- **Mitigation Measure BR-12 (Conduct surveys and avoidance for bats)** would protect special-status bats by specifying pre-construction surveys, avoidance measures, passive relocation measures, and provision of alternate roost sites in the event that active special-status bat roosts are located on or near project work areas. No APM was presented for protection of bats.
- **Mitigation Measure BR-13 (Conduct surveys and avoidance for American badger, ringtail, and desert kit fox)** would protect American badger, ringtail, desert kit fox by requiring specific pre-construction surveys, avoidance measures, and passive relocation measures in the event that these special-status mammals are located on or near project work areas. No APM was presented for protection of these mammals.

Invertebrates

Special-status invertebrate species are not expected to occur in the Proposed Project area. Therefore, no impacts to special-status invertebrate species are anticipated.

Fish

Project activities would not impact water features that have the potential to support special-status fish. Therefore, no impacts to special-status fish species are anticipated.

Amphibians

Special-status amphibian species are not expected to occur in the Proposed Project area. Therefore, no impacts to special-status amphibian species are anticipated.

Reptiles

Desert tortoise (FT, ST) was observed and may be present throughout the Proposed Project area. In addition, Mojave fringe-toed lizard (S, SSC) banded Gila monster (S, SSC, NP), and desert rosy boa (NP) are likely to occur in the Project area. Proposed Project activities would result in temporary and permanent impacts to suitable habitat for these species. Note that most "temporary" habitat impacts would be long-term or permanent due to slow recovery of desert vegetation. One important exception to this generality is temporary impacts to active sandfield or dune habitat supporting Mojave fringe-toed lizard, where returning windblown sand will naturally restore pre-disturbance conditions. Habitat for desert tortoise and desert rosy boa can be found throughout the majority of the Proposed Project area, and portions of the Proposed Project are located within USFWS-designated critical habitat for the species. Mojave fringe-toed lizard is likely to occur near the Kelso Dunes in the eastern portion of the Mojave Desert in California, in the vicinity of the Pisgah Substation, and anywhere else that accumulated windblown sand is found within the species range. Banded Gila monster is likely to occur near the McCullough and Highland Ranges and the Dead Mountains in Nevada, and near the Providence Mountains in California. Rosy boa could occur throughout the Proposed Project area.

Direct impacts to special-status reptiles, especially desert tortoise, could result from vehicle or equipment strikes. Special-status reptiles could fall into or become trapped within excavation areas or pipe segments, which could injure them or make them more vulnerable to predation. They could also be crushed or buried in occupied burrows (or beneath the sand) during construction activities.

The risk of vehicle strikes to active desert tortoise would be greatest during the tortoise's most active seasons, which are dependent on rainfall and temperature. The USFWS (2009) defines the spring activity season as April through May, and the fall activity season as September through October, although the actual dates and extent of tortoise activity vary widely from one year to another. Regardless of the season, desert tortoises are usually within their burrows when they are inactive. Inactive tortoises may be vulnerable to many of the potential direct impacts identified above if an occupied burrow is located within or near a work area. As described in Section 4 (Project Description), project activities are expected to occur over a 1 to 2-year period.

Suitable habitat for desert tortoise and other special-status reptiles would be impacted by ground-disturbing activities within the Project area, resulting in long-term or permanent habitat loss or degradation; these impacts include disturbances during soil excavation, soil stockpiling, grading access roads and work areas. Ground disturbing activities may also cause increased invasive, non-native plant species that may compete with or replace forage species for desert tortoise (i.e., grasses and the flowers of annual plants). An increase in invasive plants may also facilitate fires. In the case of Mojave fringe-toed lizard, temporary project disturbance areas would have only short-term impacts because windblown sand would return to the site, without need for active restoration.

Indirect impacts to desert tortoise, banded Gila monster, desert rosy boa, and Mojave fringe-toed lizard during project activities may be caused by increased human presence in the area. Specifically, human presence in isolated areas may attract opportunistic predators, such as ravens (*Corvus corax*), coyotes (*Canis latrans*), and feral dogs (*Canis lupus familiaris*), which are threats to desert tortoise and special-status reptile species. Over time, an increase in predation could impact tortoise population numbers.

The Proposed Project would directly affect approximately 67 acres of desert tortoise critical habitat. Shrubs and other vegetation used by desert tortoise would be destroyed in these areas, resulting in the loss of foraging, cover, and suitable sheltered burrow sites. Soil disturbance and compaction would destroy any burrows that may be present and could leave the area unsuitable for future burrowing.

SCE proposes APM BIO-01 (Revegetation Plan), APM BIO-04 (Desert Tortoise Protection), and APM BIO-05 (Compensation for Impacts to Desert Tortoise Critical Habitat) to minimize and mitigate impacts to desert tortoise. With incorporation of these APMs impacts to special-status reptiles may remain significant. As described above, additional mitigation is needed to ensure that impacts to desert tortoise and other special-status reptiles will be less than significant. Mitigation measures specific to reptiles are Mitigation Measure BR-4 (Restore or revegetate temporary disturbance areas), Mitigation Measure BR-9 (Conduct surveys and avoidance for special-status reptiles), Mitigation Measure BR-8 (Compensate for habitat loss) and Mitigation Measure BR-7 (Ensure wildlife impact avoidance and minimization).

In addition, SCE is pursuing take coverage for desert tortoise under Section 7 of the ESA under the 2017 programmatic Biological Opinion for Activities in the California Desert Conservation Area for Proposed Project work in California. For Proposed Project work in Nevada, SCE will seek coverage under the 2018 Biological Opinion (BO) issued for critical habitat in Southern Nevada. SCE is also seeking a Section 2081 ITP under the CESA for desert tortoise. Each of these authorizations is expected to include avoidance, protection, or compensation measures to mitigate potential impacts to desert tortoise. SCE would conduct construction activities in accordance with the requirements set forth in these permits.

Impact Conclusion for Special-Status Reptiles. Potential impacts to desert tortoise, Mojave fringe-toed lizard, banded Gila monster, and desert rosy boa would be avoided, minimized, and mitigated by implementing the measures identified above. Mitigation Measures BR-1 through BR-5 and BR-7 through BR-8 are applicable to all wildlife including desert tortoise. Mitigation Measure BR-9 is specifically applicable to reptiles. Additionally, project impacts to desert tortoise would be avoided, minimized, or mitigated in accordance with the requirements of the take permits issued pursuant to the California Endangered Species Act and Federal Endangered Species Act. With incorporation of these mitigation measures, project impacts to reptiles would be less than significant.

Birds

One special-status bird, western burrowing owl (SSC) is present in the Project area. Six special-status birds have a moderate to high potential to occur within the project area; these include bald eagle (SE/FP), Bendire's thrasher (S, SSC), golden eagle (S, FP), gray vireo (S, SSC), peregrine falcon (FP), and Swainson's hawk (ST).

Suitable nesting, foraging, or seasonal migratory stopover habitat for all these special-status birds and other migratory bird species is present within the Project footprint and the immediate vicinity. Birds, including their nests, eggs, and nestlings, are protected under the federal Migratory Bird Treaty Act (MBTA) and California Fish and Game Code Section 3503, 3503.5, and 3513. As described in Section 4 (Project Description), project activities are expected to occur during periods that overlap with the nesting season (February 15 through August 31) when birds may be vulnerable to nest disturbance.

Direct impacts to birds, including special-status birds, could include loss of active nests and loss of foraging habitat due to vegetation clearing and ground disturbance. The use of heavy equipment and vegetation removal within or adjacent to nesting habitat could cause disruption of nesting behavior due to a temporary increase in human presence, noise, vibration, and dust. Construction activities could impact foraging raptors, passerines, and other special-status bird species. Temporary impacts may

include degradation of foraging habitat, removal of some food sources, and the disruption of foraging behavior due to a temporary increase in noise and visual disturbances from construction equipment and vehicles. Specific impacts and mitigation requirements are described in the following paragraphs.

Avian Collision with Transmission Structures. The proposed Project would not increase the potential collision hazards to birds above existing baseline because no additional overhead lines are proposed. SCE's application indicates that any new transmission facilities would be designed consistent with the Avian Power Line Interaction Committee's (APLIC's) *Suggested Practices for Avian Protection on Power Lines: the State of the Art in 2006* (APLIC, 2006) where feasible. Transmission facilities would also be evaluated for potential collision reduction devices in accordance with *Reducing Avian Collisions with Power Lines: The State of Art in 2012* (see Project Description, Section 4). No new or increased avian collision hazard would result from the project.

Nesting Birds. SCE proposes APM BIO-06 (Nesting Birds) to identify active bird nests, implement nest avoidance buffers, and monitor active nests, to minimize and mitigate impacts. As described above, this APM is not adequate to protect nesting birds, and Mitigation Measure BR-10 is presented, superseding APM BIO-06. Mitigation Measure BR-10 incorporates all of APM BIO-06 (Nesting Birds) and adds details including means of determining buffer distances or modifying them as needed; means for monitoring active nests and reporting monitoring data; addresses potential use of nest deterrents; addresses potential disturbance to golden eagle nests in the vicinity, and specifies agency reporting requirements. These additional details are required to minimize potential take of native birds, including special-status birds, protected under the Fish and Game Code and Migratory Bird Treaty Act.

Golden Eagles. SCE does not propose mitigation to prevent disturbance to golden eagles potentially nesting in the Project vicinity. Potential nesting habitat is present within mountainous and hilly areas, and possibly also on transmission towers, as indicated by recent and historic CNDDB and NNHP records of nests within 5 miles of the Proposed Project area. Without mitigation, Project activities could significantly impact nesting golden eagles by disturbing nesting activities and potentially cause nest failure. Mitigation Measure BR-10 includes requirements to avoid disturbance in the vicinity of active golden eagle nests.

Wide-ranging Raptors. While Swainson's hawk, peregrine falcon, and bald eagle could briefly fly over the Project area during migration or seasonal dispersal, no impacts to these species are expected and no mitigation is necessary.

Burrowing Owl. Project activities could destroy occupied burrowing owl burrows or cause the owls to abandon them. Activities during the breeding season could result in the incidental loss of fertile eggs or nestlings. The loss of occupied burrows or reductions in the number or this species, directly or indirectly through nest abandonment or reproductive suppression, would constitute a significant impact.

SCE proposes APM BIO-07 (Western Burrowing Owl Protection), which requires pre-construction burrowing owl surveys to be conducted within suitable habitat in accordance with the CDFW's Appendix D of the Staff Report on Burrowing Owl Mitigation (CDFW, 2012). If unavoidable impacts to western burrowing owl are anticipated, SCE would implement mitigation methods as outlined in the staff report and in coordination with the CDFW. However, even with incorporation of this APM, impacts to burrowing owl may remain significant. Additional mitigation is needed for burrowing owl avoidance and protection. Therefore, Mitigation Measure BR-11 is presented, superseding APM BIO-07 (as explained above).

Mitigation Measure BR-11 incorporates all of APM BIO-07 (Western Burrowing Owl Protection) and adds details including buffer distances from active burrows, means of conducting passive exclusion from an

active burrow if needed, including assessment of replacement burrow availability, construction of replacement burrows if needed, and follow-up reporting requirements. These additional details are required to prevent potentially significant impacts including take of burrowing owl.

Impact Significance for Special-Status Birds and Other Protected Birds. Mitigation Measures BR-1 through BR-5 and BR-7 through BR-8 are applicable to all wildlife including birds. Mitigation Measures BR-10 and BR-11 are specifically applicable to birds. With incorporation of the mitigation measures identified in this IS/MND, project impacts to special-status birds and other protected bird species would be less than significant.

Mammals

One special-status mammal species, desert bighorn sheep (S, FP) is present within the Project area and was observed in the Newberry Mountains of Nevada during surveys. In addition, six special-status mammal species, American badger (SSC), desert kit fox (S, FE, ST), ringtail (FP), pallid San Diego pocket mouse (SSC), pallid bat (S, SSC, PM), and western mastiff bat (S, SSC) have a moderate to high potential to occur in the Project area. SCE does not propose APMs to protect specific mammals from potential Project impacts.

Desert Bighorn Sheep. Desert bighorn sheep have a high potential to occur throughout the desert mountain ranges within the Project area and were observed in the Newberry Mountains of Nevada during surveys. Temporary impacts to desert bighorn sheep may occur when construction activities take place near or within suitable habitat. Direct impacts could include mortality from vehicle strikes and altered behavior due to construction noise, vibration, and fugitive dust. Indirect impacts could include loss or degradation of foraging habitat. Implementation of wildlife protection and avoidance measures identified in Mitigation Measure BR-7 (Ensure wildlife impact avoidance and minimization) would avoid potentially significant impacts to desert bighorn sheep. No additional mitigation is necessary to prevent potentially significant impacts.

Special-status bats. Western mastiff bat may roost in the mountainous areas of the Project area; foraging habitat occurs throughout the Project area. Potential roost sites for pallid bat within the Project area or in the immediate vicinity include rock outcrops; snags; and abandoned, man-made structures; foraging habitat occurs throughout the Project area. Potential impacts to foraging habitat would not be significant. Impacts to special-status bats may occur if Proposed Project activities result in the disruption or abandonment of nearby active bat roosts due to noise, vibration, or lighting. If occupied roosting habitat for these species is directly impacted by construction activities (i.e., tree removal, structure removal, damage to rock outcrops), impacts to special-status bats could be significant. Mitigation Measure BR-12 would protect special-status bats by ensuring identification and avoidance of active special-status bat roosts.

Pallid San Diego pocket mouse occurs in areas of moderate canopy in arid shrubland or pinyon-juniper, or near rocky slopes and sandy areas. It has a moderate potential to occur in California where suitable habitat is present in a small portion of the southwestern end of Project area. Project activities could cause mechanical crushing of individuals or burrows and loss of habitat. Indirect impacts could include soil compaction that could preclude burrowing, and the spread of invasive weeds. However, these impacts, if any, would be limited to small construction areas in the southwestern Mojave Desert portion of the route. The largest ground disturbing components of the Proposed Project are the series capacitor sites, north of the animal's geographic range. Within the southern Mojave Desert portion of its range, there is extensive acreage of suitable habitat in Los Angeles and San Bernardino Counties, well outside the project area (e.g., a broad area between Victorville and Barstow, extending 20-30 miles east and

west). The Proposed Project impacts within the pallid San Diego pocket mouse's range is minimal and indicates that this potential impact would be less than significant, and no mitigation is required.

Badger, Ringtail, and Kit Fox. American badger has a high potential to occur in desert and treeless areas with friable soil within the Project area in California. Suitable habitat for desert kit fox is present throughout the Project area and ringtail has a high potential to occur above 1,300 feet elevation. Direct impacts to American badger, ringtail, and desert kit fox could include mechanical crushing of individuals or burrows by vehicles and construction equipment; disturbance from noise, vibration, and dust; and loss of habitat. Indirect impacts could include alteration of soils, such as compaction that could preclude burrowing, and the spread of invasive weeds. Tortoise exclusion fencing required around construction yards, laydown areas, and some work areas, could entrap these mammals if any of these species are present when the fencing is built. Animals trapped within the fence could be subject to mortality or injury from construction equipment. Mitigation Measure BR-13 would protect these species through surveys and avoidance during construction.

Impact Significance for Special-Status Mammals: As described above, Mitigation Measures BR-1 through BR-5 and BR-7 through BR-8 are applicable to all wildlife, including mammals. Mitigation Measures BR-12 and BR-13 are specifically applicable to mammals. With incorporation of the mitigation measures defined in this section, project impacts to special-status mammals would be less than significant.

Operation and Maintenance

LESS THAN SIGNIFICANT WITH MITIGATION. Potential operation and maintenance (O&M) impacts to special-status plants and wildlife, including their habitat, would be minimal throughout the O&M phase of the Proposed Project. O&M activities for the Proposed Project would require periodic vehicle access for inspections, testing, and maintenance. No direct habitat impacts on special-status plant are expected due to O&M. Minor increases in ambient noise would be associated with the operation of the proposed Newberry Springs and Ludlow Series Capacitors. There is some potential that wildlife, including special-status species, could be injured by vehicle collisions or other O&M activities. Potential biological resources impacts associated with O&M would be avoided or minimized through provisions of Mitigation Measures BR-7 (Ensure wildlife impact avoidance and minimization) and BR-9 (Conduct surveys and avoidance for special-status reptiles). With these measures, potential O&M impacts would be less than significant.

Mitigation Measures

Mitigation measures recommended for biological resources are presented below. Before each measure, the rationale for its need is explained.

Mitigation Measure BR-1 is necessary because no corresponding APM is proposed, except the portion of APM BIO-04 covering desert tortoise. Pre-construction surveys of work areas are needed to identify all special-status wildlife or other biological resources that may be present and, as needed, avoided. Monitoring of project compliance is needed to ensure and document that avoidance measures are effectively implemented.

BR-1 **Conduct biological monitoring and reporting.** The following provisions shall apply to the approved project during the construction and post-construction restoration phases.

Lead biologist: SCE shall propose one or more lead biologists and submit their resume(s) to the CPUC and BLM for concurrence, no less than 60 days prior to the start of any ground-disturbing activities, including those occurring prior to site mobilization (including, but not

limited to geotechnical borings or hazardous waste evaluations). At minimum the lead biologist will hold a bachelor's degree in biological sciences, zoology, botany, ecology, or a closely related field; have at least three years of experience in field biology and at least one year of direct field experience with biological resources found in or near the project area, *OR* relevant education and experience that demonstrates the ability to carry out the tasks required of a lead biologist. The resume shall demonstrate to the satisfaction of the CPUC and BLM the appropriate education and experience to accomplish the assigned biological resources tasks.

The lead biologist will be SCE's primary point of contact to CPUC, BLM, NPS, CDFW, and USFWS regarding any biological resources issues and implementation of related mitigation measures and permit conditions throughout project construction and post-construction restoration work. In addition, the lead biologist will oversee supervision and training of biological monitors (below) and preparation and submission of all monitoring reports and notifications (below).

If the lead biologist is replaced, the specified information of the proposed replacement must be submitted to the CPUC and BLM at least ten working days prior to the termination or release of the preceding lead biologist. In an emergency, SCE shall immediately notify the CPUC and BLM to discuss the qualifications and approval of a short-term replacement while a permanent lead biologist is proposed for consideration.

Biological monitors: SCE shall assign qualified biological monitors to the project to monitor all work activities with the potential to impact special status species or their habitat during the construction phase. Work sites or activities considered to have not potential to impact special-status species or habitats will be subject to review and approval by CPUC in coordination with CDFW, USFWS, and BLM.

Monitors are responsible for ensuring that impacts to special-status species, native vegetation, wildlife habitat, and sensitive or unique biological resources are avoided or minimized to the fullest extent safely possible. Monitors are also responsible to ensure that work activities are conducted in compliance with the retained APMs, mitigation measures, permit conditions, and other project requirements.

Resumes of all biological monitors, including specialty monitors (including but not limited to bat, nesting bird, and special-status species monitors), shall be provided for concurrence by the CPUC and BLM, at least 10 working days prior to the monitor commencing field duties. The resumes shall demonstrate, to the satisfaction of the CPUC and BLM, the appropriate education and experience to accomplish the assigned biological resources tasks.

SCE shall provide training to biological monitors, in addition to WEAP (see Mitigation Measure BR-2) and prior to the monitor commencing field duties, on biological resources present or potentially present on the Proposed Project, as well as mitigation measures, permit requirements, project protocols, and the duties and responsibilities of a biological monitor.

Biological monitors shall inform construction crews daily of any environmentally sensitive areas (ESAs), nest buffers, or other resource issues or restrictions that affect the work sites for that day. Biological monitors shall communicate with construction supervisors and crews as needed (e.g., at daily tailgate safety meetings ("tailboards"), by telephone, text message, or email) to provide guidance to maintain compliance with mitigation measures and permit conditions. SCE shall ensure that adequate numbers of monitors are assigned to effectively monitor work activities and that communications from biological monitors are promptly

directed to crews at each work site for incorporation into daily work activities. If biological monitors are unavailable for a tailboard meeting, the construction supervisors shall communicate all ESA, nest buffers, or other resource restrictions to crews during the meeting. SCE shall ensure that biological monitors are provided with an accurate daily construction work schedule as well as updated information on any alterations to the daily construction work schedule. This information shall also be provided to CPUC/BLM monitors. SCE shall ensure that biological monitors are provided with up-to-date biological resource maps and construction maps in hardcopy or digital format. These maps shall also be provided to CPUC/BLM monitors.

Monitors shall be familiar with the biological resources present or potentially present, ESAs, nest buffers, and any other resource issues at the site(s) they are monitoring, as well as the applicable mitigation measures and permit requirements. Monitors shall exhibit diligence in their monitoring duties and refrain from any conduct or potential conflict of interest that may compromise their ability to effectively carry out their monitoring duties.

Biological monitor duties and responsibilities: Throughout the duration of construction, SCE shall conduct biological monitoring and have biological monitors on site at all times when project activities are occurring in any area where there is a potential to impact sensitive biological resources or jurisdictional waters, including but not limited to vegetation removal/trimming/disturbance, all ground-disturbing work activities, and initial "drive and crush" in the project area, including work sites, yards, staging areas, access roads, and any area subject to project disturbance. Pre-construction activities (e.g., for geotechnical borings, hazardous waste evaluations, etc.) and post-construction restoration shall also be monitored by a biological monitor during all such activities.

Each day, prior to work activities at each site, a biological monitor shall conduct clearance surveys ("sweeps") for sensitive plant or wildlife resources that may be located within or adjacent to the construction areas. If sensitive resources are found, the biological monitor shall take appropriate action as defined in all adopted mitigation measures, retained APMs, and permit conditions. Work activities shall not commence at any work site until the clearance survey has been completed and the biological monitor communicates to the contractor that work may begin.

Biological monitors shall clearly mark sensitive biological resource areas with staking, flagging, or other appropriate materials that are readily visible and durable. The monitors will inform work crews of these areas and the requirements for avoidance and will inspect these areas at appropriate intervals for compliance with regulatory terms and conditions. The biological monitors shall ensure that work activities are contained within approved disturbance area boundaries at all times.

Biological monitors shall have the authority and responsibility to halt any project activities that are not in compliance with applicable mitigation measures, retained APMs, permit conditions, or other project requirements, or will have an unauthorized adverse effect on biological resources.

Handling, relocation, release from entrapment, or other interaction with wildlife shall be performed consistent with mitigation measures, safety protocols, permits (including CDFW and USFWS permits), and other project requirements.

Biological monitors shall, to the extent safe, practicable, and consistent with mitigation measures and permit conditions, actively or passively relocate wildlife out of harm's way. On a

daily basis, biological monitors shall inspect construction areas where animals may have become trapped, including equipment covered with bird exclusion netting, and release any trapped animals. Daily inspections shall also include areas with high vehicle activity (e.g., yards, staging areas), to locate animals in harm's way and relocate them if necessary. If safety or other considerations prevent biological monitors from aiding trapped wildlife or wildlife in harm's way, SCE shall consult with the construction contractor, CDFW, wildlife rehabilitator, or other appropriate party to obtain aid for the animal, consistent with Mitigation Measure BR-7 (Ensure wildlife impact avoidance and minimization).

At the end of each work day, biological monitors shall verify that excavations, open tanks, and trenches have been covered or have ramps installed to prevent wildlife entrapment and communicate with work crews to ensure these structures are installed and functioning properly.

Biological monitors shall regularly inspect any wildlife exclusion fencing daily to ensure that it remains intact and functional. Any need for repairs to exclusion fencing shall be immediately communicated to the responsible party, and repairs shall be carried out in a timely manner, generally within one work day.

Reporting: SCE shall prepare and implement a procedure for communication among biological monitors and construction crews, to ensure timely notification (i.e., daily or sooner, as needed) to crews of any resource issues or restrictions. SCE will notify the CPUC and BLM of the procedure and will maintain records of daily communication. SCE will provide CPUC and BLM on-line access to project resource management maps and GIS data.

Monitoring activities shall be thoroughly and accurately documented on a daily basis. SCE shall prepare and submit daily, weekly, annual, and final monitoring reports to the CPUC and BLM. Prior to the start of monitoring activities, SCE shall provide proposed monitoring report formats, describing content and organization, for CPUC and BLM review and approval in consultation with CDFW and USFWS.

Mitigation Measure BR-2 is necessary because no corresponding APM is proposed. The measure will prevent potentially significant impacts to special-status plants and wildlife and ensure compliance with applicable laws and mitigation measures by instructing workers on avoidance and minimization requirements for species and habitat and required action by the workers.

BR-2 **Prepare and implement a Worker Environmental Awareness Program (WEAP).** SCE shall prepare and implement a project-specific Worker Environmental Awareness Program (WEAP) to educate on-site workers about the Proposed Project's sensitive environmental issues. The WEAP shall be presented by the lead biologist or a biological monitor to all personnel on-site during the construction phase, including but not limited to surveyors, engineers, inspectors, contractors, subcontractors, supervisors, employees, monitors, visitors, and delivery drivers. If the WEAP presentation is recorded on video, it may be presented by any competent project personnel. Throughout the duration of construction, SCE shall be responsible for ensuring that all on-site project personnel receive this training prior to beginning work. A construction worker may work in the field along with a WEAP-trained crew for up to 5 days prior to attending the WEAP training. SCE shall maintain a list of all personnel who have completed the WEAP training. This list shall be provided to the CPUC and BLM upon request.

The WEAP shall consist of a training presentation, with supporting written materials provided to all participants. At least 60 days prior to the start of ground-disturbing activities,

SCE shall submit the WEAP presentation and associated materials to the CPUC and BLM for review and approval in consultation with the USFWS and CDFW.

The WEAP training shall include, at minimum:

- Overview of the project, the jurisdictions the project route passes through (e.g., San Bernardino County, CA; Clark County, Nevada; CSLC; BLM; NPS; BOR; DOD) and any special requirements of those jurisdictions.
- Overview of the federal and state Endangered Species Acts, Bald and Golden Eagle Protection Act, Migratory Bird Treaty Act, and the consequences of non-compliance with these acts.
- Overview of the project mitigation and biological permit requirements, and the consequences of non-compliance with these requirements.
- Sensitive biological resources on the project site and adjacent areas, including nesting birds, special-status plants and wildlife and sensitive habitats known or likely to occur on the project site, project requirements for protecting these resources, and the consequences of non-compliance.
- Construction restrictions such as limited operating periods, Environmentally Sensitive Areas (ESAs), and buffers and associated restrictions, and other restrictions such as no-grading areas, flagging, or signage designations, and consequences of non-compliance.
- Avoidance of invasive weed introductions onto the project site and surrounding areas, and description of the project's weed control plan and associated compliance requirements for workers on the site.
- Function, responsibilities, and authority of biological and environmental monitors and how they interact with construction crews.
- Requirement to remain within authorized work areas and on approved roads, with examples of the flagging and signage used to designate these areas and roads, and the consequences of non-compliance.
- Procedure for obtaining clearance from a biological monitor to enter a work site and begin work (including moving equipment), and the requirement to wait for that clearance.
- One-hour hold (or other method SCE will use to halt work when necessary to maintain compliance) and the requirement for compliance.
- Nest buffers and associated restrictions and the consequences of non-compliance. Procedure and time frame for halting work and removing equipment when a new buffer is established. Discussion of nest deterrents.
- Explanation that wildlife must not be harmed or harassed. Procedures for covering pipes, securing excavations, and installing ramps to prevent wildlife entrapment. What to do and who to contact if dead, injured, or entrapped animals are encountered.
- General safety protocols such as hazardous substance spill prevention, containment, and cleanup measures; fire prevention and protection measures; designated smoking areas (if any) and cigarette disposal; safety hazards that may be caused by plants and animals; and procedure for dealing with rattlesnakes in or near work areas or access roads.

- Project requirements that have resulted in repeated compliance issues on other recent transmission line projects, such as dust control, speed limits, track out (dirt or mud tracked from access roads or work sites onto paved public roads or other areas), personal protective equipment (PPE), work hours, working prior to clearance, and waste containment and disposal.
- Printed training materials, including photographs and brief descriptions of all special-status plants and animals that may be encountered on the project, including behavior, ecology, sensitivity to human activities, legal protection, penalties for violations, reporting requirements, and protection measures.
- Contact information for SCE, construction management, and contractor environmental personnel, and who to contact with questions.
- Training acknowledgment form to be signed by each worker indicating that they understand and will abide by the guidelines, and a hardhat sticker so WEAP attendance may be easily verified in the field.

WEAP Lite. An abbreviated version of WEAP training ("WEAP lite") may be used for individuals who are exclusively delivery drivers, concrete truck drivers, or visitors to the project site, and will be provided by a qualified project biologist, biological monitor, or environmental field staff prior to those individuals entering or working on the project. Short-term visitors (total of 5 days or less per year) to the project site who will be riding with and in the company of WEAP-trained project personnel for the entire duration of their visit(s) are not required to attend WEAP or WEAP lite training. WEAP lite presentations shall be tailored to delivery/concrete truck drivers and visitors as well as the situation and emphasize project requirements that are relevant to those individuals and that situation.

WEAP Refreshers. Biological monitors or environmental field staff will periodically present brief WEAP refresher presentations at tailboards to help construction crews and other personnel maintain awareness of environmental sensitivities and requirements. A 5- to 10-minute informal talk will be presented at each of the project's main contractor/subcontractor tailboards at least once a week.

When a contractor or subcontractor resumes work after a long break, a biological monitor or environmental field staff will provide an extended WEAP refresher presentation (10-20 minutes) at each of the contractor/subcontractor tailboards on the first day back to work.

Mitigation Measure BR-3 is necessary because no corresponding APM is proposed. The measure will prevent potentially significant impacts to special-status plant and wildlife habitat be delineating areas on the site where construction activity is authorized and prevent inadvertent or unnecessary ground disturbance to habitat outside the authorized areas.

BR-3 **Minimize native vegetation and habitat loss.** Final engineering of the project shall minimize the extent of disturbance and removal of native vegetation and habitat, to the extent safely possible. Work activities and roadways will avoid or minimize direct or indirect effects to sensitive habitat types or jurisdictional waters and provide buffer areas to minimize disturbance. Project access will utilize existing routes or bridges over jurisdictional waters wherever possible.

Consistent with project safety and security protocols, landowner preferences, and any other applicable regulations or requirements, existing gates on project access roads will be closed and secured when project personnel enter or leave an area.

Prior to beginning any ground-disturbing activities, SCE shall provide CPUC and BLM with final engineering GIS shapefiles depicting all temporary and permanent disturbance areas, as well as summary data on temporary and permanent disturbance for each vegetation or habitat type.

On completion of project construction, SCE shall provide CPUC and BLM with GIS shapefiles of all actual temporary and permanent disturbance areas, accurate aerial imagery of the project area, and summary data of all discrepancies between final engineering and "as-built" conditions for each vegetation or habitat type.

To the extent feasible and safe, vegetation removal within work areas will be minimized and construction activities will implement drive and crush access and site preparation rather than grading. Stockpiling of spoils and salvaged topsoil will be located in previously disturbed areas and/or will avoid native habitat areas.

Prior to any construction, equipment or crew mobilization at each work site, work areas will be marked with staking or flagging to identify the limits of work and will be verified by project environmental staff and CPUC Environmental Monitor. Staking and flagging will clearly indicate the work area boundaries. Where staking cannot be used, traffic cones, traffic delineators, or other markers shall be used. Staking and flagging or other markers shall be in place during construction activities at each work site and refreshed as needed. Coded flagging colors or color combinations will be consistent and uniform across the project. All work activities, vehicles, and equipment will be confined to approved roads and staked and flagged or marked work areas.

Mitigation Measure BR-4 (Restore or revegetate temporary disturbance areas) supersedes APM BIO-01 (Revegetation Plan) and mitigates impacts to special status wildlife habitat by minimizing erosion, dust, and vulnerability to weed invasions. It also provides performance standards and needed implementation details not included in APM BIO-1, and is required to reduce the impacts below a level of significance.

BR-4 **Restore or revegetate temporary disturbance areas.** [Replaces APM BIO-01 to provide further specificity.] SCE will implement a restoration or revegetation plan for all temporarily disturbed sites. Given that temporary impacts to desert tortoise habitat is considered a permanent impact in this MND and under BLM's Programmatic Biological Opinion (BO) provides federal take authorization for the Project, SCE will mitigate for all desert tortoise habitat impacts as permanent impacts through compensatory mitigation. These temporarily disturbed sites will be subject to revegetation (i.e., re-establishment of vegetation to minimize long-term erosion, dust, and weed infestation) but habitat restoration will not be required. SCE will be required to implement habitat restoration at temporarily disturbed sites not mitigated through off-site compensation. SCE will provide a Habitat Restoration and Revegetation Plan (HRRP) to cover all temporarily disturbed sites, identifying sites to be subject to revegetation alone and those to be restored. The HRRP will describe, at a minimum, which revegetation or restoration method (e.g., natural revegetation, planting, or reseeding with native seed stock in compliance with the Proposed Project's SWPPPs) will be implemented at each temporarily disturbed site. It will include the plant species or habitats to be restored or revegetated, the restoration or revegetation methods and techniques, and the monitoring periods and success criteria.

All temporarily disturbed areas will be subject to revegetation and site management activities and success criteria of the Proposed Project's SWPPP/Erosion Control Plan (HWQ-1) and the Integrated Weed Management Plan (BR-5) to ensure soil stabilization, vegetation cover, and weed prevention. In addition to those requirements, for any temporarily disturbed area not subject to compensatory mitigation (BR-8), the HRRP shall include:

- Restoration goals and objectives for each portion of the project area, based on vegetation type and jurisdictional status of each site.
- Quantitative success criteria for each restoration site, area, or category.
- Implementation details, including but not limited to topsoil stockpiling and handling; post-construction site preparation; soil decompaction and recontouring; planting and seeding palettes to include only native, locally sourced materials with confirmed availability from suppliers; fall or other suitable season planting or seeding dates (seeding outside the fall season may increase the risk of revegetation failure and need for subsequent remedial reseeding, irrigation, or other measures).
- Maintenance details, including but not limited to irrigation or hand-watering schedule and equipment, erosion control, and weed control measures.
- Monitoring and Reporting, specifying monitoring schedule and data collection methods throughout establishment of vegetation with key indicators of successful or unsuccessful progress, and quantitative criteria to objectively determine success or failure at the conclusion of the monitoring period.
- Contingency measures such as reseeding, replanting, drainage repairs, adjustments to irrigation or weeding schedule, and extension of maintenance beyond the original schedule, to repair or remediate sites not on track to meet success criteria, or not meeting the criteria at the close of the originally scheduled monitoring period.
- A Gantt chart or similar exhibit identifying all components of the HRRP, including acquisition of plant materials, specifying site preparation and seeding or planting dates, identifying entity to perform each task (e.g., EPC contractor or restoration contractor) and indicating critical path activities.

The Draft HRRP shall be submitted to CPUC and BLM review and approval prior to the beginning of ground-disturbing activities. SCE shall incorporate all requested revisions in coordination with the CPUC and BLM and finalize the HRRP within 12 months from the start of construction.

For all restoration areas, if a fire, flood, or other disturbance beyond the control of SCE, CPUC, and BLM damages the area within the monitoring period, SCE shall be responsible for a one-time replacement. If a second event occurs, no replacement is required.

For all revegetation (per SWPPP requirements) or restoration sites (per the HRRP), only seed or potted nursery stock of locally occurring native species will be used. Seeding and planting will be informed by Chapter 5 of *Rehabilitation of Disturbed Lands in California* (Newton and Claassen, 2003). The list of plants observed during botanical surveys of the project area will be used as a guide to site-specific plant selection.

Monitoring of the restoration sites will continue annually for up to 5 years or until the defined success criteria in the HRRP are achieved. SCE will be responsible for implementing remediation measures as needed. Following remediation work, each site will still be subject

to the success criteria required for the initial restoration. The monitoring period for remediation work will be concurrent with the monitoring period required for the initial restoration.

Reporting. For all restoration areas, SCE will provide annual reports to the CPUC and BLM verifying the total vegetation acreage subject to temporary and permanent disturbance, identifying which items of the HRRP have been completed, and which items are still outstanding. The annual reports will also include a summary of the restoration activities for the year, a discussion of whether success criteria were met, any remedial actions conducted and recommendations for remedial action, if warranted, that are planned for the upcoming year. Each annual report will be submitted within 90 days after completion of each year of restoration work.

Mitigation Measure BR-5 supersedes APM BIO-03 (Noxious and Invasive Weed Management Plan) because the APM does not include sufficient detail regarding weed prevention, and does not address control and monitoring to prevent invasive weeds from becoming established and spreading in Project disturbance areas or spreading to adjacent undisturbed habitat. Mitigation Measure BR-5 also provides additional performance standards to prevent new invasive species from being introduced to the Project area, and ensure that existing invasive species are detected and adequately controlled to prevent on-site or off-site habitat degradation.

BR-5 **Prepare and Implement an Integrated Weed Management Plan.** [Supersedes APM BIO-03.] SCE shall prepare and implement an Integrated Weed Management Plan (IWMP) describing the proposed methods of preventing or controlling project-related spread or introduction of weeds. The IWMP also must meet BLM's requirements for NEPA disclosure and analysis if herbicide use is proposed for the project. A Draft IWMP shall be submitted to the CPUC and BLM for review and approval at least 60 days prior to SCE's application for Notice to Proceed, and no pre-construction activities (e.g., for geotechnical borings, hazardous waste evaluations, etc.), construction, equipment or crew mobilization, or project-related ground-disturbing activity shall proceed until the IWMP is approved.

For the purpose of the IWMP, "weeds" shall include designated noxious weeds, as well as any other non-native weeds or pest plants identified on the weed lists of the California Department of Food and Agriculture, the California Invasive Plant Council, or identified by BLM as special concern. The IWMP will include the contents listed below. The IWMP will be implemented throughout project pre-construction, construction, and post-construction revegetation phases, including throughout implementation of the HRRP (Mitigation Measure BR-4). The IWMP will include the information defined in the following paragraphs.

Background. An assessment of the Proposed Project's potential to cause spread of invasive non-native weeds into new areas, or to introduce new non-native invasive weeds into the ROW. This section must list known and potential non-native and invasive weeds occurring on the ROW and in the project region, and identify threat rankings and potential consequences of project-related occurrence or spread for each species. This section must also identify control goals for each species (e.g., eradication, suppression, or containment) likely to be found within the Proposed Project area.

Pre-construction weed inventory. SCE shall inventory weeds in all areas (both within and outside the ROW) subject to project-related vegetation removal/disturbance, "drive and crush," and ground-disturbing activity. The weed inventory shall also include vehicle and equipment access routes within the ROW and all project staging and storage yards. Weed occurrences shall be mapped and described according to density and area covered.

Pre-construction weed treatment. Weed infestations identified in the pre-construction weed inventory shall be evaluated to identify potential for project-related spread and potential benefits (if any) of pre-construction treatment, considering the specific weeds, potential see banks, or other issues. The IWMP will identify any infestations to be controlled or eradicated prior to project construction, or other site-specific weed management requirements (e.g., avoidance of soil or transport and site-specific vehicle washing where threat or spread potential is high). Control and follow-up monitoring of pre-construction weed treatment sites will follow methods identified in appropriate sections of the IWMP.

Prevention. The IWMP shall specify methods to minimize potential transport of new weed seeds onto the ROW, or from one section of the ROW to another. The ROW may be divided into "weed zones," based on known or likely invasive weeds in any portion of the ROW. The IWMP will specify inspection procedures for construction materials and equipment entering the Proposed Project area. Vehicles and equipment may be inspected and cleaned at entry points to specified portions of the ROW, and before leaving work sites where weed occurrences must be contained locally. Construction equipment shall be cleaned of dirt and mud that could contain weed seeds, roots, or rhizomes. Equipment shall be inspected to ensure it is free of any dirt or mud that could contain weed seeds, and the tracks, outriggers, tires, and undercarriage will be carefully washed, with special attention being paid to axles, frame, cross members, motor mounts, underneath steps, running boards, and front bumper/ brush guard assemblies. Other construction vehicles (e.g., pick-up trucks) that will be frequently entering and exiting the site will be inspected and washed on an as-needed basis. Tools such as chainsaws, hand clippers, pruners, etc., shall be cleaned of dirt and mud before entering project work areas.

All vehicles shall be washed off-site when possible. If off-site washing is infeasible, on-site cleaning stations will be set up at specified locations to clean equipment before it enters the work area. Wash stations will be located away from native habitat or special-status species occurrences. Wastewater from cleaning stations will not be allowed to run off the cleaning station site. When vehicles and equipment are washed, a daily log must be kept stating the location, date and time, types of equipment, methods used, and personnel present. The log shall contain the signature of the responsible crewmember. Written or electronic logs shall be available to BLM and CPUC monitors on request.

Erosion control materials (e.g., hay bales) must be certified free of weed seed before they are brought onto the site. The IWMP must prohibit on-site storage or disposal of mulch or green waste that may contain weed material. Mulch or green waste will be removed from the site in a covered vehicle to prevent seed dispersal and transported to a licensed landfill or composting facility.

The IWMP must specify guidelines for any soil, gravel, mulch, or fill material to be imported into the Proposed Project area, transported from site to site within the Proposed Project area, or transported from the Proposed Project area to an off-site location, to prevent the introduction or spread of weeds to or from the Proposed Project area.

Monitoring. The IWMP shall specify methods to survey for weeds during pre-construction, construction, and restoration phases; and shall specify qualifications of botanists responsible for weed monitoring and identification. It must include a monitoring schedule to ensure timely detection and immediate control of new weed infestations to prevent further spread. Surveying and monitoring for weed infestations shall occur at least two times per year through the close of the restoration phase, to coincide with the early detection period

for early season and late season weeds (i.e., species germinating in winter and flowering in late winter or spring, and species germinating later in the season and flowering in summer or fall). It also must include methods for marking invasive weeds on the ROW, and recording and communicating these locations to weed control staff. The map of weed locations (discussed above) shall be updated at least once a year. The monitoring section shall also describe methods for post-eradication monitoring to evaluate success of control efforts and any need for follow-up control.

Control. The IWMP must specify manual and chemical weed control methods to be employed. The IWMP shall include only weed control measures with a demonstrated record of success for target weeds, based on the best available information. The plan shall describe proposed methods for promptly scheduling and implementing control activity when any weed infestation is located (e.g., located on a project disturbance site), to ensure effective and timely weed control. Weed infestations must be controlled or eradicated upon discovery, and before they go to seed, to the extend feasible with the goal to prevent further spread. All proposed weed control methods must minimize the extent of any disturbance to native vegetation, limit ingress and egress to defined routes, and avoid damage from herbicide use or other control methods to any environmentally sensitive areas identified within or adjacent to the ROW.

New weed infestations shall be treated at a minimum of once annually until eradication, suppression, or containment goals are met. For eradication, when no new occurrences are observed for three consecutive years, the weed occurrence can be considered eradicated and weed control efforts may cease for the site.

Manual control shall specify well-timed removal of weeds or their seed heads with hand tools; seed heads and plants must be disposed of in accordance with guidelines from the San Bernardino County Agricultural Commissioner and Nevada Department of Agriculture, if such guidelines are available.

The chemical control section must include specific and detailed plans for any herbicide use. It must indicate where herbicides will be used, which herbicides will be used, and specify techniques to be used to avoid drift or residual toxicity to wildlife and native vegetation or special-status plants, consistent with BLM's *Vegetation Treatments Using Herbicides on BLM Lands in 17 Western States* (BLM, 2007) and *National Invasive Species Management Plan* (NISC, 2008). Only state and BLM-approved herbicides may be used. Herbicide treatment will be implemented by a Licensed Qualified Applicator. Herbicides shall not be applied during or within 24 hours of predicted rain. Only water-safe herbicides shall be used in riparian areas or within channels (engineered or not) where they could run off into downstream areas. Herbicides shall not be applied when wind velocities exceed six (6) mph. All herbicide applications will follow U.S. Environmental Protection Agency label instructions and will be in accordance with federal, state, and local laws and regulations.

Reporting schedule and contents. The IWMP shall specify the reporting schedule and contents of each report.

Mitigation Measure BR-6 (Minimize and mitigate impacts to special-status plants) supersedes APM BIO-02 and is needed to reduce potential impacts to special-status plant species to less than significant because (1) existing data are insufficient to determine presence or absence of many special-status plants within potential project disturbance areas, (2) APM BIO-2 does not specify the schedule, methods, or professional qualifications of biologists for future surveys to be completed prior to construction, and (3)

APM BIO-2 would not mitigate unavoidable impacts to special-status plants (e.g., through compensation, off-site compensation, salvage, or horticultural propagation and off-site introduction). Revegetation identified in APM BIO-2 does not specify measures to offset or replace special-status plant losses. Mitigation Measure BR-6 would avoid or mitigate potential impacts to special-status plants by (1) requiring seasonal pre-construction surveys to identify plants, (2) avoiding occurrences where possible, and (3) determining which impacts, if any, would be significant based on a threshold of ten-percent of the local occurrence, and (4) mitigating unavoidable impacts to the specific plant that is impacted through one or more of several methods identified in the measure.

BR-6 **Minimize and mitigate impacts to special-status plants.** [Supersedes APM BIO-02.]

Pre-construction survey. SCE shall conduct focused pre-construction surveys for federal- and state-listed and other special-status plants within suitable habitat. All special-status plant species (including listed threatened or endangered species, and CNPS California Rare Plant Rank (CRPR) 1 and 2 ranked species likely to be impacted by project activities shall be documented in pre-construction survey reports. Surveys shall be conducted by a qualified botanist during the appropriate season in all suitable habitat within 50 feet of disturbance areas. The field surveys and reporting must conform to current CDFW botanical field survey protocol (CDFG, 2018). Where any special-status plants may be discovered, the survey area will extend beyond the ROW to determine the extent of the local occurrence, to evaluate the significance of any project impacts. The reports will describe any conditions that may have prevented target species from being located or identified, even if they are present as dormant seed or below-ground rootstock. If pre-construction survey areas conducted in years of poor rainfall or following other extreme events (e.g., recent intense overgrazing or wildfire), then the project shall use data from 2016/2017 and 2019 surveys to define population area and maximum number of individuals (Note, the unusually high rainfall in 2017 and 2019 are likely to better define rare plant locations and have more accurate results than subsequent years with lower rainfall). For species not previously detected on surveys but for which have a high potential to occur, reference populations will be used to determine if the species is detectable for pre-construction surveys conducted in suitable habitat. Prior to initial ground disturbance at individual construction work areas, SCE shall submit pre-construction field survey reports along with maps showing locations of survey areas and special-status plants to the CPUC and BLM for review and approval in coordination with CDFW.

Native cactus and *Yucca*. Most native cactus and shrubby *Yucca* species (Joshua tree and Mojave yucca) can be successfully salvaged and transplanted, and yuccas often provide an important vertical component to wildlife habitat. Therefore, native cactus (excluding chollas in the genus *Cylindropuntia*) and yuccas (including Joshua trees, *Y. brevifolia*), shall be avoided or salvaged as follows:

SCE will prepare and implement a cacti and yucca salvage plan. The goal shall be maximum practicable survivorship of salvaged plants. The Plan will include at minimum: (a) species and locations of plants identified for salvage; (b) criteria for determining whether an individual plant is appropriate for salvage; (c) the appropriate season for salvage; (d) equipment and methods for collection, transport, and re-planting plants or seed banks, to retain intact soil conditions and maximize success; (e) a requirement to mark each plant to identify the north-facing side prior to transport, and replant it in the same orientation; (f) details regarding storage of plants or seed banks for each species; (g) location of the proposed recipient site, and detailed site preparation and plant introduction techniques for top soil storage, as applicable; (h) a description of the irrigation, weed control, and other maintenance activ-

ities; (i) success criteria, including specific timeframe for survivorship and reproduction of each species; and (j) a detailed monitoring program, commensurate with the Plan's goals.

Mitigation. SCE shall mitigate impacts to any state or federally listed plants or CRPR 1 or Nevada ranked S1, S2, or S3 species that may be located on the project disturbance areas or surrounding buffer areas through one or a combination of the following strategies. Additionally, impacts to CRPR 2 ranked plants occurring in California will be similarly mitigated.

Avoidance of special-status plants will be the preferred strategy wherever feasible. Where avoidance is not feasible, and the project would directly or indirectly affect more than 10 percent of a local occurrence,[3] by either number of plants (shrubs and trees) or extent of occupied habitat (annuals or perennial herbs), SCE shall prepare and implement a mitigation plan to consist of off-site compensation, salvage, horticultural propagation / off-site introduction, or a combination of these.

- **Avoidance.** Work areas shall be located to avoid or minimize impacts to special-status plants to the greatest extent possible. Effective avoidance through project design shall include a buffer area surrounding each avoided occurrence, where no project activities will take place. The buffer area will be clearly staked, flagged, and signed for avoidance prior to the beginning of ground-disturbing activities, and maintained throughout the construction phase. At minimum, the buffer for shrub species shall be equal to twice the drip line (i.e., two times the distance from the trunk to the canopy edge) to protect and preserve the root systems. The buffer for herbaceous species shall be a minimum of 50 feet from the perimeter of the occupied habitat or the individual(s). However, for locations in the mountains, a larger buffer may need to be applied to shrub and herbaceous species if the construction monitors determine there is a risk of indirect effects from erosion or inundation. If a smaller buffer is necessary due to other project constraints, SCE will develop and implement site-specific monitoring and put other measures in place to avoid the take of the species, with the approval of the CPUC and BLM, in coordination with CDFW.
- **Off-site compensation.** SCE shall provide compensation lands consisting of habitat occupied by the impacted CRPR 1 or 2 ranked plant populations at a 1:1 ratio of acreage and number of plants for any occupied habitat directly impacted (whether temporary or permanent) by the project. Occupied habitat will be calculated on the project site and on the compensation lands as including each special-status plant occurrence and a surrounding 50-foot buffer area. If compensation is selected as a means of mitigating special-status plant impacts, it may be accomplished by purchasing credit in an established mitigation bank, acquiring conservation easements, or direct purchase and preservation of compensation lands. Compensation for these impacts may be "nested" or "layered" with compensation for habitat loss described in Mitigation Measure BR-8.
- **Salvage.** SCE shall consult with a qualified restoration ecologist or horticulturist regarding the feasibility and likely success of salvage efforts for each species. If salvage is deemed to be feasible, based on prior success with similar species, then SCE shall prepare and implement a Special-status Plant Salvage and Relocation Plan, to be reviewed and approved by the CPUC and BLM, in consultation with CDFW and USFWS, prior to direct or indirect disturbance of any occupied habitat. For special-status plants, excluding cacti and Yuccas

[3] An occurrence for a plant is defined as any population or group of nearby populations located more than 0.25 miles from any other population (CDFW, 2009).

(see above), the goal shall be to improve existing populations or establish new populations. For cacti and yuccas, the goal shall be maximum practicable survivorship of salvaged plants. The Plan will include at minimum: (a) species and locations of plants identified for salvage; (b) criteria for determining whether an individual plant is appropriate for salvage; (c) the appropriate season for salvage; (d) equipment and methods for collection, transport, and re-planting plants or seed banks, to retain intact soil conditions and maximize success; (e) for shrubs, cacti, and yucca, a requirement to mark each plant to identify the north-facing side prior to transport, and replant it in the same orientation; (f) details regarding storage of plants or seed banks for each species; (g) location of the proposed recipient site, and detailed site preparation and plant introduction techniques for top soil storage, as applicable; (h) a description of the irrigation, weed control, and other maintenance activities; (i) success criteria, including specific timeframe for survivorship and reproduction of each species; and (j) a detailed monitoring program, commensurate with the Plan's goals.

Annual monitoring reports shall be submitted to CPUC and BLM for five years or until the relocation effort is deemed successful on agreement of SCE and the CPUC. Reports shall include, but not be limited to, details of plants salvaged, stored, and transplanted (salvage and transplanting locations, species, number, size, condition, etc.); adaptive management efforts implemented (date, location, type of treatment, results, etc.); and evaluation of success of transplantation.

- **Horticultural propagation and off-site introduction.** If salvage and relocation is not believed feasible for special-status plants, then SCE shall consult with a qualified entity to develop an appropriate experimental propagation and relocation strategy, based on the life history of the species affected. The Plan will include at minimum: (a) collection and salvage measures for plant materials (e.g., cuttings), seed, or seed banks, to maximize success likelihood; (b) details regarding storage of plant, plant materials, or seed banks; (c) location of the proposed propagation facility, and proposed methods; (d); time of year that the salvage and other practices will occur; (e) success criteria; and (f) a detailed monitoring program, commensurate with the Plan's goals.

BR-7 **Ensure wildlife impact avoidance and minimization.** SCE shall undertake the following measures during the construction and revegetation phases to avoid or minimize impacts to wildlife resources.

- **Minimize traffic impacts.** SCE will specify and enforce a maximum 15 mile per hour vehicle speed limit on access roads within the ROW and project vicinity. No project-related pedestrian or vehicle traffic will be permitted outside defined work site or access route boundaries.
- **Minimize lighting impacts.** Night lighting, when in use, shall be designed, installed, and maintained to prevent side casting of light towards surrounding fish or wildlife habitat.
- **Avoid use of toxic substances.** Soil bonding and weighting agents used for dust suppression on unpaved surfaces shall be non-toxic to wildlife and plants.
- **Minimize noise and vibration impacts.** To minimize disturbance to wildlife nesting or breeding activities in surrounding habitat, project-related helicopter use shall be avoided or managed to the extent feasible from January 1 to August 31. Unnecessary noise (e.g., blaring radios) shall be avoided.

- **Water.** Potable and non-potable water sources such as tanks, ponds, and pipes shall be covered or otherwise secured to prevent animals (including birds) from entering. Prevention methods may include storing all water within closed tanks, covering open storage ponds or tanks with 2-centimeter netting, or other means as applicable. Water applied to roads and construction areas for dust abatement shall use the minimal amount needed to meet safety and air quality standards. Water sources (e.g., hydrants, tanks, etc.) shall be checked periodically by biological monitors to ensure they are not creating open water sources by leaking or consistently overfilling trucks.
- **Worker guidelines.** All trash and food-related waste shall be contained in vehicles or covered trash containers and removed from the site regularly. Workers shall not feed wildlife or bring animals or pets to the project site with the exception of ADA-compliant service animals. Except for law enforcement personnel, no workers or visitors to the site shall bring firearms or weapons.
- **Wildlife netting or exclusion fencing.** SCE may install temporary netting or permanent screening or fencing around equipment, work areas, or project facilities to prevent wildlife exposure to hazards such as toxic materials or vehicle strikes or prevent birds from nesting on equipment or facilities. Bird deterrent netting will be maintained free of holes and will be deployed and secured on the equipment in a manner that prevents wildlife from becoming trapped inside the netted area or within the excess netting. The biological monitor will inspect netting (if installed) twice daily, at the beginning and close of each work day, with the exception of netting installed in established material yards, which will be inspected at least once daily. The biological monitor will inspect exclusion fence (if installed) weekly and will inform SCE of any needed repairs; SCE shall promptly repair any damage to the exclusion fencing. Temporary netting shall be removed and properly disposed of following the completion of project activities.
- **Wildlife entrapment.** Project-related excavations shall be secured to prevent wildlife entry and entrapment. Holes and trenches shall be backfilled, securely covered, or fenced. Excavations that cannot be fully secured shall incorporate appropriate wildlife ramp(s) at a slope of no more than a 3:1 ratio, or other means to allow trapped animals to escape. Biological monitors shall provide guidance to construction crews to ensure that wildlife ramps or other means are sufficient to allow trapped animals to escape. At the end of each work day, a biological monitor shall ensure that excavations have been secured or provided with appropriate means for wildlife escape.

  All pipes or other construction materials or supplies that CPUC monitors determine to present a risk to wildlife will be covered or capped in storage or laydown areas. No pipes or tubing of the size and nature that may entrap wildlife will be left open either temporarily or permanently, except during use or installation. Any construction pipe, culvert, or other hollow materials will be inspected for wildlife before it is moved, buried, or capped.
- **Dead animals.** Dead animals (of non-special-status species) large enough to subsidize ravens found on unpaved project roads, work areas, or the ROW shall be reported to the appropriate local animal control agency within 24 hours, to minimize raven subsidies. A biological monitor shall safely move the carcass out of the road or work area as needed. Dead animals of special-status species found on unpaved project roads, work areas, or the ROW shall be reported to CDFW within one work day and the carcass handled as directed by CDFW.

- **Injured special-status wildlife.** SCE shall create and implement guidelines for dealing with injured or entrapped special-status wildlife found on or near project roads, work areas, or the ROW, and provide these guidelines to all biological monitors. If an animal is entrapped, a qualified biological monitor shall free the animal if feasible, or work with construction crews to free the animal, in compliance with applicable safety regulations and project requirements. If biological monitors cannot free the animal or the animal is too large or dangerous for monitors to handle, SCE shall contact and work with animal control, CDFW, or other qualified party to obtain assistance for the animal as soon as possible.

SCE shall ensure that one or more qualified biological monitors receive training in the safe and proper handling and transport of injured wildlife and are provided with the appropriate equipment. These trained and equipped monitors shall be available to capture and transport injured wildlife to a local wildlife rehabilitator or veterinarian as needed. If the injured animal is too large or dangerous for monitors to handle, or a trained and equipped monitor is not available, SCE shall contact and work with a local wildlife rehabilitator, animal control, CDFW, or other qualified party to obtain assistance for the animal as soon as possible. A list of qualified wildlife rehabilitators, veterinarians, and animal control agencies will be maintained to ensure a timely response to requests for support. SCE shall bear the costs of veterinary treatment and rehabilitation for any wildlife injured by project-related activities and any injured wildlife found on or near project roads, work areas, or the ROW, unless the injuries are clearly not project-related, as determined by a qualified biologist. Additionally, any entrapped or injured special-status species found on project roads (with the exception of public roads), work areas, or the ROW shall be reported to the appropriate resource agency within one work day.

BR-8 **Compensate for desert tortoise habitat loss.** [Supersedes APM BIO-05.] SCE shall compensate for all desert tortoise habitat loss through off-site habitat acquisition and management, or through participation in an approved in-lieu fee compensatory mitigation bank, or other agency approved mitigation strategies. This mitigation measure will be applicable to all temporary and permanent project disturbance to natural habitat types, (i.e., all vegetation types identified in Table 5.4-2, excluding active agriculture, barren, and developed lands). This compensatory mitigation for desert tortoise will also mitigate for habitat impacts to other native wildlife species.

Habitat compensation shall be accomplished by acquisition of mitigation land or conservation easements or by providing funding for specific land acquisition, endowment, restoration, and management actions. SCE shall prepare a Habitat Compensation Plan to be reviewed and approved by the CPUC and BLM, in coordination with the USFWS and CDFW.

SCE shall acquire and protect, in perpetuity, compensation habitat to mitigate impacts to biological resources as detailed below. SCE shall be responsible for the acquisition, initial protection and or habitat improvement. SCE may convey title of the compensation lands to a public agency such as BLM, NPS, or CDFW or the lands may be held by a private conservation entity. If the land is conveyed to BLM, it shall be within a land use designation such as Area of Environmental Concern, wilderness, or similar designation consistent with long-term management for biological resource values and excluding incompatible land uses (e.g., energy development). If it is conveyed to CDFW, or retained under private ownership, it shall be covered by a conservation easement or other terms acceptable to CDFW. If there is any conflict between the requirements of this mitigation measure and requirements of any

resource agency permit (e.g., USFWS Biological Opinion or CDFW Incidental Take Permit), the more stringent requirement shall apply.

The acreages of compensation land shall be based upon final engineering calculation of impacted acreage for each resource and on ratios set forth in this measure, or a USFWS Biological Opinion, a CDFW Streambed Alteration Agreement, a CDFW Incidental Take Permit, or the Consistency Determination, whichever presents a higher ratio. Acreages will be adjusted as appropriate for other alternatives or future modifications during implementation.

Compensation shall be provided for impacts to the following resources, at the ratios specified below (acres acquired and preserved to acres impacted). These ratios reflect multiple biological resource values, including habitat suitability for special-status species.

Previously disturbed lands (agriculture, developed/disturbed) and open water: n/a (no habitat compensation required)

Undisturbed land, including suitable desert tortoise habitat outside designated critical habitat: 1:1

Suitable desert tortoise habitat within designated critical habitat: 5:1

The Habitat Compensation Plan must specify compensation acreage for each habitat type, based on final engineering. Final compensation requirements may be adjusted to account for any deviations in project disturbance, according to the as-built shapefiles aerial imagery.

Compensation Land Selection Criteria. Criteria for the acquisition, initial protection and habitat improvement, and long-term maintenance and management of compensation lands for impacts to biological resources shall include all of the following:

- Compensation lands will provide habitat value that is equal to or better than the quality and function of the habitat impacted by the project, taking into consideration soils, vegetation, topography, human-related disturbance, wildlife movement opportunity, proximity to other protected lands, management feasibility, and other habitat values, subject to review and approval by CPUC and BLM;
- Potential compensation sites where creosote rings are found will be prioritized where feasible, and where consistent with the other selection criteria;
- To the extent that proposed compensation habitat may have been degraded by previous uses or activities, the site quality and nature of degradation must support the expectation that it will regenerate naturally when disturbances are removed and SCE will receive appropriate ratio credits for restoration;
- Be near larger blocks of lands that are either already protected or planned for protection, or which could feasibly be protected long-term by a public resource agency or a non-governmental organization dedicated to habitat preservation;
- Not have a history of intensive recreational use or other disturbance that might cause future erosion or other habitat damage, and make habitat recovery and restoration infeasible;
- Not be characterized by high densities of invasive species, either on or immediately adjacent to the parcels under consideration, that might jeopardize habitat recovery and restoration;

- Not contain hazardous wastes that cannot be removed to the extent that the site could not provide suitable habitat;
- Have water and mineral rights included as part of the acquisition, unless the CPUC and BLM, in consultation with CDFW and USFWS, agree in writing to the acceptability of land without these rights.

Review and Approval of Compensation Lands Prior to Acquisition. SCE shall submit a Draft Habitat Compensation Plan for review and approval by the CPUC and BLM describing the parcel(s) intended for protection. This Plan will discuss the suitability of the proposed parcel(s) as compensation lands in relation to the selection criteria listed above.

Management Plan. If the compensation land is held by a private entity, SCE or approved third party shall prepare a management plan for the compensation lands in consultation with the entity that will be managing the lands. The goal of the management plan will be to support and enhance the long-term viability of the biological resources. The Management Plan must be submitted for review and approval to the CPUC and BLM, in consultation with CDFW and USFWS. If the land is conveyed to a public agency, SCE will coordinate with the agency as needed to identify management planning needs (if any).

Compensation Lands Acquisition Requirements. Compensation land parcels, management planning and funding mechanism, management entities, habitat protection and improvement measures, title conveyance, conservation easement language and easement holder, all will be subject to review and approval by CPUC and BLM in coordination with CDFW and USFWS.

BR-9 **Conduct surveys and avoidance for special-status reptiles.** [This measure incorporates and supersedes APM BIO-04].

- **Pre-activity Surveys.** No more than seven days prior to the onset of ground-disturbing activities, an agency-approved biologist — with experience monitoring and handling desert tortoise — will conduct a pre-activity survey in all work areas within potential desert tortoise, banded Gila monster, desert rosy boa, or Mojave fringe-toed lizard habitat, plus an approximately 300-foot buffer. If potentially suitable burrows, sand fields, or rock piles are found, they shall be checked for occupancy. All desert tortoise burrows within the pre-activity survey area (including desert tortoise pallets) must be flagged or marked using an alternate method with minimal potential risk of cuing predators, to be developed in coordination with CDFW so that they may be avoided during work activities. Proposed actions will avoid disturbing desert tortoise burrows to the extent possible. However, burrows may be excavated if they can't be avoided and would be impacted by construction activities. If a tortoise must be handled or a potential tortoise burrow must be excavated, the biologist shall proceed according to the Desert Tortoise (Mojave Population) Field Manual (USFWS, 2009) or any requirements of the USFWS and CDFW incidental take authorizations. No desert tortoise may be handled except under explicit authorization from USFWS and CDFW.
- **Monitoring.** The approved tortoise biologist shall be available on site to monitor any work areas for desert tortoise, banded Gila monster, desert rosy boa, and Mojave fringe-toed lizard as needed. The approved tortoise biologist shall also be responsible for performing surveys prior to Proposed Project activities in suitable habitat for all three species. The approved tortoise biologist will have the authority to halt all non-emergency actions (as

soon as safely possible) that may result in harm to desert tortoise, and will assist in the overall implementation of all adopted protection measures for special-status reptiles. As an alternative to full-time on-site monitoring, selected work areas (e.g., the series capacitors) may be enclosed by desert tortoise exclusion fencing and then covered by two complete 100 percent coverage clearance surveys. If exclusion fencing is installed, the agency-approved tortoise biologist shall monitor installation.

- **Desert Tortoise in Work Area.** In the event that a desert tortoise is encountered in the work area, all work shall cease and the approved biologist must be contacted. Work shall not recommence until the animal has voluntarily moved to a safe distance away from the work area unless incidental take permits have been obtained to allow handling. Desert tortoises may be moved by an agency-approved biologist as authorized by state and federal incidental take permits if necessary to move them out of harm's way. Encounters with special-status herpetofauna will be reported to an approved biologist. Encounters with desert tortoise will be documented and provided to the California Department of Fish and Wildlife (CDFW), BLM, and U.S. Fish and Wildlife Service (USFWS). In the event that a dead or injured desert tortoise is observed, the approved biologist shall notify SCE's herpetologist and report the incident to the CDFW, BLM, and USFWS.
- **Under Vehicle Checks.** Desert tortoises and other wildlife commonly seek shade during the hottest times of the day. All employees shall be required to check under their equipment or vehicles before they are moved. If special-status wildlife is encountered, the vehicle shall not be moved until the animal(s) have voluntarily moved to a safe distance away from the parked vehicle. Desert tortoises and special-status species may be moved by the approved biologist, if necessary, to move them out of harm's way.
- **Handling Desert Tortoise.** Only an agency-approved biologist may move or handle desert tortoises as authorized by state and federal incidental take permits. When a desert tortoise is moved, the approved biologist will be responsible for taking appropriate measures to ensure that the animal is not exposed to harmful temperature extremes. The approved biologist shall follow the appropriate protocols outlined in the Desert Tortoise (Mojave Population) Field Manual (USFWS, 2009) when handling desert tortoises or excavating their burrows as described in the state and federal take authorizations.
- **Excavation of Desert Tortoise Burrows.** Should it prove necessary to excavate a desert tortoise from its burrow to move it out of harm's way, excavation shall be done using hand tools, either by or under the direct supervision of an approved biologist. Excavation of desert tortoise burrows will occur no more than seven days before the onset of construction activities at any given site. All desert tortoises removed from burrows must be placed in an unoccupied burrow that is approximately the same size as the one from which it was removed. If an existing burrow is unavailable, the approved biologist shall construct or direct the construction of a burrow of similar shape, size, depth, and orientation as the original burrow following guidelines in the Desert Tortoise (Mojave Population) Field Manual (USFWS, 2009). To ensure their safety, desert tortoises moved during inactive periods must be monitored for at least two days after placement in the new burrows or until the end of the construction activity.

  If desert tortoises need to be moved at a time of day when ambient temperatures could harm them (i.e., at temperatures lower than 40 degrees Fahrenheit (°F) or higher than 90°F), they must be held overnight in a clean cardboard box. These desert tortoises shall be kept in the care of the approved biologist under appropriate controlled temperatures

and released the following day when temperatures are favorable. All cardboard boxes shall be appropriately discarded after one use.

- **Vehicle Travel.** Motor vehicles shall be limited to maintained roads and designated routes. If additional routes are needed, they must first be surveyed and approved by the approved biologist.
- **Raven Management.** SCE shall prepare (for CPUC review and wildlife agency approval) and implement a Raven Management Plan (RMP) to minimize avian predation of desert tortoise for the Proposed Project. The purpose of the RMP is to utilize methods that deter raven depredation of juvenile desert tortoises, and other wildlife species. The RMP is not intended to eliminate or control raven populations, but will target offending ravens that have been found to prey upon desert tortoises. The RMP will incorporate an adaptive management strategy for immediate implementation following construction of the Proposed Project. The RMP will be evaluated after three years of implementation, or as needed, if avian predation becomes apparent. The following activities may be implemented as part of the RMP: (1) Common raven nest/power line monitoring, (2) Funding of offending raven control via contract with the U.S. Department of Agriculture, and (3) Alternative control strategies developed in coordination with USFWS (e.g. egg-oiling, laser deterrents, etc.). Mutual and timely cooperation between SCE and the BLM, USFWS, and CDFW is central to effective implementation of the RMP.

BR-10 **Prepare and implement a Nesting Bird Management Plan.** [Supersedes APM BIO-06.] SCE shall prepare and implement a Nesting Bird Management Plan (NBMP) in coordination with CPUC, BLM, CDFW, and USFWS. The NBMP shall describe methods to minimize potential project effects to nesting birds and avoid any potential for unauthorized take. Where scheduling allows SCE will endeavor to conduct clearing of any vegetation, site preparation in open or barren areas, or other project-related activities that may adversely affect breeding birds outside the nesting season. Project-related disturbance including construction and preconstruction activities shall not proceed within 300 feet of active nests of common bird species or 500 feet of active nests of raptors or special-status bird species (except for golden eagle) until approval of the NBMP by CPUC and BLM in consultation with CDFW and USFWS.

NBMP Content. The NBMP shall include: (1) definitions of default nest avoidance buffers for each species or group of species, depending on characteristics and conservation status for each species and the nature of planned Project activities in the vicinity; (2) a notification procedure for buffer distance reductions should they become necessary; (4) a pre-construction survey protocol (surveys no longer than 7 days prior to starting work activity at any site); (5) a monitoring protocol, to be implemented until adjacent construction activities are completed or the nest is no longer active, including qualifications of monitors, monitoring schedule, and field methods, to ensure that any project-related effects to nesting birds will be minimized; and (6) a protocol for documenting and reporting any inadvertent contact with or effects to birds or nests. The NBMP will be applicable throughout the nesting season (beginning January 1 for raptors, February 1 for most other birds, and continuing through the end of August).

Golden eagles. SCE shall review all available USFWS data to identify known golden eagle nest sites or territories in the vicinity of the Project route. SCE shall either assume that known nest sites are occupied or at its discretion conduct nesting season surveys within a 1mile radius of the portions of the project area where suitable nesting habitat may exist and

where work will occur during the breeding season (December 1 through July 31). If a potentially occupied nest (based either on assumption or field data) is detected within 1 mile of the project, SCE shall implement a one-mile line-of-sight and one-half mile no line-of-sight buffer to ensure that project construction activities do not result in injury or disturbance to golden eagles.

Nest deterrents. The NBMP shall describe any proposed measures or deterrents to prevent or reduce bird nesting activity on project equipment or facilities, such as buoys, visual or auditory hazing devices, bird repellents, securing of materials, and netting of materials, vehicles, and equipment. It shall also include timing for installation of nest deterrents and field confirmation to prevent effects to any active nest; guidance for the contractor to install, maintain, and remove nest deterrents according to product specifications; and periodic monitoring of nest deterrents to ensure proper installation and functioning and prevent injury or entrapment of birds or other animals. In the event that an active nest is located on project facilities, materials or equipment, SCE will avoid disturbance or use of the facilities, materials or equipment (e.g., by red-tag) until the nest is no longer active.

Communication. The NBMP shall specify the responsibilities of construction monitors with regard to nests and nest issues and specify a direct communication protocol to ensure that nest information and potential adverse impacts to nesting birds can be promptly communicated from nest monitors to construction monitors, so that any needed actions can be taken immediately.

The NBMP shall specify a procedure to be implemented following accidental disturbance of nests, including wildlife rehabilitation options. It also shall describe any proposed measures, and applicable circumstances, to prevent take of precocial young of ground-nesting birds such as killdeer or quail. For example, chick fences may be used to prevent them from entering work areas and access roads. Finally, the NBMP will specify a procedure for removal of inactive nests, including verification that the nest is inactive and a notification/approval process.

Reporting. Throughout the construction phase of the project, nest locations, project activities in the vicinity of nests (including helicopter traces), and any adjustments to buffer areas shall be updated and available to CPUC monitors on a daily basis. All buffer reduction notifications and prompt notifications of nest-related non-compliance and corrective actions will be made via email to CPUC monitors. The draft NBMP shall include a proposed format for daily and weekly reporting (e.g., spreadsheet available online, tracking each nest). In addition, the NBMP shall specify the format and content of nest data to be provided in regular monitoring and compliance reports. At the end of each year's nest season, SCE will submit an annual NBMP report to the CPUC, BLM, CDFW, and USFWS. Specific contents and format of the annual report will be reviewed and approved by the CPUC and BLM in consultation with CDFW and USFWS.

BR-11 **Conduct surveys and avoidance for burrowing owl.** [Supersedes APM BIO-07.] Burrowing owl surveys shall be conducted in accordance with the most current CDFW guidelines in Appendix D of the Staff Report on Burrowing Owl Mitigation (CDFG, 2012; or updated guidelines as they become available) in all potential habitat, regardless whether or not the previous assessment identified burrows. SCE shall take measures to avoid impacts to any active burrowing owl burrow within or adjacent to a work area. The default buffer for a burrowing owl burrow is 300 feet for ground construction, and 300 feet horizontal and 200

feet vertical for helicopter construction. Effectiveness of the buffer area will be monitored, and adjustments will be made if necessary. The Nesting Bird Management Plan (Mitigation Measure BR-10) will specify a procedure for adjusting this buffer, if needed. Binocular surveys may be substituted for protocol field surveys on private lands adjacent to the project site only when SCE has made reasonable attempts to obtain permission to enter the property for survey work but was unable to obtain such permission.

If active burrowing owl burrows are located within project work areas, SCE may passively relocate the owls by preparing and implementing a Burrowing Owl Passive Relocation Plan, as described below. SCE shall prepare a draft Burrowing Owl Passive Relocation Plan for review and approval by CPUC and BLM in consultation with CDFW and USFWS prior to the start of any ground-disturbing activities. SCE may not initiate burrowing owl passive relocation prior to finalization of the Plan and approval by CPUC and BLM. No active relocation shall be permitted. No passive relocation of burrowing owls shall be permitted during breeding season, unless a qualified biologist verifies through non-invasive methods that an occupied burrow is not occupied by a mated pair, and only upon authorization by CDFW. The Plan shall include, but not be limited to, the following elements:

- **Assessment of Suitable Burrow Availability.** The Plan shall include an inventory of existing, suitable, and unoccupied burrow sites within 500 feet of the affected project work site. Suitable burrows will include inactive desert kit fox, ground squirrel, or desert tortoise burrows that are deep enough to provide suitable burrowing owl nesting sites, as determined by a qualified biologist. If two or more suitable and unoccupied burrows are present in the area for each burrowing owl that will be passively relocated, then no replacement burrows will need to be built.
- **Replacement Burrows.** For each burrowing owl that will be passively relocated, if fewer than two suitable unoccupied burrows are available within 500 feet of the affected project work site, then SCE shall construct at least two replacement burrows within 500 feet of the affected project work site. Burrow replacement sites shall be in areas of suitable habitat for burrowing owl nesting, and subject to minimal human disturbance and access. The Plan shall describe measures to ensure that burrow installation or improvements would not affect sensitive species habitat or any burrowing owls already present in the relocation area. The Plan shall provide guidelines for creation or enhancement of at least two natural or artificial burrows for each active burrow within the project disturbance area, including a discussion of timing of burrow improvements, specific location of burrow installation, and burrow design. Design of the artificial burrows shall be consistent with CDFW guidelines (CDFG, 2012; or more current guidance as it becomes available) and shall be approved by the CPUC, BLM, CDFW, and USFWS.
- **Methods.** Provide detailed methods and guidance for passive relocation of burrowing owls, outside the breeding season. An occupied burrow may not be disturbed during the nesting season (generally, but not limited to, February 1 to August 31), unless a qualified biologist determines, by non-invasive methods, that it is not occupied by a mated pair. Passive relocation would include installation of one-way doors on burrow entrances that would let owls out of the burrow but would not let them back in. Once owls have been passively relocated, burrows will be carefully excavated by hand and collapsed by, or under the direct supervision, of a qualified biologist.
- **Monitoring and Reporting.** Describe monitoring and management of the replacement burrow site(s)) and provide a reporting plan. The objective shall be to manage the reloca-

tion area for the benefit of burrowing owls, with the specific goal of maintaining the functionality of the burrows for a minimum of two years. Monitoring reports shall be available to the CPUC and BLM on a weekly basis.

BR-12 **Conduct surveys and avoidance for bats.** SCE shall conduct surveys for roosting bats within 200 feet of project work areas within 14 days prior to any grading of rocky outcrops or removal of large trees (12 inches in diameter or greater at 4.5 feet above grade) with loose bark or other cavities, foliage, and palm fronds. Surveys shall be conducted during the breeding season (1 March to 31 July) and the non-breeding season. Surveys shall be performed by a qualified bat biologist (i.e., a biologist holding a CDFW collection permit and a Memorandum of Understanding or equivalent agreement with CDFW allowing the biologist to handle bats). The resume of the biologist shall be provided to the CPUC and BLM for concurrence in consultation with CDFW and USFWS prior to the biologist beginning field duties on the project. Surveys shall include a minimum of one day and one evening.

Any active bat roosts, including occupied day roosts, maternity roosts, and hibernacula, must be identified and clearly marked. An exclusion area will be established 165 feet from any active roost, and these areas will be avoided during construction activities. Ingress and egress along established routes will be permitted in those areas, and additional buffer reductions may be considered in coordination with the qualified bat biologist, CPUC, and CDFW. If active roosts are found, then SCE will either (1) delay construction activities at these sites until the roost is no longer active, or (2) conduct follow-up focused surveys to determine if the sites support special-status bat species. If the roost is occupied by common species, then work activities may proceed. SCE shall consult with a bat specialist in order to determine when the breeding cycle for the special-status bats is completed. SCE shall consult with CDFW regarding eviction of non-breeding bats.

SCE shall submit documentation providing pre-construction survey results and any avoidance of roosting and nursery sites to the CPUC and BLM for review and approval.

BR-13 **Conduct surveys and avoidance for American badger, ringtail, and desert kit fox.** SCE shall conduct pre-construction surveys for desert kit fox, ringtail, and American badger no more than 30 days prior to initiation of construction activities. Surveys shall be conducted in areas that contain habitat for this these species and shall include project disturbance areas and access roads plus a 200-foot buffer surrounding these areas. SCE shall submit documentation providing pre-construction survey results to the CPUC and BLM for review and approval. If dens are detected, each den shall be classified as inactive, potentially active, active non-natal, or active natal.

Inactive dens located in project disturbance areas may be excavated by hand and backfilled to prevent reuse, only upon confirmation that they are inactive.

Active or potentially active dens shall be flagged and project activities, with exceptions as listed below, within 100 feet (non-natal dens) or 200 feet (natal dens, or any active den during the breeding season) shall be avoided. Ingress/egress of construction vehicles and equipment through buffers and low intensity activities such as inspections and BMP maintenance within buffers is allowed, provided a qualified biologist determines that these activities will not impact dens or denning animals. Buffers may be modified with concurrence of CPUC and BLM, in consultation with CDFW and USFWS. If active dens are found within project disturbance areas and avoidance is not possible, SCE shall take action as specified below, after notifying and obtaining concurrence from CPUC, BLM, and CDFW.

Active and potentially active non-natal dens. Outside the breeding season, any potentially active dens that would be directly impacted by construction activities shall be monitored by a qualified mammologist or biologist for three consecutive nights using a tracking medium (such as diatomaceous earth or fire clay) or infrared camera stations at the entrance. If no tracks are observed in the tracking medium or no photos of the target species are captured after three nights, the den may be excavated and backfilled by hand. If tracks are observed, the den may be progressively blocked with natural materials (rocks, dirt, sticks, and vegetation piled in front of the entrance) for the next three to five nights to discourage continued use. After verification that the den is no longer active, the den may be excavated and backfilled by hand.

Active natal dens. Active natal dens (any den with cubs or pups) or any den active during the breeding season will not be excavated or passively relocated. The cub or pup-rearing season is generally from January 15 through mid-September. A 200-foot no-disturbance buffer shall be maintained around all active natal dens. Discovery of an active natal den that could be impacted by the project shall be reported to the CPUC, BLM, and CDFW within 24 hours of the discovery along with a map of the den location and a copy of the survey results. A qualified biologist shall monitor the natal den until he or she determines that the pups have dispersed. Any disturbance to denning animals or activities that might disturb denning activities shall be prohibited within the buffer zone. Once the pups have dispersed, methods listed above for non-natal dens may be used to discourage den reuse. After verification that the den is unoccupied, it shall then be excavated by hand and backfilled to ensure that no animals are trapped in the den.

If canine distemper is reported in desert kit fox on the site or surrounding areas, then SCE shall coordinate with CPUC, BLM, and CDFW to identify appropriate actions prior to continuing implementation of this mitigation measure in respect to desert kit fox. Any observations of a kit fox that appears sick or any kit fox mortality shall be reported to CPUC, CDFW, and BLM within one work day.

In the event that passive relocation techniques fail, SCE shall contact the CPUC, BLM, and CDFW to explore other relocation options.

All den monitoring and excavation activities and passive relocations shall be documented and reported to the CDFW, BLM, and CPUC in weekly monitoring reports, and a written summary will be included in each annual monitoring report.

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, and regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?

Construction

LESS THAN SIGNIFICANT WITH MITIGATION. Construction of the Proposed Project would not directly impact riparian habitat under the jurisdiction of the CDFW. Less than 0.1 acres of riparian habitat was observed within the BRSA, and Proposed Project activities would avoid these areas. As a result, no impacts to riparian habitat are anticipated.

Eleven sensitive natural communities occur within the BRSA (BRTR Table 5.4-1, Sensitive Natural Communities). Proposed Project construction, including vegetation clearing or grading required for work areas and staging yards, would result in long-term or permanent impacts to 7.7 acres of sensitive natural

communities. These communities are ranked as S2 (native grassland) or S3 (all others, including Joshua tree woodland). The overall impacts to these communities would be relatively minor in the context of the surrounding land uses. The seven mitigation measures listed below would minimize this impact and offset it. In particular, Mitigation Measure BR-3 would minimize loss of vegetation and habitat, and Mitigation Measure BR-6 would require salvaging Joshua trees and cactus (including teddy-bear cholla), and Mitigation Measure BR-8 requires off-site compensation of all disturbed natural habitat. With implementation of the measures identified below, construction impacts to riparian habitat and sensitive natural communities would be less significant.

Operations and Maintenance

LESS THAN SIGNIFICANT. O&M activities could involve minor clearing of vegetation and grading in previously disturbed areas but would not create additional disturbance to riparian habitat or sensitive vegetation communities. Potential impacts during O&M would be less than significant.

Mitigation Measures

The full text of all measures is presented at the end of the analysis of checklist item (a) above.

- **BR-1. Conduct biological monitoring and reporting.**
- **BR-2. Prepare and implement a Worker Environmental Awareness Program (WEAP).**
- **BR-3. Minimize native vegetation and habitat loss.**
- **BR-4. Restore or revegetate temporary disturbance areas.**
- **BR-5. Prepare and implement an Integrated Weed Management Plan.**
- **BR-6. Minimize and mitigate impacts to special-status plants.**
- **BR-8. Compensate for habitat loss.**

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.) either individually or in combination with the known or probable impacts of other activities through direct removal, filling, hydrological interruption, or other means?

Construction

LESS THAN SIGNIFICANT WITH MITIGATION. The Proposed Project would not affect wetlands as defined in the Clean Water Act. However, project construction would cause long-term or permanent direct effects to about 12 acres of streambeds, watercourses, or other hydrologic features that appear to meet jurisdictional criteria of the U.S. Army Corps of Engineers (USACE), CDFW, California Regional Water Quality Control Board (RWQCB), and Nevada Division of Environmental Protection (NDEP) (Table 5.4-3). Depending on the specific nature of these hydrologic features, the project's impacts may be permanent or long-term or, in some cases, seasonal hydrologic process may return the disturbed sites to their previous condition within one year, without need for follow-up restoration.

Table 5.4-3. Jurisdictional Hydrologic Features to Be Impacted by the Proposed Project

	Temporary Impacts (acres)		Permanent Impacts (acres)	
Feature Type	USACE, SWRCB, and NDEP	CDFW	USACE, SWRCB, and NDEP	CDFW
Linear Water Features	9.2	11.9	< 0.1	< 0.1
Wetlands	0.0	0.0	0.0	0.0
Total	9.2	11.9	< 0.1	< 0.1

SCE identifies APM BIO-08, which specifies that SCE will obtain authorizations as required and develop habitat compensation measures as agreed to with the USACE, CDFW, RWQCB, and NDEP. Indirect impacts to aquatic resources could also result from spillage of hazardous materials used during construction, as well as erosion and sedimentation. These potential impacts would be avoided and minimized through implementation of the Proposed Project's Storm Water Pollution Prevention Plans (SWPPPs) as required by Mitigation Measure HWQ-1 (Implement an Erosion Control Plan). The SWPPPs would require that vehicles must be checked daily and maintained in accordance with manufacturer's specifications to minimize the potential for leaks, and refueling and maintenance of vehicles would occur at least 50 feet from the edge of any aquatic feature. As such, indirect impacts from the spillage of hazardous materials on aquatic resources would be less than significant. As noted in Section 5.9, Hazards and Hazardous Materials, SCE will prepare a Hazardous Materials Management Plan (HMMP) consistent with Mitigation Measure HH-1 (Prepare and implement a Hazardous Materials and Waste Management Plan) that addresses the safe handling, transport, use, and disposal of hazardous materials

With implementation of APM BIO-08 and the requirements of Mitigation Measure HWQ-1 and HH-1 (from other sections of this document), potentially significant construction impacts to jurisdictional waters of the U.S., waters of California, and waters of Nevada would be mitigated to less than significant.

Operation and Maintenance

LESS THAN SIGNIFICANT. O&M activities are not expected to impact jurisdictional waters and drainages. In addition, if it is necessary to conduct future streambed alterations including dredge or fill activities within federally jurisdictional waters, or alterations of bed or bank to state jurisdictional waters, SCE must obtain authorization from the USACE, CDFW, RWQCB, or NDEP and will be subject to any permit conditions associated with that approval. Therefore, potential impacts to jurisdictional waters during O&M activities would be less than significant.

Mitigation Measures

- **HWQ-1: Implement an Erosion Control Plan.** (Full text in Section 5.10, Hydrology and Water Quality.) This measure requires SCE develop and submit an Erosion Control Plan prior to construction. The Erosion Control Plan may be part of the Stormwater Pollution Prevention Plan (SWPPP) and kept onsite and readily available on request. Grading Plans and evidence of having necessary permits are also required.
- **HH-1: Prepare and implement a Hazardous Materials and Waste Management Plan.** (Full text in Section 5.9, Hazards and Hazardous Materials.) This measure requires SCE to identify: hazardous materials to be transported, used, and stored on site for the proposed construction activities; hazardous wastes generated onsite as a result of the proposed construction activities; and appropriate management procedures.

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 wildlife nursery sites?

Construction

LESS THAN SIGNIFICANT. The project consists of upgrade and replacement of existing facilities; therefore, ecological connectivity conditions would be similar to existing conditions. Project construction activities would cause localized short-term hindrance of movement by resident or migratory wildlife due to temporary noise, lighting, dust, and human activity in the work areas. Neither initial construction nor

the operation and maintenance of completed facilities would interfere substantially with the long-term movement of native resident or migratory species because impacts would be temporary and localized. No project facilities or activities would cause blockages to fish passage in streams.

Because the project would not cause substantial increased barriers or hindrances to wildlife movement, its impacts would be less than significant, and no mitigation is recommended.

Operations and Maintenance

LESS THAN SIGNIFICANT. O&M activities would occur at established facility sites on a periodic basis. They would not interfere substantially with the movement of wildlife or impede use of wildlife nursery sites. O&M impacts would be less than significant.

Mitigation Measures

No mitigation is required.

e. Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

Construction

LESS THAN SIGNIFICANT WITH MITIGATION. The County of San Bernardino Development Code and City of Hesperia Code of Ordinances regulate removal of riparian vegetation and certain native desert plants including Joshua trees and creosote rings. No impacts to riparian plants are anticipated. Native desert vegetation, including Joshua trees and potentially including creosote rings are located within the proposed Project footprint. The Proposed Project would remove approximately 5.2 acres of Joshua tree woodland, including an unknown number of Joshua trees. These impacts, should they occur within the County or City jurisdiction, normally require discretionary permitting from the County or City, but local discretionary permits are preempted for projects under the jurisdiction of the CPUC. Impacts to Joshua trees and creosote rings would be mitigated through Mitigation Measures BR-6 and BR-8:

Other applicable local policies and ordinances identified in Section 5.4.1 (Regulatory Setting) are more general, and do not identify resource-specific or project-specific requirements.

With implementation of Mitigation Measures BR-6 and BR-8, potential conflicts with the policies and ordinances described above would be reduced to less than significant.

Operations and Maintenance

O&M activities are not expected to conflict with local policies or ordinances; any potential impact would be less than significant, and no additional mitigation is recommended.

Mitigation Measures

- **BR-6: Minimize and mitigate impacts to special-status plants.** This measure requires salvage of cactus and Joshua trees.
- **BR-8: Compensate for habitat loss.** This measure identifies lands containing creosote rings as priorities for habitat compensation.

f. Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Communities Conservation Plan, or other approved local, regional, or State habitat conservation plan?

Construction

LESS THAN SIGNIFICANT. Portions of the Proposed Project footprint within Clark County would be located on lands within the Clark County MSHCP area. SCE's ROWs on BLM lands are within a BLM utility corridor, which is not regulated by the MSHCP. Project activities located on private lands or on BLM lands outside the ROWs (e.g., helicopter or staging sites) could fall within the MSHCP area. The total project disturbance area within Nevada is 131.7 acres, including 39.6 acres on BLM lands and 92.1 acres on private lands.

The Clark County MSHCP is funded through development fees and specifies general planning direction for the County and other participating agency permittees. The Project will be subject to local regulation in Nevada; by complying with the MSHCP, there will be no conflict.

Project activities located on BLM lands in California fall within the DRECP area and are subject to all applicable DRECP requirements, including the CMAs identified in the sections above. The DRECP is a BLM plan amendment, but is not a Habitat Conservation Plan, Natural Communities Conservation Plan, or local, regional, or state conservation plan. The Project would not conflict with the DRECP and no impact would occur.

Operation and Maintenance

LESS THAN SIGNIFICANT. O&M activities associated with the Proposed Project would be subject to review and approval by BLM and Clark County Nevada. By complying with the DRECP and the Clark County MSHCP, there will be no conflict and adopted Habitat Conservation Plan or similar local, regional, or State habitat conservation plan.

Mitigation Measures

No mitigation is required.

5.4.7 References

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5.5 Cultural Resources

CULTURAL RESOURCES Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?	☐	☒	☐	☐
b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☐	☒	☐	☐
c. Disturb any human remains, including those interred outside of dedicated cemeteries?	☐	☒	☐	☐

Significance criteria established by CEQA Guidelines, Appendix G.

5.5.1 Environmental Setting

Cultural resources reflect the history, diversity, and culture of the region and people who created the resources. They are unique in that they often are the only remaining evidence of activity that occurred in the past. Cultural resources can be natural or built, purposeful or accidental, physical or intangible. They encompass archaeological, traditional, and built environmental resources, including buildings, structures, objects, districts, and sites.

Information presented in this section was gathered from a review of 9 cultural resources reports prepared by ASM Affiliates for the Proposed Project and submitted to BLM and the CPUC (ASM 2018a-i).

The area of direct impacts to cultural resources under CEQA is identical to the area referred to by BLM as the Area of Potential Effect (APE). For purposes of the analysis of Cultural Resources under CEQA, this area is identified herein as the CEQA Area of Direct Impacts. It consists of all areas of ground disturbance under the Proposed Project plus a 50-meter buffer. The area out to 0.5-miles surrounding the CEQA Area of Direct Impacts is identified herein as the CEQA Area of Indirect Impacts (which is the same as BLM's indirect APE).

Cultural Resources staff synthesized records of previous projects and previously recorded resources and consulted archival and literary resources pertaining to the prehistory, ethnography, and history of the Proposed Project area and the 0.5-mile surrounding area. In addition, a pedestrian survey was conducted of 100 percent of the CEQA Area of Direct Impacts.

Prehistoric Background

The chronological framework most often used in the Mojave Desert divides the prehistoric period into 5 periods: Lake Mojave (11,500 - 7,770 years before present (BP)), Pinto (7,700 - 3,800 years BP), Gypsum (3,800 - 1,400 years BP), Saratoga Springs (1,400 - 700 years BP), and Shoshonean (700 BP to Contact). However, Mojave Desert cultural chronologies are highly varied due to the lack of reliable dates.

Lake Mojave Period (11,500-7,770 years BP). Lake Mojave archaeological assemblages include percussion-flaked cores and pressure-flaked bifaces, crescents, stemmed Lake Mojave and Silver Lake projectile points. Lake Mojave sites occur on flat areas, mesas, and terraces adjacent to larger washes and along the edges of pluvial lakes; i.e., well-watered locations where a variety of resources would have been available.

Pinto Period (7,700-3,800 years before present). This period has been traditionally defined based on the presence of Pinto points with characteristic upward-sloping shoulders and concave bases. In the Mojave region, Pinto sites are found in a wide variety of environmental settings suggesting a wide-ranging, and

generalized land-use pattern. Pinto-period sites contain milling slabs and other tools indicating an increase in the use of plants, specifically small seeds. Sites assigned to this time period are uncommon in the region, suggesting a sparse population.

Gypsum Period (3,800 -1,400 years BP). During this period the subsistence system appears to have broadened. A greater exploitation of hard seeds is inferred by a higher frequency of milling stones that often include portable manos and metates while the presence of mortars and pestles may indicate exploitation of mesquite beans. This intensification supported larger populations. In addition, large-game hunting resumed importance during this interval largely due to improving climatic conditions. Changes in subsistence strategies were accompanied by a shift from family-based social organization to larger, multifamily bands. Flaked stone assemblages include a higher frequency of microcrystalline raw material (often from non-local sources), a greater use of pressure flaking, and medium to large Elko, Humboldt, and Gypsum dart points.

Saratoga Springs period (1,400-700 years BP). The smaller Rose Spring and Eastgate points found in this period are generally considered to represent the onset of bow-and-arrow technology. The period is also characterized by more diversified toolkits and a narrowing in the spatial range of raw material sources, indicating declining foraging territories. Artifact assemblages may include a range of grinding equipment, ceramics (including extra-local trade items), and non-subsistence-related items such as ornaments and ritual objects. Several large Saratoga Springs-period sites with rich middens have been documented in the Mojave area which have been interpreted as village sites. Other localities in the Mojave appear to have had more mobile, loosely based settlement systems characterized by considerable mobility and heavy reliance on springs.

Shoshonean Period (700 years PB-Contact). This period is defined by the presence of Cottonwood and Desert Side-notched arrow points. It also includes various rough brownware ceramics, as well as small steatite and shell beads, and large, unshaped milling equipment. These assemblages are generally equated with the entry of Numic groups into the region. Beginning about AD 1850, inhabitants of the region were directly and indirectly affected by Euro-American incursions and by Euro-American technology, economy, and culture. This resulted in less mobile, but family-centered settlement patterns.

Ethnohistoric Background

Several present-day Native American groups occupy and regularly travel through the Mojave Desert of California and Nevada, as did ancestors of these groups. Native American groups having historical Tribal territories falling within the vicinity of the Proposed Project area include the Southern Paiute and Chemehuevi in the more eastern reaches of California and southern Nevada; the Mojave, whose subsistence activities extended well into the Mojave Desert, although the heart of their territory was the Colorado River; and the Desert Serrano (also known as Vanyumé) who ranged and occupied the central and western parts of the Proposed Project area including modern-day Baker, Barstow, and Victorville. See Section 5.18 Tribal Cultural Resources for more detailed information about these groups and the importance of prehistoric trail networks.

Historic Background

In California, the Historic Era generally is divided into three periods: the Spanish or Mission Period (1769 to 1821), the Mexican or Rancho Period (1821 to 1848), and the American Period (1848 to present). Although Europeans did pass through the Proposed Project area during the Mission and Mexican Periods, all of the historic resources identified in the Proposed Project area are associated with the American

Period. As such, the following discussion emphasizes the American Period. The history of the area relates to themes involving Transportation, Military, Mining, and Electrical Power for southern California.

Transportation

One of the historical themes developed for the Proposed Project area is the use of various transportation corridors through the Mojave Desert, from prehistoric times to the present. These trails, roads, highways, and railroads throughout the centuries have connected Nevada, Utah, Arizona, and New Mexico with the California Coast. These historic trails are better described as trail systems, rather than single trails. In archaeological literature, they are treated as separate cultural resources and are documented as coinciding in some areas; however, only a few segments of the trail systems have been formally documented on the ground. Some of the key transportation routes include: the Old Spanish Trail; the Mormon Road; the Mojave Trail/Mojave Road; the Arrowhead Trail Road; National Old Trails Highway/ U.S. Route 66; the Atchison, Topeka & Santa Fe Railroad (AT&SF); and the San Pedro, Los Angeles & Salt Lake Railroad (SP, LA & SL).

Military

Evidence of military training is present across the Mojave and Colorado deserts. George Patton's Desert Training Center/California-Arizona Maneuvers Area (DTC/C-AMA) and Operation Desert Strike have left many artifacts, features, and sites across the region.

Desert Training Center/California-Arizona Maneuver Area. In 1942, during World War II (WWII), General George S. Patton Jr. established the DTC/C-AMA in a sparsely populated region of southeastern California, Arizona, and Nevada. Its purpose was to prepare tank, infantry, and air units for the harsh conditions of North Africa, practicing maneuvers, developing tactics, and field-testing equipment. The installation was in operation for 2 years and covered 16,000 square miles. It was the first simulated theater of operations in the United States. Its location was chosen for its unforgiving desert heat, rugged terrain, available telephone communications system, and accessibility by established railroads and highways. Recent projects in the region have identified many DTC/C-AMA-related sites, artifacts and features. These resources were understood to be pieces of a larger historic district which represents an important piece of the military history of the nation. The DTC/C-AMA was the largest training facility and the only one of its kind in American military history, eventually encompassing more than 18,000 square miles. The tactical, strategic, and logistical doctrines developed and refined during the facility's life were applied overseas and undoubtedly helped to win WWII. DTC/C-AMA resource types include maneuver areas, divisional camps, small unit training areas, air facilities and crash sites, bivouacs, campsites, ranges, supply depots and railroad sidings, and hospitals and medical centers.

Desert Strike. One brief military training exercise, known as Desert Strike, took place in the desert maneuver area in May 1964. The U.S. Strike Command conducted the joint Army and Air Force field training exercise for the major combat organizations and their support units in employing tactical nuclear and conventional weapons. Army and Air Force troop units were trained in passive and active tactics as well as concepts and procedures for joint operations. This training maneuver took place on more than 13 million acres of public and private lands in the California, Nevada and Arizona deserts. From an archaeological perspective, the types of activities carried out during Desert Strike complicate the identification of earlier DTC/C-AMA sites since the Army often used surplus WWII munitions and rations in their subsequent training maneuvers.

Mining

The first confirmed gold discovery in San Bernardino County was at Salt Spring, along the Mormon Trail in 1849. A large amount of ore was discovered in the 1860s, primarily within several days of travel from 2 major transportation routes; the Mojave Road and the Colorado River. Ore was found in the Clark, Providence, New York, Whipple, Turtle, and Sacramento mountains. Mining remained active through WWII; although there was a decrease during the 1920s. An increase in gold prices in the 1930s caused many small mines to reactivate. With the onset of WWII, iron was extracted from the Providence Mountains, specifically from Vulcan Mine. Since then, gold, silver, and tungsten have been mined in smaller amounts. Silver was discovered first in the Providence Mountains in 1863 in the Macedonia Canyon area; significant silver deposits were also discovered at the Bonanza King Mine in 1880. With the decrease in silver prices, gold at Hidden Hill, Gold Valley, and Out West mining camps began to be mined in earnest. Immense iron ore deposits located in Foshay Pass were mined during WWII.

Electrical Power for Southern California

Southern California lacked sufficient electrical power to accommodate population growth and urban expansion at the beginning of the twentieth century. California power companies, having exploited hydrological sources within the state, soon explored options in other states for power production. Attention turned to the Colorado River where it was agreed that the river should be harnessed with a dam for the purposes of irrigation, drinking water, and power generation. Situated in a desolate desert environment southeast of Las Vegas, Black Canyon was selected as the site for the location of a massive concrete dam, initially known as Boulder Dam; the site was later renamed and is known today as Hoover Dam.

The Bureau of Power and Light and Los Angeles Department of Water and Power (LADWP) entered into contract with the U.S. Bureau of Reclamation in 1930 to purchase electrical power from Hoover Dam. LADWP began construction of the 270-mile Boulder Lines 1 and 2 in June 1933 and completed them in mid-1936. The project would set a standard for long-distance transmission through investments in research, development, and technological advances in the design and construction of towers, conductors, control mechanisms, and auxiliary equipment for the 270-mile system. Aside from the construction of widely spaced galvanized metal towers, an access road paralleling all 3 side-by-side lines was bladed and used for construction, maintenance, and operation purposes. By 1940, there were no less than 11 power transmission lines emanating out of Hoover Dam dedicated to providing southern California and Nevada with electrical power.

5.5.2 Regulatory Background

Numerous laws and regulations require federal, state, and local agencies to consider the effects a project may have on cultural resources and tribal cultural resources. These laws and regulations stipulate a process for compliance, define the responsibilities of the various agencies proposing the action, and prescribe the relationship among other involved agencies.

State and Local

California

California Register of Historical Resources. The CRHR (PRC §5024.1) is a listing of properties that are to be protected from substantial adverse change. It includes properties that are listed, or have been formally determined to be eligible for listing in the NRHP, State Historical Landmarks, and eligible Points of

Historical Interest under CEQA, cultural resources listed in, or determined to be eligible for listing in, the CRHR or a local register meet the CEQA definition of "historical resources" and must be given consideration in the CEQA process. Effects on historical resources may be considered impacts of the Proposed Project. Under the California Code of Regulations, Title 14, Chapter 11.5, properties listed on or formally determined to be eligible for listing in the NRHP are automatically eligible for listing in the CRHR. A resource is generally considered to be historically significant under CEQA if it meets the criteria for listing in the CRHR. These criteria are essentially the same as the eligibility criteria for the NRHP. In addition to being at least 50 years old, a resource must meet at least one (and may meet more than one) of the following four criteria:

- *Criterion 1, is associated with events that have made a significant contribution to the broad patterns of our history;*
- *Criterion 2, is associated with the lives of persons significant in our past;*
- *Criterion 3, embodies the distinctive characteristics of a type, period, or method of construction, or represents the work of a master, or possesses high artistic values; or*
- *Criterion 4, has yielded, or may be likely to yield, information important to history or prehistory.*

In addition, historical resources must also possess integrity of location, design, setting, materials, workmanship, feeling, and association.

Unique Archaeological Resources. Additionally, CEQA states that it is the responsibility of the lead agency to determine whether the project will have a significant effect on "unique" archaeological resources. An archaeological artifact, object, or site can meet CEQA's definition of a unique archaeological resource even if it does not qualify as a historical resource (PRC 21083.2[g]; 14 CCR 15064.5[c][3]). An archaeological artifact, object, or site is considered a unique archaeological resource if "it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria (PRC 21083.2[g]):

- Contains information needed to answer important scientific research questions and there is a demonstrable public interest in that information
- Has a special and particular quality such as being the oldest of its type or the best available example of its type
- Is directly associated with a scientifically recognized important prehistoric or historic event or person
- If it can be demonstrated that a project will cause damage to a unique archaeological resource, the lead agency may require that reasonable efforts be taken to preserve these resources in place or provide mitigation measures

California Health and Safety Code. Section 7050.5(b) of the California Health and Safety Code requires that in the event of discovery of any human remains in any location other than a dedicated cemetery, there shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent human remains until the County coroner has been notified. The coroner will determine whether or not the remains are subject to the provisions of §27491 of the Government Code or any other related provisions of law concerning investigation of the circumstances, manner and cause of any death, and the recommendations concerning the treatment and disposition of the human remains. The coroner shall make his or her determination within two working days from the time of notification.

California Native American Graves Protection and Repatriation Act. Section 8010 brands this chapter of the code as the California Native American Graves Protection and Repatriation Act of 2001. Section 8011 establishes the state repatriation policy. The Act:

- Ensures that a consistent state policy is followed with respect to handling of all California Indian human remains and cultural items, and that the state's repatriation policy is applied consistently with the provisions of the Native American Graves Protection and Repatriation Act (NAGPRA) (25 USC Section 3001 et seq.);
- Facilitate implementation of the provisions of NAGPRA with respect to publicly funded agencies and museums in California and encourages voluntary disclosure and return of remains and cultural items by agencies and museums;
- Provides a mechanism whereby lineal descendants and culturally affiliated California Indian tribes that file repatriation claims for human remains and cultural items under NAGPRA or under this chapter with California state agencies and museums may request assistance from the commission in ensuring that state agencies and museums are responding to those claims in a timely manner and in facilitating the resolution of disputes regarding those claims; and
- Provides a mechanism whereby California tribes that are not federally recognized may file claims with agencies and museums for repatriation of human remains and cultural items.

Public Resources Code (PRC), Section 5097.98(b) and (e) requires a landowner on whose property Native American human remains are found, to limit further development activity in the vicinity until he or she confers with the Native American Heritage Commission-identified Most Likely Descendants (MLD) to consider treatment options. In the absence of MLDs or of a treatment acceptable to all parties, the landowner is required to re-inter the remains elsewhere on the property in a location not subject to further disturbance. Section 5097.99 establishes as a felony the acquisition, possession, sale, or dissection with malice or wantonness Native American remains or funerary artifacts. Finally, Section 5097.991 establishes as state policy the repatriation of Native American remains and funerary artifacts.

Health and Safety Code (HSC), Section 7050 makes it a misdemeanor to mutilate, disinter, wantonly disturb, or willfully remove human remains found outside a cemetery and further requires a project owner to halt construction if human remains are discovered and to contact the county coroner.

Tribal Cultural Resources

Please see Section 5.18 Tribal Cultural Resources for the regulatory background regarding tribal cultural resources.

Nevada

Nevada Revised Statutes. The Nevada Revised Statutes (NRS) are the current codified laws of the State of Nevada. Nevada addresses cultural resources resource protections under two chapters in Title 33 of the NRS: State Museums and Historic Preservation and Archeology.

State Museums (NRS, Title 33, Chapter 381):

NRS 381.195: Defines a prehistoric site as any archeological or paleontological site, ruin, deposit, fossilized footprints and other impressions, petroglyphs and pictographs, habitation caves, rock shelters, natural caves, burial ground or sites of religious or cultural importance to an Indian tribe.

NRS 381.197: Permit required to investigate, explore or excavate historic or prehistoric site; applicability of penalties. Except for action taken under an agreement with the Office of Historic Preservation of the State Department of Conservation and Natural Resources pursuant to NRS 383.430, and except as otherwise provided in this section, a person shall not investigate, explore or excavate an historic or prehistoric site on federal or state lands or remove any object therefrom unless the person is the holder of a valid and current permit issued pursuant to the provisions of NRS 381.195 to 381.227, inclusive. Conduct that would otherwise constitute a violation of this section is not a violation of this section if it is also a violation of NRS 383.435 (Added to NRS by 1959, 290; A 2005, 569; 2011, 2981).

Historic Preservation and Archeology (NRS, Title 33, Chapter 383):

NRS 383.011: Defines cultural resources as any objects, sites or information of historic, prehistoric, archeological, architectural, or paleontological significance. This was added to the Statutes of Nevada in 2015 under Senate Bill 20, Chapter 18 by the Committee on Natural Resources.

Local

The CPUC has sole and exclusive jurisdiction over the siting and design of the Proposed Project components located in the State of California. Pursuant to CPUC G.O. 131-D, Section XIV.B, "Local jurisdictions acting pursuant to local authority are preempted from regulating electric power line projects, distribution lines, substations, or electric facilities constructed by public utilities subject to the CPUC's jurisdiction. However, in locating such projects, the public utilities shall consult with local agencies regarding land use matters." Consequently, public utilities are directed to consider local regulations and consult with local agencies, but the county and cities' regulations are not applicable as the county and cities do not have jurisdiction over the Proposed Project. For informational purposes, local regulations in California jurisdictions are provided in Appendix C. The Proposed Project is subject to local regulations in the State of Nevada.

Clark County General Plan – 2019 Historic Preservation Element

Goal 1 Encourage community efforts in Clark County that promote the identification and protection of historic resources and programs in Clark County, including recognition of sites on the State and National registers, as well as those designated by the County.

- Policy 1. Keep historically designated areas intact and preserve the distinctive historic, economic, cultural, paleontological, or archeological character of appropriate residential neighborhoods.
- Policy 2. Encourage adaptive reuse of historic buildings, whenever feasible.
- Policy 3. Ensure that all County owned historic facilities are not jeopardized by development projects, such as but not limited to facility expansions, remodels, or infrastructure improvements.

Goal 2 Promote cooperation between agencies and non-profit organizations to promote cultural resource protection.

- Policy 1. Explore opportunities for collaboration between Clark County, State, and local historic preservation nonprofit organizations.

Federal

Bureau of Land Management

National Historic Preservation Act. The principal federal law addressing cultural resources is the NHPA of 1966, as amended (54 United States Code [USC], Section 300101), and its implementing regulations (36 Code of Federal Regulations [CFR], Part 800), that primarily address compliance with Section 106 of the Act. Section 106 of the Act requires that federal agencies take into account the effect of any undertaking on historic properties, and to afford the Advisory Council on Historic Preservation (ACHP) a reasonable opportunity to comment. The implementing regulations describe the process for identifying and evaluating historic properties, for assessing the effects of federal actions on historic properties, and for consulting with interested parties, including the State Historic Preservation Office (SHPO), Indian tribes, local governments, and the public to develop measures that would avoid, reduce, or minimize adverse effects to historic properties. The term "historic properties" refers to cultural resources that are listed on, or meet specific criteria of eligibility for listing on, the National Register of Historic Places. These criteria consist of the quality of significance in American history, architecture, archaeology, engineering, and culture present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and:

A. That are associated with events that have made a significant contribution to the broad patterns of our history; or

B. That are associated with the lives of persons significant in our past; or

C. That 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. That have yielded, or may be likely to yield, information important in prehistory or history.

Archaeological Resources Protection Act of 1979. The ARPA (16 USC 470aa et seq.) and its implementing regulations found at Title 43 CFR Part 7 protects archaeological resources from vandalism and unauthorized collecting on public and Indian lands.

Requirements for responding to discoveries of Native American human remains and associated funerary objects on federal land are addressed under the NAGPRA (Public Law 101 601) and its implementing regulations found at Title 43 CFR Part 10. For those portions of the Proposed Project or alternative on public land, the BLM will comply with the law and regulations by deter-mining lineal descendants and culturally affiliated Indian tribes and by carrying out appropriate treatment and disposition of any discovered remains, including transfer of custody.

American Indian Religious Freedom Act of 1978. The AIRFA (Title 42, U.S. Code, Section 1996) establishes policy for respect and protection of Native American religious practices. It seeks to correct federal policies and practices that could (a) deny access to sacred sites required in traditional religions, (b) prohibit use and possession of sacred objects necessary for religious ceremonies, and (c) intrude upon or interfere with religious ceremonies. The BLM complies with AIRFA by obtaining and considering the views of traditional religious practitioners as part of the NEPA compliance process.

Executive Order (EO) 13007. EO 13007 directs federal agencies to accommodate access to, and ceremonial use of, Indian sacred sites by Indian religious practitioners. It requires federal agencies to avoid adversely affecting the physical integrity of sacred sites to the extent practicable, permitted by law, and not clearly inconsistent with essential agency functions. EO 13007 reinforces the purposes expressed in

AIRFA. The BLM complies with EO 13007 by consulting with tribal governments and Indian religious practitioners as part of the NEPA compliance process.

The Antiquities Act of 1906 The Antiquities Act [16 United States Code (USC) 431–433] establishes criminal penalties for unauthorized destruction or appropriation of "any historic or prehistoric ruin or monument, or any object of antiquity" on federal land, and empowers the President to establish historical monuments and landmarks.

Federal Land Policy and Management Act of 1976 The FLPMA is the BLM's "organic act" that establishes the agencies multiple-use mandate. It establishes policy and goals to be followed in the administration of public lands under BLM jurisdiction. The intent of FLPMA is to protect and administer public lands within the framework of a program of multiple-use and sustained yield, and the maintenance of environmental quality. Particular emphasis is placed on the protection of the quality of scientific, scenic, historical, ecological, environmental, air and atmospheric, water resources and archaeological values.

National Park Service

All of the laws and regulations identified for the BLM apply to the NPS, except for the Federal Land Policy and Management Act.

5.5.3 Applicant Proposed Measures

SCE has identified APMs related to Cultural Resources and Tribal Cultural Resources:

APM CUL-01: Environmentally Sensitive Areas. [Superseded by Mitigation Measures CR-1 through CR-6.] Where operationally feasible, all National Register of Historic Places– (NRHP-) and California Register of Historical Resources– (CRHR-) eligible resources would be protected from direct impacts by Proposed Project redesign (i.e., relocation of the line, ancillary facilities, or temporary facilities or work areas). Avoidance mechanisms would include fencing off areas such as Environmentally Sensitive Areas (ESAs) for the duration of the Proposed Project or as outlined in the Cultural Resources Management Plan (CRMP). If avoidance of NRHP- or CRHR-eligible resources is not feasible, SCE would prepare and submit a Historic Properties Treatment Plan (HPTP) to outline the treatment of cultural resources that cannot be avoided. The HPTP would be submitted to the appropriate agencies for review and approval. All treatment measures outlined in the HPTP would be implemented at least 30 days before the start of construction.

APM CUL-02: Cultural Resources Survey. SCE would perform surveys prior to construction for any Proposed Project areas not yet surveyed (e.g., new or modified staging areas, pull sites, or other work areas). Resources discovered during the surveys would be subject to APM CUL-03.

APM CUL-03: CRMP. [Superseded by Mitigation Measures CR-1 through CR-6.] SCE would prepare and submit for approval a CRMP to guide all cultural resource management activities during Proposed Project construction. Management of cultural resources would follow the standards and guidelines established by the NPS for implementing Section 106 of the National Historic Preservation Act ("Archeology and Historic Preservation; Secretary of the Interior's Standards and Guidelines," 48 Federal Register 190 [29 September 1983], pp. 44716-44742). The CRMP would be submitted to the BLM for review and approval at least 30 days before the start of construction.

The CRMP would define and map all known or assumed eligible NRHP and CRHR properties in or within 100 feet of the Proposed Project's Area of Potential Effect and would identify the cultural values that contribute to their NRHP and CRHR eligibility. A cultural resources protection plan would be included that details how NRHP- and CRHR-eligible properties would be avoided and protected during construction.

Measures would include, at a minimum, designation and marking of ESAs, archaeological monitoring, personnel training, and effectiveness reporting. The plan would detail the measures to be used; how, when, and where they would be implemented; and how protective measures and enforcement would be coordinated with construction personnel.

The CRMP would also define any additional areas that are considered to be of high sensitivity for the discovery of buried NRHP- and CRHR-eligible cultural resources, including burials, cremations, or sacred features. The CRMP would detail provisions for monitoring construction in these high-sensitivity areas. It would also detail procedures for halting construction; making appropriate notifications to agencies, officials, and Native Americans; and assessing NRHP and CRHR eligibility in the event that unknown cultural resources are discovered during construction. For all unanticipated cultural resource discoveries, the CRMP would detail the methods, the consultation procedures, and the timelines for assessing NRHP and CRHR eligibility, formulating a mitigation plan, and implementing treatment. Mitigation and treatment plans for unanticipated discoveries would be reviewed by the appropriate Native Americans and approved by the BLM, and the Office of Historic Preservation (OHP) prior to implementation.

The CRMP would include provisions for analysis of data in a regional context, reporting of results within one year of the completion of field studies, curation of artifacts (except from private land) and data (e.g., maps, field notes, archival materials, recordings, reports, photographs, and analysts' data) at a facility that is approved by the BLM, and dissemination of reports to local and State repositories, libraries, and interested professionals. The BLM would retain ownership of artifacts collected from BLM-managed lands. SCE would attempt to gain permission for artifacts from privately held land to be curated with the other project collections. The CRMP would specify that archaeologists and other discipline specialists conducting the studies must meet the Professional Qualifications Standards mandated by the OHP.

APM TCR-1: Tribal Monitoring (Allows for tribal monitors).**TCR-2: Tribal Engagement Plan.** (Requires a Tribal Engagement Plan) These APMs are identified in Section 5.18 Tribal Cultural Resources.

5.5.4 CEQA Significance Criteria

Appendix G of the CEQA Guidelines (14 CCR 15000 et seq.) provides guidance on assessing whether a project would have significant impacts on the environment. Consistent with Appendix G, the Proposed Project would have significant cultural resources impacts if it would:

a. Cause a substantial adverse change in the significance of a historical resource pursuant to CCR §15064.5

b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to CCR §15064.5

c. Disturb any human remains, including those interred outside of dedicated cemeteries

5.5.5 Methodology

The following section describes the methods of analysis, and results of record searches and pedestrian surveys for cultural resources.

Record Search

For the California portions of the project, records were primarily obtained from the South Central Coastal Information Center (SCCIC) and supplemented with information from the BLM, SCE, the BLM Government Land Office (GLO) website, other related internet searches, and local and regional libraries and museums

in an effort to obtain all available information on prehistoric and historic resources within the records search area. The records search found that 412 cultural resource projects have been conducted within a 1-mile radius of the Proposed Project. This record search area is also the CEQA Area of Indirect Impacts. Projects include various infrastructure improvement projects such as electrical transmission lines, natural gas pipelines, and fiber optic lines, as well as archaeological research projects and surveys undertaken by various federal agencies for resource planning and management. These projects resulted in the identification and documentation of 746 cultural resources within the 1-mile radius. Of those resources, 68 are within the CEQA Area of Direct Impacts (BLM's direct APE). Previously identified resources include prehistoric lithic procurement and quarry sites, lithic and ceramic artifact scatters, trails, rock shelters, rock features, and petroglyphs, whereas the historic period resources included railroads, roads, townsites, mining sites, military activity areas, and refuse scatters.

For the Nevada portions of the Proposed Project, records were primarily obtained through Nevada's online Cultural Resources Information System (NVCRIS) and then supplemented with information from the BLM Las Vegas Field Office, the BLM Government Land Office (GLO) website, through internet searches, and from local and regional libraries and museums. As a result of the records search, 111 cultural resource studies were identified that have been conducted within the record search area (CEQA Area of Indirect Impacts) with 3 of the previous studies passing through or encompassing portions of the Proposed Project area (CEQA Area of Direct Impacts).

Archaeological Inventory

Pedestrian surveys were conducted of the CEQA Area of Direct Impacts to inventory cultural resources. In California, the Class III cultural resource inventory of the CEQA Area of Direct Impacts covered a total of 2,503.5 acres. Management of the land is as follows: 840.8 acres BLM Barstow Field Office; 489.9 acres NPS (Mojave National Preserve); 326.6 acres BLM Needles Field office; and 846.2 acres are California state lands and privately owned. The archaeological inventory in California was conducted from August through September 2016 and from March 2017 through March 2018. The inventory identified 156 new archaeological sites, updated 41 previously identified archaeological sites, and documented 389 isolated finds. Additionally, 7 previously identified cultural resource sites reported to be located within the CEQA Area of Direct Impacts either could not be relocated, were destroyed by subsequent projects, or were misplotted. Of the identified archaeological sites, 40 are prehistoric in age, one is thought to be ethnohistoric in age, 127 are historic in age, and 28 are multi-component (having both prehistoric and historic components). Prehistoric sites include campsites, rock feature sites, a prehistoric trail with associated artifacts, lithic procurement sites, and artifact scatters.

In Nevada, the Class III cultural resource inventory for the CEQA Area of Direct Impacts covered a total of 1,263 acres. Management of the land is as follows: 871 acres BLM Southern Nevada District, Las Vegas Field Office; 18 acres Nevada state lands; 9 acres Bureau of Reclamation, Lower Colorado River Region; and 365 acres private ownership. Forty new archaeological sites, one previously identified site, and 89 isolated finds were identified and recorded. Additionally, six previously identified cultural resource sites reported to be located within the CEQA Area of Direct Impacts either could not be relocated or were destroyed by subsequent projects. Historic-era resources include mining sites associated with the Searchlight and Eldorado Mining Districts, refuse scatters associated with early mining, recreational activity, construction of the various utility lines, and military activity areas associated with Exercise Desert Strike. The prehistoric resources include a lithic scatter and quarry.

Built Environment Inventory

A built environment field inventory was conducted in California and Nevada in February 2017. In California, 14 built environment resources were previously recorded within the CEQA Areas of Direct and Indirect Impacts. Two additional resources were identified in the CEQA Areas of Direct and Indirect Impacts as part of this effort. These resources include roads, railroads, transmission lines, a substation, and an aqueduct.

In Nevada, 8 previously identified built environment resources are present in the in the CEQA Areas of Direct and Indirect Impacts. All of the resources are transmission line segments and include the Los Angeles Department of Water and Power (LADWP) Boulder Dam-Los Angeles transmission line, the Edison Company Boulder Dam-San Bernardino transmission line, SCE 220 kV North and South transmission lines, and the Davis-Nora McDowell transmission line, in addition to the Eldorado-Lugo, Eldorado-Mohave, and Lugo-Mohave 500 kV Transmission Lines. A targeted intensive-level survey in Nevada was conducted in February 2018. The 8 previously identified built environment resources were revisited and reevaluated.

Ethnographic Studies

Prior to the original construction of the SCE 500-kV line between the Eldorado Substation in Nevada and the Lugo Substation in Victorville, California extensive ethnographic interviews were conducted in order to identify potential impacts to resources important to tribes in the area. This study, entitled the *Allen-Warner Valley Energy System: Western Transmission System* (Bean et al. 1979), was directed by renowned ethnographer Lowell Bean and completed in 1979. The interviews were conducted with members of the following groups: Mojave, Las Vegas Paiute, Chemehuevi, Kawaiisu, Serrano, and Barstow Urban Native Americans. This study identified numerous sensitive resources in an area that today includes a broad area between Victorville and the Colorado River, including the course of the Mojave River, the Mojave Trails National Monument, the Mojave National Preserve.

Cultural Landscapes

Previous projects in the southern California desert have identified several cultural landscapes which include the Keruk/Xam Kwatcan/Dream Trail, the Salt Song Trail and the Pacific to Rio Grande Trails Landscape. Additional information about these previously identified landscapes is included in Section 5.18 (Tribal Cultural Resources).

Tribal Outreach

A request was submitted to the California Native American Heritage Commission (NAHC) for a search of their Sacred Lands File (SLF), the results of which were received on January 3, 2017. The SLF search was found to be positive and recommended that the Ewiiaapaayp Band of Kumeyaay Indians be contacted. The NAHC also provided a contact list of tribes that have cultural and traditional affiliation to the project area. It should be noted that the Proposed Project area does not extend onto the USGS 7.5-minute topographic quadrangle that was identified as sensitive. Additional information about tribal outreach associated with AB 52 consultation is included in Section 5.18 (Tribal Cultural Resources).

Tribal outreach resulted in the identification of a large cultural landscape, referred to here as the Mojave Trails Landscape, which AB 52 defines as one type of Tribal Cultural Resource. The CPUC considers that all of the prehistoric resources within the CEQA Areas of Direct and Indirect Impacts to be eligible for the CRHR under Criteria 1 as contributors to the Mojave Trails Landscape. All of these resources are also considered eligible as contributors to the Mojave Trails Landscape under Criteria 4 for their ability to yield

information important in history and prehistory. Additional information about Mojave Trails Landscape is included in Section 5.18 (Tribal Cultural Resources).

Resources Potentially Subject to Direct or Indirect Impacts

California Direct Impacts. In California, 11 historic-era resources (all of which are built environment resources), 1 ethnohistoric resource, 18 multi-component resources and 28 prehistoric resources within the CEQA Area of Direct Impacts have been determined or recommended eligible for the CRHR. During tribal consultation as part of AB 52, tribes identified the Mojave Trails Landscape a Tribal Cultural Resource (TCRs) with boundaries that overlap with the Proposed Project area. All ethnohistoric resources, prehistoric resources and the prehistoric components of multi-component resources within the CEQA Area of Direct Impacts (47) are considered contributors to these landscape TCRs. Therefore, the CPUC has determined all 47 of these resources eligible for the CRHR under Criteria 1 for their contribution to important events in the past and under Criteria 4 for their ability to yield information important in history and prehistory. Overall, 58 resources in California are potentially subject to direct impacts from the Proposed Project. However, these resources would be avoided and protected from damage during construction.

California Indirect Impacts. In California, 11 historic-era built environment resources and 319 prehistoric resources in CEQA Area of Indirect Impacts have been determined or recommended eligible for the CRHR. All prehistoric resources within the CEQA Area of Indirect Impacts (319) are considered contributors to the Mojave Trails Landscape mentioned above and are eligible for the CRHR. Research to identify resources that would be subject to indirect effects focused on built-environment resources and known prehistoric resources such as cultural landscapes that are especially sensitive to changes in setting through the introduction of modern industrial facilities. Because similar industrial infrastructure already exists within the viewshed of these resources, the contribution of the Proposed Project would be minor. As such, these resources will not be subject to impacts from the Project.

Nevada Direct Impacts. In Nevada, 9 historic-era resources (including 7 built environment resources), 2 multi-component resource and 1 prehistoric resource within the CEQA Area of Direct Impacts have been determined or recommended eligible for the CRHR. All prehistoric resources within the CEQA Area of Direct Impacts (3) are considered contributors to the Mojave Trails Landscape mentioned above and for purposes of the CEQA analysis; if they were in California. they would be considered eligible for the CRHR. Overall, 12 resources in Nevada are potentially subject to direct impacts from the Proposed Project. However, these resources would be avoided and protected from damage during construction.

Nevada Indirect Impacts. In Nevada, 7 historic-era built environment resources and 2 prehistoric resources in CEQA Area of indirect Impacts have been determined or recommended eligible for the CRHR. All prehistoric resources within the CEQA Area of indirect Impacts (50) are considered contributors to the Mojave Trails Landscape mentioned above and for purposes of the CEQA analysis; if they were in California, they would be considered eligible for the CRHR.

As in California, similar industrial infrastructure already exists within the viewshed of these resources, therefore the contribution of the Proposed Project would be minor. As such, these resources will not be subject to impacts from the Project.

Table 5.5-1, Eligible Resources in California Potentially Subject to Direct Impacts from the Proposed Project, and Table 5.5-2, Eligible Resources in Nevada Potentially Subject to Direct Impacts from the Proposed Project, provide additional details about these resources.

Table 5.5-1. Eligible Resources in California Potentially Subject to Direct Impacts from the Proposed Project

Number	Land Status	Age	Type/Name	CRHR Determination
P-36-032646/CA-SBR-32645H	NPS, Mojave National Preserve	Ethnohistoric/ Historic	Campsite	Eligible as contributor to Mojave Trails Landscape
P-36-002792/CA-SBR-792/H	BLM Barstow	Multicomponent	Prehistoric Lithic Procurement/ Historic Mine and Refuse Scatter	Prehistoric eligible as contributor to Mojave Trails Landscape
P-36-006512/CA-SBR-512/H	BLM Barstow	Multicomponent	Prehistoric Rock Features and Lithic Scatter/Historic Refuse Scatter	Prehistoric eligible as contributor to Mojave Trails Landscape
P-36-006942/CA-SBR-942/H	BLM Barstow	Multicomponent	Lithic Scatter/Historic Mining	Prehistoric eligible as contributor to Mojave Trails Landscape
P-36-009743/CA-SBR-743/H	BLM Barstow	Prehistoric	Prehistoric Lithic Scatter/ Historic Refuse Scatter	Eligible as contributor to Mojave Trails Landscape
P-36-014625/CA-SBR-13101H	BLM Barstow	Multicomponent	Prehistoric Lithic Scatter/ Historic Refuse Scatter	Prehistoric eligible as contributor to Mojave Trails Landscape
P-36-014627/CA-SBR-13103/H	BLM Barstow	Multicomponent	Prehistoric Lithic Scatter/ Historic Refuse Scatter	Prehistoric eligible as contributor to Mojave Trails Landscape
P-36-020872/CA-SBR-13449/H	BLM Barstow	Multicomponent	Prehistoric Lithic Scatter/ Historic Refuse Scatter	Prehistoric eligible as contributor to Mojave Trails Landscape
P-36-029793/CA-SBR-29793	BLM Barstow	Prehistoric	Lithic Scatter	Eligible as contributor to Mojave Trails Landscape
P-36-029800/CA-SBR-29800	BLM Barstow	Prehistoric	Lithic Scatter	Eligible Criteria 4 and as contributor to Mojave Trails Landscape
P-36-029801/CA-SBR-29801	BLM Barstow	Prehistoric	Lithic Scatter	Eligible as contributor to Mojave Trails Landscape
P-36-029802/CA-SBR-29802	BLM Barstow	Prehistoric	Rock Features	Eligible as contributor to Mojave Trails Landscape
P-36-029802/CA-SBR-29802	BLM Barstow	Prehistoric	Rock Features	Eligible Criteria D/4 and as contributor to Mojave Trails Landscape
P-36-029803/CA-SBR-29803	BLM Barstow	Multicomponent	Prehistoric Rock Features/ Historic Features and Refuse Scatter	Prehistoric Eligible Criteria 4 and as contributor to Mojave Trails Landscape, Historic Not Eligible
P-36-029803/CA-SBR-29803/H	BLM Barstow	Multicomponent	Prehistoric Rock Features/Historic Features and Refuse Scatter	Prehistoric eligible as contributor to Mojave Trails Landscape
P-36-032548/CA-SBR-32548	BLM Barstow	Prehistoric	Lithic Scatter	Eligible as contributor to Mojave Trails Landscape

Table 5.5-1. Eligible Resources in California Potentially Subject to Direct Impacts from the Proposed Project

Number	Land Status	Age	Type/Name	CRHR Determination
P-36-032549/CA-SBR-32549/H	BLM Barstow	Multicomponent	Prehistoric Lithic Scatter/Historic Refuse Scatter	Prehistoric eligible as contributor to Mojave Trails Landscape
P-36-032550/CA-SBR-32550/H	BLM Barstow	Multicomponent	Prehistoric Lithic Scatter/Historic Refuse Scatter	Prehistoric eligible as contributor to Mojave Trails Landscape
P-36-032556/CA-SBR-32556	BLM Barstow	Prehistoric	Lithic Scatter	Eligible as contributor to Mojave Trails Landscape
P-36-032565/CA-SBR-32565/H	BLM Barstow	Multicomponent	Prehistoric Lithic Scatter/ Historic Features and Refuse Scatter	Prehistoric eligible as contributor to Mojave Trails Landscape
P-36-032583/CA-SBR-32583	BLM Barstow	Prehistoric	Lithic Scatter	Eligible as contributor to Mojave Trails Landscape
P-36-032584/CA-SBR-32584	BLM Barstow	Prehistoric	Lithic Scatter	Eligible as contributor to Mojave Trails Landscape
P-36-032599/CA-SBR-32599	BLM Barstow	Prehistoric	Lithic Scatter	Eligible as contributor to Mojave Trails Landscape
P-36-032624/CA-SBR-32624	BLM Barstow	Prehistoric	Lithic Scatter	Eligible as contributor to Mojave Trails Landscape
P-36-000181/CA-SBR-181/H	BLM Barstow/ Privately Owned	Multicomponent	Prehistoric Campsite Historic Refuse Scatter	Eligible as contributor to Mojave Trails Landscape
P-36-001505/CA-SBR-505/H	BLM Barstow/ Privately Owned	Multicomponent	Prehistoric Quarry/Historic Mining Area	Eligible as contributor to Mojave Trails Landscape
P-36-032653/CA-SBR-32653	BLM Needles	Prehistoric	Lithic Scatter	Eligible as contributor to Mojave Trails Landscape
P-36-032654/CA-SBR-32654	BLM Needles	Prehistoric	Lithic Scatter	Eligible as contributor to Mojave Trails Landscape
P-36-002910/CA-SBR-2910H	CA Multiple Jurisdictions	Historic	Route 66	Eligible Criteria 1 and 3
P-36-004276/CA-SBR-4276H	CA Multiple Jurisdictions	Historic	Coxey Road/Van Dusen Road	Eligible Criteria 1
P-36-006693/CA-SBR-6693H	CA Multiple Jurisdictions	Historic	Atlantic & Pacific; Atchison, Topeka & Santa Fe; Burlington Northern; BNSF Railroad	Eligible Criteria 1
P-36-014875/CA-SBR-13114H	CA Multiple Jurisdictions	Historic	SCE Hector 12kV Transmission Line	Unknown
P-36-014876/CA-SBR-13115H	CA Multiple Jurisdictions	Historic	SCE 220 kV North Transmission Line	Eligible Criteria 1 and 3
P-36-014877/CA-SBR-13116H	CA Multiple Jurisdictions	Historic	SCE 220 kV South Transmission Line	Eligible Criteria 1 and 3

Table 5.5-1. Eligible Resources in California Potentially Subject to Direct Impacts from the Proposed Project

Number	Land Status	Age	Type/Name	CRHR Determination
P-36-014878/CA-SBR-13117H	CA Multiple Jurisdictions	Historic	Pisgah Substation/Pisgah Triangle	Eligible Criteria 1 and 3
P-36-021351	CA Multiple Jurisdictions	Historic	California Aqueduct	Eligible Criteria 1 and 3
P-36-027752	CA Multiple Jurisdictions	Historic	Eldorado-Lugo 500 kV	Eligible Criteria 1 and 3
P-36-027757	CA Multiple Jurisdictions	Historic	Lugo-Mohave 500 kV	Eligible Criteria 1 and 3
P-36-014067/CA-SBR-12923	CA Privately Owned	Prehistoric	Thermal Feature	Eligible as contributor to Mojave Trails Landscape
P-36-027023/CA-SBR-17039	CA Privately Owned	Prehistoric	Lithic Scatter	Eligible as contributor to Mojave Trails Landscape
P-36-029799/CA-SBR-29799	CA Privately Owned	Prehistoric	Lithic Scatter	Eligible as contributor to Mojave Trails Landscape
P-36-029800/CA-SBR-29800	CA Privately Owned	Prehistoric	Lithic Scatter	Eligible as contributor to Mojave Trails Landscape
P-36-032686/CA-SBR-32686	CA Privately Owned	Prehistoric	Lithic Scatter	Eligible as contributor to Mojave Trails Landscape
P-36-021355/CA-SBR-13714	California State	Prehistoric	Lithic Scatter	Eligible as contributor to Mojave Trails Landscape
ELM-LD-07	NPS, Mojave National Preserve	Prehistoric	Rock Feature	Eligible Criteria D/4, and as contributor to Mojave Trails Landscape
P-36-005182/CA-SBR-5182	NPS, Mojave National Preserve	Prehistoric	Trail and Ceramic Scatter	Eligible as contributor to Mojave Trails Landscape
P-36-025096/CA-SBR-10648	NPS, Mojave National Preserve	Prehistoric	Artifact Scatter	Eligible and as contributor to Mojave Trails Landscape
P-36-032632/CA-SBR-32632/H	NPS, Mojave National Preserve	Multicomponent	Prehistoric Lithic Scatter/ Historic Refuse Scatter	Prehistoric eligible as contributor to Mojave Trails Landscape
P-36-032637/CA-SBR-32637	NPS, Mojave National Preserve	Prehistoric	Rock Feature	Eligible Criteria 4 and as contributor to Mojave Trails Landscape
P-36-032638/CA-SBR-32638/H	NPS, Mojave National Preserve	Multicomponent	Prehistoric Lithic Scatter/ Historic Refuse Scatter	Prehistoric eligible as contributor to Mojave Trails Landscape
P-36-032640/CA-SBR-32640	NPS, Mojave National Preserve	Prehistoric	Lithic Scatter	Eligible as contributor to Mojave Trails Landscape
P-36-032641/CA-SBR-32641/H	NPS, Mojave National Preserve	Multicomponent	Prehistoric Lithic Scatter/ Historic Refuse Scatter and Road	Prehistoric eligible as contributor to Mojave Trails Landscape

Table 5.5-1. Eligible Resources in California Potentially Subject to Direct Impacts from the Proposed Project

Number	Land Status	Age	Type/Name	CRHR Determination
P-36-032644/CA-SBR-32644/H	NPS, Mojave National Preserve	Multicomponent	Prehistoric Lithic Scatter/ Historic Refuse Scatter and Feature	Prehistoric eligible as contributor to Mojave Trails Landscape
P-36-032634/CA-SBR-32634	NPS, Mojave National Preserve	Prehistoric	Rock Ring	Eligible as contributor to Mojave Trails Landscape
P-36-005182/CA-SBR-5182	NPS, Mojave National Preserve	Prehistoric	Trail and Ceramic Scatter	Eligible Criteria 4, and as contributor to Mojave Trails Landscape
P-36-032647/CA-SBR-32647	NPS, Mojave National Preserve	Prehistoric	Lithic Scatter	Eligible as contributor to Mojave Trails Landscape

Table 5.5-2. Eligible Resources in Nevada Potentially Subject to Direct Impacts from the Proposed Project

Number	Land Status	Age	Type/Name	CRHR Determination
26CK6238/ 26CK6237	NV Multiple Jurisdictions	Historic	Los Angeles Department of Water and Power Boulder Dam–Los Angeles Transmission Line (Boulder No. 1, No.2 and No. 3)	Eligible Criteria 1 and 3
26CK6249	NV Multiple Jurisdictions	Historic	SCE 220kV North Transmission Line	Eligible Criteria 1 and 3
26CK6250	NV Multiple Jurisdictions	Historic	SCE 220kV South Transmission Line	Eligible Criteria 1 and 3
26ck9229	NV Multiple Jurisdictions	Historic	Edison Company Boulder Dam–San Bernardino 115 kV Electrical Transmission Line	Eligible Criteria 1 and 3
53-9365/ 26CK10524/ JK-135	NV	Historic	Historic Military Activity Area	Eligible Criteria 1 and 4
53-9388/ 26CK10545/ SJM-10	NV	Historic	Historic Mining Site	Eligible Criteria 4
P-36-027752	NV Multiple Jurisdictions	Historic	Eldorado-Lugo 500kV Transmission Line	Eligible Criteria 1 and 3
Pending	NV Multiple Jurisdictions	Historic	Eldorado-Mohave 500kV	Eligible Criteria 1 and 3
53-9392/ 26CK10549	BLM Las Vegas	Multicomponent	Prehistoric ceramic concentration/ Historic Mining Site	Prehistoric eligible as contributor to Mojave Trails Landscape
53-9392/ 26CK10549/ SJM-19	NV	Multicomponent	Historic Mining Site	Prehistoric Eligible Criteria 4 and as contributor to Mojave Trails Landscape, Historic not eligible
53-9370/ 26CK10527	NV Privately Owned	Prehistoric	Prehistoric Lithic Procurement Area	Eligible and as contributor to Mojave Trails Landscape

5.5.6 Project Impacts and Mitigation Measures

a. Would the project cause a substantial adverse change in the significance of a historical resource pursuant to CCR §15064.5?

The CEQA Guidelines define historical resources to include:

- A resource listed in, or determined to be eligible by, the State Historical Resources Commission for listing in the CRHR;
- A resource listed in a local register of historical resources or identified as significant in a historical resource survey meeting the requirements of section 5024.1(g) of the Public Resources Code; or
- Any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California, provided the agency's determination is supported by substantial evidence in light of the whole record. (14 CCR 15064.5(a).)

Construction

LESS THAN SIGNIFICANT WITH MITIGATION. **Direct Impacts:** In the California portion of the Proposed Project Area, the Mojave Trails Landscape and 58 additional resources are either eligible or potentially eligible (i.e., unevaluated) for the CRHR and potentially subject to direct impacts from the Proposed Project. In the Nevada portion of the Proposed Project area, the Mojave Trails Landscape and 12 additional resources in would be considered either eligible or potentially eligible (i.e., unevaluated) for the CRHR had they been in California.

The Proposed Project would include implementation of three APMs for the protection of Cultural Resources and two APMs for Tribal Cultural Resources (see Section 5.18). APM CUL-01 (Environmentally Sensitive Areas) states that where operationally feasible, eligible resources would be protected by redesign. It is not clear who would establish the feasibility of implementing protection. As well, this APM did not reflect the benefit of tribal consultation. Therefore, the APM does not reflect the specific avoidance approaches and does not identify the need for and intensity of monitoring that were identified and agreed upon during CPUC's AB 52 consultation with Native American tribes. APM CUL-03 identifies the need for and content of a CRMP. However, the APM is not fully explanatory of performance standards, staff qualifications, staff duties and responsibilities, and other information needed to ensure that cultural resources are adequately protected. This analysis recommends a range of mitigation to establish performance standards that were not specified in SCE's APMs. Where appropriate, mitigation measures incorporate and expand on the information and approaches provided in the APMs.

Direct effects to resources identified during construction would be addressed by the implementation of Mitigation Measures CR-1 through CR-6, which would reduce impacts to these resources to a less than significant level. Therefore, Mitigation Measures CR-1 through CR-6 supersede the APMs CUL-01 (Environmentally Sensitive Areas) and CUL-03 (CRMP). APM CUL-02 would not be superseded.

In particular, the mitigation measures would provide more detail to: specify the qualifications of cultural resources staff (Mitigation Measure CR-1); provide for cultural resources environmental awareness training (CR-2); tailor the requirements of the CRMP to the needs of the CEQA lead agency as well as BLM (CR-3); revise the inadvertent discovery procedures to those agreed upon during AB 52 consultation (CR-4); revise and add the monitoring and avoidance intensity and techniques to reflect those that were agreed upon during AB 52 consultation (CR-5); and specify the contents of monitoring reports (CR-6).

LESS THAN SIGNIFICANT. **Indirect Impacts:** A portion of the Mojave Trails Landscape and 319 contributing resources in the California portion of the Proposed Project area and 50 contributing resources in the Nevada portion of the Proposed Project area are either eligible or potentially eligible (i.e., unevaluated) for the CRHR or for purposes of the CEQA analysis; if they were in California, they would be considered eligible for the CRHR and potentially subject to indirect impacts from the Proposed project. In addition, 11 built environment resources in California and 7 built environment resources in Nevada eligible for the CRHR or for purposes of the CEQA analysis are potential subject to indirect effects from the Proposed project.

Proposed Project activities would be clearly visible from these sensitive resources. However, the visual changes would be of a similar nature and scale as existing visible facilities. Therefore, the Proposed Project would not cause a substantial adverse change in the significance of an historical resource. As such these resources are not subject to indirect effects from the Proposed Project and no mitigation is necessary.

Operations and Maintenance

LESS THAN SIGNIFICANT. O&M activities would occur in previously disturbed locations. Disturbance that would lead to cause a substantial adverse change in the significance of an historical resource is not anticipated to occur during routine O&M activities. Therefore, the impact is expected to be less than significant during O&M.

Mitigation Measures

Implementation of Mitigation Measures CR-1 through CR-6 would evaluate and protect known and unanticipated discoveries of historical resources, thereby reducing this impact to less than significant.

CR-1 **Retain a Cultural Resources Specialist.** Prior to the start of construction, a project Cultural Resources Specialist (CRS) whose training and background conforms to the U.S. Secretary of Interior's Professional Qualifications Standards, as published in Title 36, Code of Federal Regulations, part 61 (36 C.F.R., part 61) shall be retained by SCE to supervise monitoring of construction excavations and to prepare a Cultural Resources Management Plan (CRMP) for the approved project. Their qualifications shall be appropriate to the needs of the project, specifically an archaeologist with demonstrated prior experience in the southern California desert and previous experience working with Southern California Tribal Nations. A copy of their qualifications shall be provided to the CPUC for review and approval. The project Cultural Resources Specialist shall use the services of Cultural Resources Monitors, tribal monitors and Field Crew as needed, to assist in mitigation, monitoring, and curation activities, as outlined in the CRMP. A copy of all proposed cultural staff qualifications shall be provided to the CPUC for review and approval prior to beginning work.

CR-2 **Cultural resources environmental awareness training.** Project personnel, including cultural resources monitors and tribal monitors, shall receive training that includes sensitivity training provided through participating tribes in video format regarding the appropriate work practices necessary to effectively implement the APMs and mitigation measures related to cultural resources and tribal cultural resources, including human remains. Training shall be required for all personnel before they begin work on a project site and repeated as needed for all new personnel before they begin work on the Project. This training program shall be submitted to the CPUC for approval at least 30 days before the start of construction and include procedures to be followed upon the discovery or suspected discovery of archaeological materials, tribal cultural resources, and human remains, consistent with the procedures

set forth in the CRMP. This training may be integrated with a broader Worker Environmental Awareness Training program. Documentation of the training will be provided to the BLM and CPUC. The CPUC will provide documentation to the consulting tribes.

CR-3 **Prepare and implement a Cultural Resources Management Plan.** Prior to the beginning of construction, SCE shall submit at least 90 days before construction a Cultural Resources Management Plan (CRMP) for the project to the BLM and CPUC for review. The CPUC will submit the CRMP to representatives of consulting tribes for a 30-day review and comment period prior to approving the CRMP. The CPUC will in good faith consider any comments received from consulting tribes and incorporate such comments into the CRMP as deemed feasible. A single plan document that meets the requirements of both BLM and CPUC is acceptable. The CRMP shall be implemented under the direction of the SCE and the project Cultural Resources Specialist. The CRMP shall be prepared at the sole expense of the project proponent and shall meet all regulatory requirements. At a minimum the CRMP must address the following:

- The duties of the project Cultural Resources Specialist and associated staff shall be fully explained, including oversight/management, monitoring, and reporting duties with respect to known cultural resources and tribal cultural resources as well as site evaluation, data collection, and reporting for any newly identified resources discovered during project activities. The professional standards and ethical guidelines for all cultural resource personnel will be clearly outlined in the CRMP.
- No collection of artifacts is authorized or planned for this project. If an unanticipated discovery requires evaluation via excavation and artifact collection, the retention/disposal, and permanent and temporary curation policies shall be specified. The decision-making process for identifying which artifacts are curated or reburied, where they are reburied and the individuals, including tribal participants, making these decisions shall be described. These policies shall apply to cultural resources materials and documentation resulting from evaluation and treatment of cultural resources and tribal cultural resources discovered during project activities.
- The CRMP shall define and map all known prehistoric and historic resources eligible to the NRHP and CRHR within 100 feet of proposed work areas. How these resources will be avoided and protected during construction will be described. Avoidance measures to be used will be described, including where and when they will be implemented. How avoidance measures and enforcement of Environment Sensitive Areas (ESAs) will be coordinated with construction personnel will be included.
- The implementation sequence and the estimated time frames needed to accomplish all project-related tasks (i.e., evaluation of new resources resulting in work stoppage, time to complete reports, etc.) during the project activities and any post-project analysis phases of the project, if necessary, shall be specified. The intensity of monitoring proposed for each resource that may be impacted by project activities shall be outlined in the CRMP.
- Person(s) expected to perform each monitoring and, if necessary, treatment task, their responsibilities, and the reporting relationships between project construction management and the monitoring and treatment team shall be outlined in the CRMP.
- Tribal Monitors shall be retained to monitor ground disturbing activities within 100 feet of prehistoric and protohistoric resources. Tribal Monitors shall be retained for data recovery within prehistoric and protohistoric resources identified for data recovery. The ELM Project

area spans multiple Tribal areas. The Tribe affiliated with a specific area will be considered first to provide Tribal Monitors. If multiple Tribes or Tribal Organizations are affiliated with a specific area, Tribal Monitors will be selected on a rotating basis. The CRMP will describe the roles and responsibilities of the monitors. Tribal monitors will be compensated. All impact-avoidance measures (such as the presence of monitors) to prohibit or otherwise restrict access to sensitive resource areas that are to be avoided during ground disturbance, construction, and/or operation shall be described. Areas where these measures are to be implemented shall be identified. The description shall address how these measures would be implemented prior to the start of ground disturbance and how long they would be needed to protect the resources from project-related impacts.

- The commitment to record resources on Department of Parks and Recreation (DPR) 523 forms, to map, and to photograph all newly identified cultural resources over 50 years of age shall be stated. Participating tribes may offer their perspective regarding the newly identified cultural resource. Comments by tribes may be documented on the DPR 523c, parts A13 (Interpretation) and A14 (Remarks).
- The commitment to curate all artifacts retained as a result of any archaeological investigations in accordance with the appropriate requirements and the California State Historical Resources Commission's Guidelines for the Curation of Archaeological Collections, into a retrievable storage collection in a public repository, museum, or reburial at the request of tribal representatives shall be stated. The different curation policies for archaeological material collected on BLM land as opposed to private or state land, shall be clearly articulated.
- The commitment of SCE to pay all curation or reburial fees for artifacts recovered and for related documentation produced during cultural resources investigations conducted for the project shall be stated. Should consulting tribes request that artifacts not be reburied, the CRMP shall identify a curation facility that could accept cultural resources materials resulting from project cultural resources investigations on private or state land. Tribal monitors shall be present for any reburials.
- A final report shall be prepared presenting the results of the monitoring efforts. The contents, format, and review and approval process of the final report shall meet appropriate federal, state, and local guidelines.

CR-4 **Inadvertent discovery of cultural or tribal cultural resources.** If previously undiscovered resources are identified during project activities all activities within 100 feet (30 meters) of the resource shall halt. The onsite construction supervisor and SCE shall be notified. SCE will notify the CPUC and BLM of the discovery. The CSLC will also be notified if the discovery is on state land. The monitoring team shall flag-off the area. SCE and its cultural resource specialist will coordinate with the CPUC, BLM, NPS, CSLC, and tribal representatives as appropriate, on avoidance measures.

If the resource cannot be avoided, methods of resource evaluation, and methods of mitigation will be discussed with all appropriate parties. Work may be temporarily diverted to activities that are outside of 100 feet (30 meters) of the discovered or suspected resource. The resource shall be evaluated to determine whether it is eligible for the NRHP, CRHR, a unique archaeological resource, a tribal cultural resource, or part of a larger culturally sensitive landscape area or traditional cultural property. If the resource is determined not to be significant, work may recommence in the area. If the resource is determined significant

work shall remain halted within 100 feet (30 meters) of the area of the find, SCE shall consult with the BLM, CPUC, CSLC and representatives of the consulting tribes as appropriate regarding methods to ensure that no adverse effect and no substantial adverse change would occur to the significance of the resource. Preservation in place (i.e., avoidance) is the preferred method of mitigation for impacts to cultural resources. Other methods of mitigation, described below, shall only be used if it is determined the method would provide equivalent or superior mitigation of the impacts to the resource. The alternative methods of mitigation may include data recovery and documentation of the information contained in the resource to answer questions about local prehistory or history. The methods and results of the evaluation or data recovery work at an archaeological find shall be documented in a professional-level technical report to be filed with the California Historical Resources Information System (CHRIS). Work in the area may commence upon completion of treatment, as approved by the BLM, ~~and~~ CPUC, and CSLC when appropriate.

If data recovery of resources is necessary, additional archaeologists shall perform the excavation while the monitoring team(s) continues to monitor construction. Additionally, the tribes shall be offered the opportunity to monitor data recovery efforts at prehistoric sites in addition to construction efforts, under the same contract terms. This opportunity shall be additionally be extended to tribes that consulted on this project, but for which a tribal monitor was not provided for construction efforts.

CR-5 **Avoidance of cultural and tribal cultural resources.** When project work is planned within 100 feet of a known prehistoric-era cultural resource or a tribal cultural resource, or any resources that are eligible for the CRHR and/or NRHP, avoidance areas shall be established and monitors shall be present as outlined in the CRMP. ESAs shall be established with a 50 foot buffer around each resource prior to project activities, except where the 50-foot buffer would encroach on a work area, in which event the ESA buffer shall be the near edge of the identified work area. Monitoring teams shall include one qualified cultural resources monitor and one Native American monitor at prehistoric sites. ESAs shall be established by a qualified cultural resources monitor. The timing and intensity of the monitoring may vary according to the type of resource and the nature of the work planned and shall be determined in consultation with consulting tribes, as appropriate.

CR-6 **Prepare monitoring reports.** Upon completion of cultural resources and tribal cultural resources monitoring, SCE shall prepare a single report that summarize the monitoring efforts and the results, analyses, and conclusions of the monitoring program. Individual volumes per land ownership will be included and provide additional details. Copies of the report shall be submitted to both the CPUC and BLM within 60 days of the close of construction. Thereafter, consistent with individual agency policy, each agency will disseminate to the consulting tribes the report applicable to land under that agency's jurisdiction. Draft reports under CPUC jurisdiction will be submitted to consulting tribes for a 30-day review and comment period concurrent with agency review. If no new resources were discovered during construction, a letter report shall be submitted to the CPUC and BLM summarizing monitoring efforts. If resources were identified during construction, the reports shall be consistent with the California Archaeological Resources Management Reports (ARMR) and commensurate with the nature and significance of the identified resource(s). If artifacts are collected, they shall be curated at a recognized curation facility unless consulting tribes request that the Native American artifacts be reburied on site. Documentation associated with any newly identified resources shall be filled with the CHRIS, if appropriate.

b. Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to CCR §15064.5?

An archaeological artifact, object, or site is considered a unique archaeological resource if "it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria (PRC 21083.2[g]):

- Contains information needed to answer important scientific research questions and there is a demonstrable public interest in that information.
- Has a special and particular quality such as being the oldest of its type or the best available example of its type.
- Is directly associated with a scientifically recognized important prehistoric or historic event or person."
- If it can be demonstrated that a project will cause damage to a unique archaeological resource, the lead agency may require that reasonable efforts be taken to preserve these resources in place or provide mitigation measures.

Construction

LESS THAN SIGNIFICANT WITH MITIGATION. No unique archaeological resources have been identified in the project area, however, previously unknown buried archaeological resources could be discovered and damaged, or destroyed, during ground disturbing work. This would cause a substantial adverse change in the significance of the archaeological resources. Damage or destruction of a buried archaeological resource would constitute a significant impact absent mitigation. Implementation of Mitigation Measures CR-1 through CR-7 described above would evaluate and protect unanticipated discoveries of unique archaeological resources, thereby reducing this impact to less than significant.

Operations and Maintenance

LESS THAN SIGNIFICANT. O&M activities would occur in previously disturbed locations. No ground disturbance that would lead to cause a substantial adverse change in the significance of an archaeological resource is not anticipated to occur during routine O&M activities. Therefore, the impact is less than significant during O&M.

Mitigation Measures

CR-1 Retain a Cultural Resources Specialist.
CR-2 Cultural resources environmental awareness training.
CR-3 Prepare and implement Cultural Resources Management Plan.
CR-4 Inadvertent discovery of cultural or tribal cultural resources.
CR-5 Avoidance of cultural and tribal cultural resources.
CR-6 Prepare monitoring reports.

c. Would the project disturb any human remains, including those interred outside of formal cemeteries?

Construction

LESS THAN SIGNIFICANT WITH MITIGATION. There is no indication that human remains are present within the Proposed Project area. Background archival research failed to find any potential for human remains (e.g., existence of formal cemeteries). However, it is possible that previously unknown human remains could

be discovered and damaged or destroyed during ground disturbance, which would constitute a significant impact. Because SCE's APMs for cultural resources do not address the potential to disturb human remains, this analysis recommends mitigation to avoid this impact.

Implementation of Mitigation Measure CR-7 (Treatment of human remains on state owned land or private property) and Mitigation Measure CR-8 (Treatment of human remains on federal land), require evaluation, protection, and appropriate disposition of human remains, which would reduce this impact to less than significant.

Operations and Maintenance

LESS THAN SIGNIFICANT. O&M activities would occur in previously disturbed locations. Ground disturbance that would lead to the discovery of human remains is not anticipated to be required during O&M activities. Therefore, the impact is less than significant during routine O&M.

Mitigation Measures

CR-7 **Inadvertent discovery of human remains on state owned land or private property.** In the event that human remains or suspected human remains are identified, SCE shall comply with California law (Heath and Safety Code Section 7050.5; PRC Sections 5097.94, 5097.98, and 5097.99). The area shall be flagged off and all project activities within 200 feet (60 meters) of the find shall immediately cease. The CPUC-approved Cultural Resources Specialist and SCE shall be immediately notified. SCE shall immediately contact the Medical Examiner at the County Coroner's office, BLM, CPUC as well as representatives of consulting tribes. The CSLC will be notified if the remains are identified on state land. The Medical Examiner has two (2) working days to examine the remains. If the Medical Examiner believes the remains are Native American, they shall notify the California Native American Heritage Commission (NAHC) within 24 hours. If the remains are not believed to be Native American, the appropriate local law enforcement agency will be notified.

The NAHC will immediately notify the person or tribe it believes to be the most likely descendant (MLD) of the remains, and the MLD has 48 hours to make recommendations to the landowner or representative for the respectful treatment or disposition of the human remains and any associated grave goods. If the MLD does not make recommendations within 48 hours, the remains shall be reinterred in the location they were discovered and the area of the property shall be secured from further disturbance. If there are disputes between the landowner and the MLD, the NAHC shall mediate the dispute and attempt to find a solution. If the mediation fails to provide measures acceptable to the landowner, the landowner or their representative shall reinter the remains and associated grave goods and funerary objects in an area of the property secure from further disturbance. The location of any reburial of Native American human remains shall not be disclosed to the public and shall not be governed by public disclosure requirements of the California Public Records Act, Cal. Govt. Code§ 6250 et seq., unless otherwise required by law. The Medical Examiner shall withhold public disclosure of information related to such reburial pursuant to the specific exemption set forth in California Government Code Section 6254(r).

CR-8 **Inadvertent discovery of human remains on federal land.** If potential human remains are discovered during any Project activity on lands administered by federal agencies, all activities within 200 feet that will cease immediately. SCE will take appropriate steps to secure and protect human remains and any funerary objects from further disturbance. SCE will notify the

BLM and the County Coroner (California Health and Safety Code 7050.5(b)) immediately. If the remains are determined to be Native American or if Native American cultural items pursuant to the Native American Graves Protection and Repatriation Act (NAGPRA) are uncovered, the remains shall be treated in accordance with the provisions of NAGPRA (43 CFR 10) and the Archaeological Resources Protection Act (43 CFR 7). SCE shall assist and support the federal agency, as appropriate, in all required NAGPRA and Section 106 actions, government-to-government and consultations with Native Americans, agencies, and consulting parties as requested by the federal agency. SCE shall comply with and implement all required actions and studies that result from such consultations.

5.5.7 References

NOTE: To protect the integrity of cultural resources, the reports below are not available to the general public. The reports can be made available to qualified resource professionals with approval from BLM and CPUC.

ASM (ASM Affiliates Inc.). 2018a. Volume I: Project Overview and Management Recommendations. Class III Cultural Resources Inventory for the Eldorado-Lugo-Mohave Series Capacitor Project, San Bernardino County, California. Prepared for Southern California Edison. Submitted to United States Department of the Interior, Bureau of Land Management, California Desert District Office.

_____. 2018b. Volume II: Findings, Lands Administered by BLM Barstow Field Office. Class III Cultural Resources Inventory for the Eldorado-Lugo-Mohave Series Capacitor Project, San Bernardino County, California. Prepared for Southern California Edison. Submitted to United States Department of the Interior, Bureau of Land Management, California Desert District Office.

_____. 2018c. Volume III: Findings, Lands Administered by NPS, Mojave National Preserve. Class III Cultural Resources Inventory for the Eldorado-Lugo-Mohave Series Capacitor Project, San Bernardino County, California. Prepared for Southern California Edison. Submitted to United States Department of the Interior, Bureau of Land Management, California Desert District Office.

_____. 2018d. Volume IV: Findings, Lands Administered by BLM Needles Field Office. Class III Cultural Resources Inventory for the Eldorado-Lugo-Mohave Series Capacitor Project, San Bernardino County, California. Prepared for Southern California Edison. Submitted to United States Department of the Interior, Bureau of Land Management, California Desert District Office.

_____. 2018e. Volume V: Findings, State of California and Privately Owned Lands. Class III Cultural Resources Inventory for the Eldorado-Lugo-Mohave Series Capacitor Project, San Bernardino County, California. Prepared for Southern California Edison. Submitted to United States Department of the Interior, Bureau of Land Management, California Desert District Office.

_____. 2018f. Class III Cultural Resources Inventory for the Eldorado-Lugo-Mohave Series Capacitor Project, Clark County, Nevada. Prepared for Southern California Edison. Submitted to United States Department of the Interior, Bureau of Land Management, California Desert District Office.

_____. 2018g. Historic Resource (Built Environment) Assessment Report for the Eldorado-Lugo-Mohave Capacitor Project, San Bernardino County, California. Prepared for Southern California Edison. Submitted to United States Department of the Interior, Bureau of Land Management, California Desert District Office.

_____. 2018h. Historical Resource (Built Environment) Assessment Report for the Eldorado-Lugo-Mohave Capacitor Project, Clark County, Nevada. Prepared for Southern California Edison. Submitted to United States Department of the Interior, Bureau of Land Management, California Desert District Office.

_____. 2018i. Ethnographic and Ethnohistoric Overview for the Eldorado-Lugo-Mohave Series Capacitor Project and the Lugo-Victorville 500 kV Transmission Line Special Protection Scheme Project, San Bernardino County, California, and Clark County, Nevada. Prepared for Southern California Edison. Submitted to United States Department of the Interior, Bureau of Land Management, California Desert District Office.

Bean, Lowell Bean; Evans, Michael J.; Hopa, Ngapare K.; Massey, Lee Gooding; Rothenberg, Diane; Stoffle, Richard W.; Vane, Sylvia Brakke; Weinman-Roberts, Lois; Young, Jackson

1979 Allen-Warner Valley Energy System: Western Transmission System - Ethnographic and Historical Resources. Report submitted to Southern California Edison Company. Menlo Park, California December 15, 1979.

5.6 Energy

ENERGY Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	☐	☐	☒	☐
b. Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	☐	☐	☒	☐

Significance criteria established by CEQA Guidelines, Appendix G.

5.6.1 Environmental Setting

The Proposed Project would involve modifying SCE's existing facilities that are used to deliver electrical power to California's end users of electricity. The southern California bulk electric power transmission system includes the high-voltage transmission facilities of SCE and San Diego Gas & Electric (SDG&E), with major interconnections to systems of Pacific Gas & Electric (PG&E), Los Angeles Department of Water and Power (LADWP) and Arizona Public Service (APS). Because the Proposed Project would modify SCE's transmission facilities that are in a parallel configuration with LADWP-owned facilities, an objective of the Proposed Project is to reduce SCE's power flow into the LADWP transmission system (see Section 4.2.2, Project Objectives; SCE, 2019); accordingly, this section summarizes some data on energy consumption for customers served by LADWP.

Most of the SCE load is located within the Los Angeles basin. About 15 million people in central, coastal and southern California, excluding the City of Los Angeles and certain other cities, are served by the SCE transmission system. The gross load growth forecast for SCE is about 159 megawatts (MW) on average per year; although the demand is forecast to decline an average of 130 MW per year after consideration of gains in energy efficiency and increasing deployment of new solar resources near the load (CAISO, 2019).

The energy sources that make up the mix of power supplied to SCE and LADWP customers, relative to the 2017 California power mix, are summarized in Table 5.6-1, which shows the data from each utility-specific Power Content Label (CEC, 2018a).

Table 5.6-1. Energy Sources of Electricity Supplied to Customers (Power Content)

Energy Resources	SCE	LADWP	2017 California-wide Power Mix
Eligible Renewable	**32%**	**30%**	**29%**
Biomass & biowaste	0%	1%	2%
Geothermal	8%	4%	4%
Eligible hydroelectric	1%	4%	3%
Solar	13%	11%	10%
Wind	10%	10%	10%
Coal	0%	18%	4%
Large Hydroelectric	8%	4%	15%
Natural Gas	20%	31%	34%
Nuclear	6%	10%	9%
Other	0%	0%	<1%
Unspecified sources of power *	34%	7%	9%
Total	**100%**	**100%**	**100%**

* "Unspecified sources of power" means electricity from transactions that are not traceable to specific generation sources.
Source: CEC 2017 Power Content Label, Version: July 2018.

For recent years up to 2017, the average annual electricity consumption served to SCE customers is approximately 85.6 million megawatt-hours (MWh) or 85,550 million kilowatt-hours (kWh). The SCE-owned transmission system serves not only customers in the SCE service area but the load of other cities and entities that obtain transmission service through SCE's system. Table 5.6-2 shows the baseline electricity consumption by the SCE and LADWP loads over the prior five years, separated by customer classes.

Table 5.6-2. Electricity Consumption for Load Served by SCE and LADWP (million MWh per year)

Sector	2013	2014	2015	2016	2017	Average (5-year)
Load Served by SCE						
Ag & Water Pump	3.286	3.598	3.446	3.304	2.975	3.32
Commercial Building	33.241	34.119	32.691	32.081	31.925	32.81
Commercial Other	4.536	4.548	4.305	4.272	4.283	4.39
Industry	12.385	12.648	13.144	13.194	13.094	12.89
Mining & Construction	1.923	1.992	2.470	2.431	2.411	2.25
Residential	29.803	30.027	29.267	28.521	28.975	29.32
Streetlight	0.485	0.487	0.639	0.636	0.628	0.57
SCE Total Usage	**85.658**	**87.418**	**85.962**	**84.440**	**84.292**	**85.55**
Load Served by LADWP						
Ag & Water Pump	0.096	0.036	0.041	0.029	0.020	0.04
Commercial Building	10.076	11.460	11.418	11.627	11.121	11.14
Commercial Other	1.403	1.075	1.014	0.948	0.922	1.07
Industry	2.426	2.309	2.264	2.318	2.195	2.30
Mining & Construction	0.279	0.251	0.195	0.214	0.280	0.24
Residential	8.227	8.179	8.275	8.230	8.223	8.23
Streetlight	0.138	0.145	0.130	0.129	0.133	0.13
LADWP Total Usage	**22.645**	**23.455**	**23.336**	**23.495**	**22.893**	**23.16**

Note: Usage expressed in millions of MWh (one million MWh equals one terawatt-hour or TWh).
Source: CEC, 2019a; Electricity Consumption by Entity.

5.6.2 Regulatory Background

State and Local

California

Energy Action Plan and Loading Order. California has mandated and implemented aggressive energy-use reduction programs for electricity and other resources. In 2003, California's first Energy Action Plan (EAP) established a high-level, coherent approach to meeting California's electricity and natural gas needs and set forth the "loading order" to address California's future energy needs. The "loading order" established that the state, in meeting its energy needs, would invest first in energy efficiency and demand-side resources, followed by renewable resources, and only then in clean conventional electricity supply (CPUC, 2008). Since that time, the CPUC and California Energy Commission (CEC) have overseen the plans, policies, and programs for prioritizing the preferred resources, including energy efficiency and renewable energy.

California's Renewables Portfolio Standard (RPS). Electric utilities in California must procure a minimum quantity of the electricity sales from eligible renewable energy resources as specified by RPS require-

ments. The most-recent update to the RPS targets was set forth in 2018 with the "100 Percent Clean Energy Act of 2018" [Senate Bill 100 (SB 100)], which establishes the policy that eligible renewable energy resources and zero-carbon resources supply 100 percent of retail sales of electricity to California end-use customers by December 31, 2045. SB 100 requires the CPUC and CEC to ensure that implementation of this policy does not cause or contribute to greenhouse gas emissions increases elsewhere in the western grid.

Integrated Resource Planning. An Integrated Resource Plan (IRP) is an electricity system planning document that lays out the energy resource needs, policy goals, physical and operational constraints, and the general priorities or proposed resource choices of an electric utility, including customer-side preferred resources. Through Senate Bill 350 (De León, Chapter 547, Statutes of 2015) (SB 350), the CPUC requires each electric load serving entity to develop an IRP that takes a 10-year look-ahead for overall electric system reliability, local reliability needs, and flexibility needs to allow the electricity sector to contribute to California's economy-wide greenhouse gas emissions reductions goals. Similarly, publicly owned utilities (POU) must also adopt IRPs subject to a review by the CEC for consistency with statewide guidelines. The CPUC approved SCE's 2017-2018 IRP on April 25, 2019 (D.19-04-040).

California's Integrated Energy Policy Report (IEPR). Senate Bill 1389 (Bowen, Chapter 568, Statutes of 2002) requires the CEC to prepare a biennial integrated energy policy report that assesses major energy trends and issues facing the state's electricity, natural gas, and transportation fuel sectors and provides policy recommendations to conserve resources; protect the environment; ensure reliable, secure, and diverse energy supplies; enhance the state's economy; and protect public health and safety (Public Resources Code §25301[a]). The 2017 IEPR (CEC, 2018b) focused on implementing SB 350, including implementing integrated resource plans (IRPs) for California's electricity sector and achieving 2030 RPS and greenhouse gas emissions reduction goals. The 2017 IEPR identifies early planning steps taken in response to the 2030 goals, including the Renewable Energy Transmission Initiative 2.0 (RETI 2.0) process. The RETI 2.0 final report provided a non-regulatory review of where potential new renewable energy generation could be developed and what transmission may be needed to deliver this energy to California's load centers (CEC, 2017).

CAISO Transmission Plan. The annual CAISO Transmission Plan is developed through a broad stakeholder process and coordination with the CPUC and CEC to provide a comprehensive evaluation of the CAISO transmission grid, which includes facilities owned by SCE, to address grid reliability requirements, identify upgrades needed to successfully meet California's policy goals, and explore projects that can bring economic benefits to consumers (CAISO, 2019). The CAISO relies on renewable resource portfolios developed by the CPUC when it evaluates the transmission to support California's renewable energy policies.

State CEQA Guidelines. The California Natural Resources Agency adopted certain amendments to the State CEQA Guidelines effective in 2019, to change how CEQA Lead Agencies consider the environmental impacts of energy use. CEQA Guidelines Section 15126.2(b) and Appendix F require analysis of a project's energy use, in order to assure that energy implications are considered in project decisions. CEQA requires a discussion of the potential environmental effects of energy resources used by projects, with particular emphasis on avoiding or reducing the "wasteful, inefficient, and unnecessary consumption of energy" (see Public Resources Code section 21100(b)(3)).

Nevada

Nevada Revised Statutes (NRS). Nevada has codified a Renewable Portfolio Standard in NRS 704.7801, which establishes the percentage of electricity sold by Nevada's electric utility companies to retail cus-

tomers that must come from renewable sources. Electric utilities are required to generate, acquire or save with portfolio energy systems or energy efficiency measures, a certain percentage of electricity annually. The Nevada energy portfolio requirements would not apply to the Proposed Project because the project would primarily serve California end-users of electricity.

Local

San Bernardino County, Renewable Energy and Conservation Element (RECE). The County General Plan includes the RECE that establishes policies generally prohibiting "utility-oriented" renewable energy project development on sites that adversely impact "the quality of life or economic development opportunities in existing unincorporated communities" (RE Policy 4.10). However, County RECE policies would not apply to the Proposed Project because the project is not a renewable energy generation project.

Federal

No federal regulations concerning wasteful, inefficient, or unnecessary consumption of energy resources were identified that are relevant to the Proposed Project.

5.6.3 Applicant Proposed Measures

The Proposed Project does not include any APMs related to Energy.

5.6.4 CEQA Significance Criteria

Appendix G of the CEQA Guidelines (14 CCR 15000 et seq.) provides guidance on assessing whether a project would have significant impacts on the environment. Consistent with Appendix G, the Proposed Project would have significant energy impacts if it would:

a. Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation

b. Conflict with or obstruct a state or local plan for renewable energy or energy efficiency

5.6.5 Methodology

All construction- and operation-related activities would involve use of energy-consuming equipment and processes. This analysis presents a qualitative discussion of the Proposed Project's energy use for all phases and components. As set forth in the State CEQA Guidelines, Appendix F: Energy Conservation, the goal of conserving energy implies the wise and efficient use of energy including:

- Decreasing overall per capita energy consumption;
- Decreasing reliance on fossil fuels such as coal, natural gas and oil; and
- Increasing reliance on renewable energy sources.

Lead agency actions that are consistent with these goals would not likely cause an energy-related impact. The energy impact analysis emphasizes avoiding or reducing inefficient, wasteful and unnecessary consumption of energy resources, and whether the project would result in a potentially significant environmental impact due to inefficient, wasteful, and unnecessary consumption of energy.

Examples of energy conservation measures that may be relevant to addressing energy are provided in Appendix F: Energy Conservation, within the CEQA Guidelines.

5.6.6 Project Impacts and Mitigation Measures

a. Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?

SCE's Proposed Project would upgrade electric transmission on existing 500 kV lines and install communication facilities in San Bernardino County, California and Clark County, Nevada. The upgraded transmission system would increase the amount of electrical power delivered into SCE's load centers, particularly from generators in the Southwestern U.S. and California's Ivanpah Valley. The communication facilities would enhance communication among substations (SCE, 2018).

Consideration of the energy implications of a project may include a review of the following types of topics that relate to the Project Description [See CEQA Guidelines Appendix F: Energy Conservation (II)(A)]:

- Energy consuming equipment and processes which will be used during construction, operation and/or removal of the project. If appropriate, this discussion should consider the energy intensiveness of materials and equipment required for the project.
- Total energy requirements of the project by fuel type and end use.
- Energy conservation equipment and design features.
- Identification of energy supplies that would serve the project.
- Total estimated daily vehicle trips to be generated by the project and the additional energy consumed per trip by mode.

These topics are discussed separately for construction and operations, as follows.

Construction

LESS THAN SIGNIFICANT. Construction activity associated with the Proposed Project would require the consumption of fossil fuel resources, for example diesel fuel, gasoline, and aviation fuel, to power the construction equipment, construction vehicles, and helicopters. Additionally, construction would require the manufacture and delivery of new equipment and materials, which would require energy use. Based on their composition, some of the equipment and materials to be removed as part of the project would be salvageable and recyclable.

The short-term use of fuels by equipment, motor vehicle trips, and helicopters during construction would be necessary to install the facilities. The total energy requirements during construction are not quantified within the Project Description. However, this can be estimated in terms of the volumes of diesel, gasoline, and aviation fuel, by reviewing the products of combustion of these fuels (e.g., the quantities of greenhouse gases would be directly proportional to the volumes of fuels used). Based on the anticipated quantities of carbon dioxide emissions (as defined in Section 5.8, Greenhouse Gas Emissions), approximately 441,000 gallons of diesel, 379,000 gallons of gasoline, and 579,000 gallons of aviation fuel would need to be used over the construction duration of approximately 15 months. To put these volumes into perspective, data from the California Energy Commission indicates that California's refineries normally produce around 2.5 million barrels per week of diesel (CEC, 2019b) or roughly 15 million gallons each day. This means the total diesel fuel volume used during construction of the Proposed Project (0.441 million gallons) would represent less than 3 percent of California's daily diesel production volume (15 million gallons).

Energy conservation features are not specifically defined within the SCE's APMs. However, certain features of the proposed construction practices would serve to avoid wasteful, inefficient, and unnecessary consumption of energy, as follows. Energy use during construction would be reduced by steps taken to limit the idling of equipment (APM-AIR-03), properly maintain the equipment (APM-AIR-04), encourage carpooling (APM-AIR-05), limit helicopter operations (APM-NOI-01), or reduce temporary traffic delays (consistent with the California Joint Utility Traffic Control Manual), and these efforts would help to ensure the efficient use of fuels during construction.

Operation and Maintenance

LESS THAN SIGNIFICANT. Maintenance and normal operations, including inspections of the Proposed Project components, would require use of fossil fuels (diesel and gasoline) for motor vehicle trips and occasional use of off-road equipment. The Proposed Project would also install emergency-use, standby generators that would consume small volumes of propane. Use of these fuels would be necessary for normal O&M activities including periodic inspections, equipment testing, and propane fuel deliveries. However, no new full-time staffing or induced population growth would occur, because no new crews would be added by the project and maintenance would be incorporated with existing maintenance programs.

The Proposed Project would increase power flow through the existing 500 kV transmission lines. The primary energy implication of the proposed installation of new mid-line series capacitors and additional electric facilities at the substations would be to increase the system's capacity to transfer electrical power. For example, on the Eldorado-Mohave 500 kV Transmission Line, the capacity entitlement of SCE would increase from 530 MW to 1,548 MW (see Section 4.2.1). The overall capacity increase would increase SCE's ability to provide transmission service to generators in Nevada and Arizona. This would help alleviate existing deliverability constraints that presently limit California's access to renewable resources seeking to interconnect to the transmission system. The proposed series capacitors and fiber optic repeater facilities would also consume a relatively small amount of power, although these losses would be negligible in relation to the proposed capacity increase of the 500 kV transmission system. The Proposed Project would not increase the nominal voltage of the three 500 kV transmission lines.

The objectives of the upgraded facilities center on delivering renewable energy to California's end-users of electricity. One objective is to reduce SCE's power flow into the portions of the LADWP transmission system that are in a parallel configuration with SCE's system. The Proposed Project would increase series compensation on SCE's lines and have the effect of reducing the potential for overloads on LADWP's system (SCE, 2019).

Increasing the power flow from eligible renewable energy resources could replace an equal amount of energy that would otherwise be produced by competing resources in the Southwestern U.S., such as those fueled by natural gas or by unspecified sources of power (see Table 5.6-1). SCE identifies numerous planned renewable generating projects in Table 2-1 of its Proponent's Environmental Assessment (PEA), and SCE states that the Proposed Project will enable deliverability for projects planning to interconnect to the eastern portion of the SCE system and systems in Nevada owned and operated by GridLiance West Transco (GWT) and Valley Electric Association (VEA) (SCE, 2019). By increasing the existing system's capacity to transfer electrical power, the Proposed Project would improve the efficiency of the system's ability to deliver electricity to California's end users.

The energy used by the Proposed Project would not be wasteful, inefficient, or unnecessary in light of the transmission system capacity increase and the ability to provide increased access to renewable energy. No potentially significant environmental impact would occur due to the direct or indirect energy consumption of the Proposed Project.

Mitigation Measures

No mitigation is required.

b. Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

LESS THAN SIGNIFICANT. The Proposed Project, including the direct and indirect use of energy during construction, would upgrade facilities that would improve California's ability to supply renewable energy to end-use customers and to achieve statewide renewable energy goals. The Proposed Project would increase the ability of California to access and deliver power from conventional or renewable energy generators in the Southwestern U.S. and would increase SCE's ability to make energy resources deliverable to end users (SCE, 2018; SCE, 2019).

Pursuant to CPUC requirements under SB 350, SCE filed its 2017-2018 Integrated Resource Plan (IRP) on August 1, 2018, and an update submitted October 22, 2018, that was approved by the CPUC on April 25, 2019 (D.19-04-040). The major elements of the Proposed Project, the mid-line series capacitors for the existing Eldorado-Lugo and Lugo-Mohave 500 kV Transmission Lines, were approved in the 2012-2013 and 2013-2014 cycles, respectively, of the CAISO Transmission Plan (CAISO, 2013; CAISO, 2014). With the prior CAISO approvals, the mid-line series capacitors became approved elements for providing deliverability of renewable resources, consistent with California's RPS policies. Later, the RETI 2.0 Transmission Technical Input Group identified these features of the Proposed Project as being "on-going" and "underway" in support of the development of additional renewable resources and to deliver renewable resources to California (CEC, 2016). While the upgraded transmission capabilities provided by the Proposed Project pre-date the analyses conducted by SCE for the CPUC-approved 2017-2018 IRP, because they continue to be listed as previously-approved projects for the CAISO Transmission Plan (CAISO, 2019), the Proposed Project would be consistent with these plans and studies to accommodate greater access to renewable resources.

The Proposed Project would not conflict with any state or local plan for prioritizing the preferred resources, including energy efficiency and renewable energy. This impact would be less than significant, and no mitigation is required.

Mitigation Measures

No mitigation is required.

5.6.7 References

CAISO (California Independent System Operator). 2019. Board-Approved 2018-2019 Transmission Plan. March 29.

CEC (California Energy Commission). 2019a. Electricity Consumption by Entity. http://www.ecdms.energy.ca.gov/elecbyutil.aspx.

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CPUC (California Public Utilities Commission). 2008. Energy Action Plan, 2008 Update. February. http://www.cpuc.ca.gov/eaps/.

SCE (Southern California Edison). 2019. Amended Application for a Certificate of Public Convenience and Necessity Regarding the Eldorado-Lugo-Mohave Series Capacitor Project. April 19.

_____. 2018. Eldorado-Lugo-Mohave Series Capacitor Project: Proponent's Environmental Assessment (PEA). Volumes 1 through 8. April.

5.7 Geology and Soils

GEOLOGY AND SOILS Would the project:	Potentially Significant Impact	Less Than Significant 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? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☒	☐
ii) Strong seismic ground shaking?	☐	☐	☒	☐
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐
iv) Landslides?	☐	☐	☒	☐
b. Result in substantial soil erosion or the loss of topsoil?	☐	☒	☐☒	☐
c. Be located on geologic units or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?	☐	☐	☒	☐
d. Be located on expansive soil, as defined in the 2016 California Building Code (CBC),[1] 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 waste water?	☐	☒	☐☒	☐
f. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☒	☐	☐

1 - The CEQA Checklist refers to "Table 18 1 B of the Uniform Building Code (1994)," but this is now obsolete. The 2016 California Building Code is based on the International Building Code (2015). The current CBC was effective January 1, 2017. It is updated every three years.

5.7.1 Environmental Setting

Geologic Setting

The study area for geology and soils was defined as the Proposed Project and areas immediately adjacent to the Proposed Project, except for the study area related to seismically induced ground shaking issues, which includes significant regional active and potentially active faults within 30 miles of the Proposed Project.

Regional Geologic Setting

The Proposed Project is located in the Mojave Desert, which occupies a significant portion of Southern California and parts of Nevada, Arizona, and Utah. The Mojave Desert occupies roughly 54,000 square miles in a typical Basin and Range topography, with isolated mountain ranges separated by expanses of desert plains. It is bound on the northwest by the Tehachapi Mountains and the Garlock Fault and to the west by the San Andreas fault and the San Gabriel and San Bernardino mountain ranges, the northeastern, eastern, and southern boundaries are less distinct. It has an interior enclosed drainage and many playas. The Mojave region exhibits a wide variety of geomorphic landforms which represent the varying erosional, depositional, and tectonic processes the area is undergoing, including: volcanic features such

as basaltic flows and cones; erosional and depositional features such as pediments, alluvial fans, playas, badlands, desert pavement; and tectonic (faulting) features such as scarps, offset streams, sags, and sag ponds. The physiography of the project area is dominated by prominent northwest-southeast trending faults and generally northwest-southeast trending mountain ranges.

Local Geology

The Proposed Project generally traverses alluvial plains, alluvial fans and pediments, badlands, hills, and the foothills of numerous mountain ranges, including the San Bernardino, Ord, Granite, Rodman, Cady, Bristol, Newberry, and Highland Mountains. Most of the Proposed Project components and work and staging areas are underlain by Pliocene- to Holocene-age and Quaternary-age alluvium, with lesser amounts of Tertiary sedimentary rocks, Tertiary to Mesozoic volcanic rocks, Tertiary, Mesozoic, and pre-Cambrian granitic rocks, and Paleozoic to pre-Cambrian metamorphic and metasedimentary rocks (CGS, 2018; USGS, 1978). General descriptions of the geologic materials, listed chronologically, underlying Proposed Project components and work areas are summarized in Table 5.7-1. Geologic units underlying the Proposed Project are presented in Figure 5.7-1, Geologic Formations in the Proposed Project Area, at the end of this section.

Table 5.7-1. Geologic Units Underlaying Proposed Project Components and Work Areas

Geologic Unit	Age	Description and Source
California		
Q – alluvium	Pliocene to Holocene	Alluvium, lake, playa, and terrace deposits; unconsolidated and semi-consolidated. Mostly non-marine but includes marine deposits near the coast.
Qrv – tephrite (basanite)	Holocene	Recent (Holocene) volcanic flow rocks; minor pyroclastic deposits
QPc – sandstone	Miocene to Pleistocene	Pleistocene and/or Pliocene sandstone, shale, and gravel deposits
Tc – conglomerate	Paleocene to Pliocene	Undivided Tertiary sandstone, shale, conglomerate, breccia, and ancient lake deposits.
Tv – rhyolite	Tertiary	Tertiary volcanic flow rocks; minor pyroclastic deposits.
Tvp – rhyolite	Tertiary	Tertiary pyroclastic and volcanic mudflow deposits.
Mc – sandstone	Oligocene to Pleistocene	Sandstone, shale, conglomerate, and fanglomerate; in part Pliocene and Oligocene.
gr^{Mz} – granodiorite	Permian to Tertiary; most Mesozoic	Mesozoic granite, quartz monzonite, granodiorite, and quartz diorite
M_{zv} – felsic volcanic rock	Triassic to Cretaceous	Undivided Mesozoic volcanic and metavolcanic rocks. Andesite and rhyolite flow rocks, greenstone, volcanic breccia and other pyroclastic rocks; in part strongly metamorphosed. Includes volcanic rocks of Franciscan Complex: basaltic pillow lava, diabase, greenstone, and minor pyroclastic rocks.
P_z – limestone	Late Proterozoic to Jurassic	Undivided Paleozoic metasedimentary rocks. Includes slate, sandstone, shale, chert, conglomerate, limestone, dolomite, marble, phyllite, schist, hornfels, and quartzite.
$gr^{p\epsilon}$ – granite	Pre-Cambrian	Precambrian granite, syenite, anorthosite, and gabbroic rocks in the San Gabriel Mountains; also, various Precambrian plutonic rocks elsewhere in southeastern California.
pЄ – gneiss (Early Proterozoic to Miocene)	Pre-Cambrian	Conglomerate, shale, sandstone, limestone, dolomite, marble, gneiss, hornfels, and quartzite; may be Paleozoic in part.

Table 5.7-1. Geologic Units Underlaying Proposed Project Components and Work Areas

Geologic Unit	Age	Description and Source
Nevada		
Qa – alluvium	Quaternary	Undifferentiated alluvial deposits, unconsolidated, locally includes beach and sand dune deposits.
QToa – older alluvium	Miocene to Quaternary	Older alluvial deposits, unconsolidated, coarse-detrital
Ti – alkali-granite (alaskite)	Early to Middle Miocene	Tertiary intrusive rocks, aphanitic, porphyritic, and coarsely granular granitic rocks, granodiorite, monzonite, quartz monzonite, alaskitic granite, quartz diorite, dacite, and rhyodacite in the places where they are shown separately on county maps.
Tt3 – rhyolite	Middle to Late Miocene	Welded and non-welded silicic ash flow tuff, rhyolite; locally includes thin units of air-fall tuff and sedimentary rock
Ta3 – andesite	Middle to Late Miocene	Andesite and related rocks of intermediate composition; includes dacite; flows and breccias
Ygr – granite	Pre-Cambrian (Middle Proterozoic)	Porphyritic rapakivi granite; mostly porphyritic biotite granite with large microcline phenocrysts, with local fine-grained border phases and aplite. Associated pegmatite and quartz veins are rare. This unit forms large plutons (1450 ±25 Ma)

Source: Modified from SCE, 2018. Response to Comment 50D, Attachment F – Geologic Unit Descriptions; USGS, 1978. Geologic Map of Nevada; and CGS, 2018a. Online Geologic Map of California (2010)

Geologic formations at and in the vicinity of the Eldorado, Lugo, Mohave, McCullough, and Pisgah Substations, the Newberry Springs and Ludlow Series Capacitors, and the Barstow, Kelbaker, and Lanfair fiber optic repeater sites consist of Pliocene to Holocene and Quaternary alluvial deposits.

Project specific geotechnical studies for the new Newberry Springs and Ludlow Series Capacitors and modifications to the Mohave Substation were reviewed (Wood, 2018a, 2018b, and 2018c). The reports indicated the following geologic conditions were encountered in the geotechnical borings at the sites.

Newberry Springs Series Capacitor. The site is underlain by alluvial deposits consisting predominantly of poorly graded sand with variable amounts of gravel and cobbles, local boulders may be present as well (Wood, 2018c). Groundwater was not encountered to the maximum depth drilled of 51.5 feet below-ground-surface (bgs).

Ludlow Series Capacitor. The site is underlain by alluvial deposits consisting predominantly of poorly graded sand with variable amounts of gravel and cobbles, local boulders may be present as well (Wood, 2018b). Groundwater was not encountered to the maximum depth drilled of 51.5 feet bgs.

Mohave Substation. The Mohave Substation is underlain by alluvial deposits consisting predominantly of poorly graded sand with local variable amounts of gravel (Wood, 2018a). Material consisting of fat clay and sandy silt were encountered between 35 feet and 45 to 50 feet. Groundwater was not encountered to the maximum depth drilled of 51.5 feet below the existing grade.

Soils

Soils within the Proposed Project area reflect the underlying rock type, the extent of weathering of the rock, the degree of slope, and the degree of human modification. The National Resource Conservation Service (NRCS) Soil Survey Geographic (SSURGO) Soil Web Survey was reviewed to identify soil units and characteristics underlying the Proposed Project (NRCS, 2018). The Proposed Project crosses numerous SSURGO soil surveys; however, SSURGO soil data were not available for several areas of the Proposed Project: along the existing Eldorado-Lugo 500 kV Transmission Line between Mile 34 and Mile 150, along the existing Lugo-Mohave 500 kV Transmission Line between Mile 34 and Mile 165, at both the Newberry

Springs and Ludlow Series Capacitor sites, the Kelbaker Fiber Optic Repeater site, and the Lanfair Fiber Optic Repeater site. In areas where no SSURGO data were available, national level STATSGO soil data for California and Nevada were used (NRCS, 2016; SCE, 2018).

Numerous soil units, associations, and complexes are mapped as underlying the Proposed Project components. The mapped soil units underlying existing transmission facilities in the Proposed Project area consist primarily of soils that are part of the Arizo series, Cajon series, Tewell series, Arrastre series, the Gullied Land–Haploxeralfs association, and the Cushenbury-Crafton–Rock Outcrop complex (SCE, 2018). The Proposed Project is also underlain by four miscellaneous areas, pits, riverwash, rock outcrop, and urban land. Riverwash consists of barren active river gravel and alluvial areas. Rock outcrops consist of exposures of bare bedrock other than lava flows. Pits consists of areas quarried or excavated for rock used in road building or construction, and urban land is land that is mostly covered by streets, parking lots, buildings, and other impervious structures. Miscellaneous areas have been identified by the NRCS as having little or no natural soil or soil development and are not discussed further in this section. Summaries of the significant characteristics of the soils underlying the Proposed Project are presented in Table 5.7-2, Soils in the Proposed Project Area.

Table 5.7-2. Soils in the Proposed Project Area

Soil Type[3]	Slope	Permeability	Susceptibility to Erosion by Water[1]	Susceptibility to Erosion by Wind[2]	Approx. Length of Proposed Project Crossed by Soil Type (miles)
Arizo Association	0 to 4	High	Low	Low to High	4.4
Arizo Gravelly Loamy Sand	2 to 9	Very High	Low	High	0.7
Arizo-Peskah-Crosgrain Association	2 to 4	Very High	Low to Moderate	Low	3.7
Arrastre–Rock Outcrop Complex	30 to 50	High	Moderate	Moderate to High	7.2
Avawatz–Oak Glen Association, Gently Sloping	2 to 9	High	Moderate	Moderate to High	1.6
Bluepoint-Arizo Association	0 to 4	High	Low to Moderate	Low to High	0.3
Bryman-Cajon Association, Rolling	9 to 15	High	Low to Moderate	High	2.4
Burntshack-Hypoint Association	4 to 15	—	Low to Moderate	High	4.1
Cajon Gravelly Sand	2 to 15	High	Low	High	5.5
Cajon Sand	0 to 2	High	Low	High	3.9
Cajon Sand	2 to 9	—	Low	High	7.2
Cajon Sand	9 to 15	High	Low	High	<0.1
Cajon-Arizo (S1143)	2 to 5	High	Low to Moderate	Moderate to High	61.6
Cajon-Bitterwater-Bitter-Badland (S1128)	2 to 8	High	Low to Moderate	Low to Moderate	3.6
Cajon-Wasco, Cool Complex	2 to 9	High	Low to Moderate	High	3.9
Carrizo Association	2 to 8	Very High	Low	Moderate to High	0.4
Carrwash-Riverbend Association	2 to 8	High	Low	Low to Moderate	2.5
Crosgrain Extremely Gravelly Loam	4 to 15	Moderately High	Low	Low	0.6
Crosgrain Very Stony Loam	8 to 30	Very Low	Low to Moderate	Low	0.7
Crosgrain-Tenwell Association	4 to 15	High	Low to Moderate	Low to Moderate	1.3
Cushenbury-Crafton–Rock Outcrop Complex	15 to 30	High	Moderate	Moderate to High	9.3
Dalvord–Rock Outcrop Association	8 to 30	—	Low	Low	4.6
Filaree-Seanna Association	4 to 15	High	Low to Moderate	Low to Moderate	3.0

Table 5.7-2. Soils in the Proposed Project Area

Soil Type[3]	Slope	Permeability	Susceptibility to Erosion by Water[1]	Susceptibility to Erosion by Wind[2]	Approx. Length of Proposed Project Crossed by Soil Type (miles)
Goldroad–Rock Outcrop Association	30 to 75	—	Low	Low	4.6
Gullied Land–Haploxeralfs Association	2 to 9	Very Low	—	—	9.8
Haleburu Association	15 to 30	High	Low	Low	1.0
Haleburu Extremely Gravelly Sandy Loam	4 to 15	High	Low	Low	0.2
Haleburu, Extremely Cobbly–Hiddensun Association	0 to 0	—	Low	Low to Moderate	0.7
Haleburu-Nipton Association, Dry	4 to 15	High	Low	Low	1.5
Haplargids-Calciorthids Complex	15 to 50	Very Low	—	—	0.5
Helendale Loamy Sand	0 to 2	High	Low to Moderate	High	1.5
Helendale Loamy Sand	2 to 5	High	Low to Moderate	High	1.7
Hesperia Loamy Fine Sand	2 to 5	High	Moderate	High	1.1
Hypoint Gravelly Sandy Loam	0 to 4	High	Low to Moderate	Moderate	3.0
Hypoint-Gravesumit Association	8 to 30	—	Low to Moderate	Low	2.5
Kidwell-Tenwell Association	2 to 4	High	Low to Moderate	Low to Moderate	5.8
Kimberlina Gravelly Sandy Loam, Cool	2 to 5	High	Low to Moderate	Moderate	1.5
Kimberlina Loamy Fine Sand, Cool	0 to 2	High	Moderate	High	1.1
Lanip-Kidwell Association	2 to 4	High	Low to Moderate	Low to Moderate	9.0
Lavic Loamy Fine Sand	0 to 5	High	Moderate	High	0.5
Lovelace Loamy Sand	5 to 9	High	Low to Moderate	High	0.1
Newera Association	0 to 0	—	Low	Low	2.3
Newera–Rock Outcrop Association	0 to 0	—	Low	Low to Moderate	0.4
Nickel-Bitter-Arizo (S1142)	8 to 15	Moderately High	Low	Low to High	20.9
Nipton-Highland–Rock Outcrop Association	15 to 50	Moderately High	Low	Low	0.1
Nolena–Rock Outcrop Association	30 to 75	Very Low	Low	Low	1.0
Pahrump-Wodavar-Vegastorm Association	4 to 15	Moderately High	Moderate to High	Low to Moderate	0.4
Peskah-Crosgrain Association	2 to 8	High	Low	Low	1.4
Pits	0 to 3	—	—	—	0.2
Riverbend-Carrwash Association	2 to 8	High	Low	Low to Moderate	2.8
Riverwash	0 to 2	Very Low	—	—	0.8
Rock Outcrop–Lithic Torriorthents (S1130)	2 to 15	High	Moderate	Low to High	3.5
Rock Outcrop–Lithic Torriorthents Complex	15 to 50	Very Low	—	—	3.4
Rositas-Carrizo (S1137)	0 to 5	High	Low to Moderate	Low to High	20.9
Seanna-Goldroad–Rock Outcrop Association	30 to 50	High	Low	Low	5.3
Skyhaven-Rillito-Mead-McCullough-Ireteba-Bluepoint (S1144)	0 to 2	Moderately Low	Low to Moderate	Low to High	2.9
Tenwell Very Gravelly Sandy Loam	0 to 2	High	Moderate	Low to Moderate	1.8
Tenwell-Crosgrain Association	4 to 15	Moderately High	Low to Moderate	Low to Moderate	1.2
Tenwell-Lanip Association	2 to 8	High	Low to Moderate	Moderate to High	1.4

Table 5.7-2. Soils in the Proposed Project Area

Soil Type[3]	Slope	Permeability	Susceptibility to Erosion by Water[1]	Susceptibility to Erosion by Wind[2]	Approx. Length of Proposed Project Crossed by Soil Type (miles)
Tenwell-Shamock Association	2 to 4	High	Low to Moderate	Moderate to High	5.1
Tonopah-Arizo Association	2 to 8	High	Low	Low to High	2.3
Trigger–Rock Outcrop–Calvista (S1134)	15 to 30	High	Low to Moderate	Low to High	18.9
Upspring-Sparkhule–Rock Outcrop (S1127)	15 to 30	High	Low to Moderate	Low to High	8.1
Urban Land–Riverbend-Huevi Association	2 to 15	—	Low	Low to Moderate	0.5
Wasco Sandy Loam, Cool	0 to 2	High	Moderate	Moderate to High	3.5
Wasco Sandy Loam, Cool	2 to 5	High	Moderate	Moderate to High	1.7
Wasco-Helendale-Bryman (S1032)	2 to 5	High	Moderate	Moderate to High	7.2
Wasco-Rosamond-Cajon (S1024)	0 to 2	High	Moderate	Low to High	9.0

Sources: Modified from SCE, 2018. Response to Comment Q50F, Attachment G – Revised Soil Data; and NRCS, 2016 and 2018.
1 - Based on NRCS Erosion factor Kw (used by the NRCS in the Universal Soil Lose Equation), which indicates the susceptibility of the whole soil to sheet and rill erosion.
2 - Based on NRCS soil wind erodibility groups; groups are based on the susceptibility of a soil to wind erosion.
3 - Loam – A soil material that has approximately equal percentages of clay, silt, and sand particles.
— = No Data Available.

The properties of soil that influence erosion by water (rainfall and runoff) are ones that affect the infiltration capacity of a soil, and those that affect the resistance of a soil to detachment and being carried away by falling or flowing water. Sheet erosion occurs when water runs over a large uniform area picking up and distributing soil particles. Rill erosion occurs as concentrated surface runoff begins to remove soil along concentrated zones with numerous small, but conspicuous, water channels or tiny rivulets. Susceptibility to sheet and rill erosion from water for soils underlying the Proposed Project ranges from low to moderate. Soils containing high percentages of fine sands and silt and that are low in density are generally the most susceptible to wind erosion. As the clay and organic matter content of these soils increases, the potential for erosion decreases. Susceptibility of soils to wind erosion generally ranges from low to high within the project area (NRCS, 2016 and 2018). Significant ground disturbance of approximately 375.4 acres of land would occur, with total permanent land disturbance at approximately 7.0 acres and approximately 368.5 acres of temporary disturbance. The temporary ground disturbance includes 112.3 acres of previously disturbed land and 256.1 acres of undisturbed land that would be restored after construction (SCE, 2018). Proposed Project ground disturbance will loosen soils making them more susceptible to erosion.

Expansive soils are characterized by their ability to undergo significant volume change (shrink and swell) due to variation in soil moisture content. Changes in soil moisture could result from a number of factors, including rainfall, landscape irrigation, utility leakage, and/or perched groundwater. Expansive soils are typically very fine grained with a high to very high percentage of clay. Soils with moderate to high shrink-swell potential would be classified as expansive soils. Most of the soils underlying the Proposed Project components are sandy in nature and not generally susceptible to expansion. The shrink-swell characteristics of the soils underlying the new series capacitors and fiber optic repeater sites are all classified as low by the NRCS (SCE, 2018). Additionally, the geotechnical studies conducted at the Newberry Springs and Ludlow Series Capacitor sites and the Mohave Substation confirm non-expansive soil at these sites (Wood, 2018a, 2018b, and 2018c).

Collapsible soils are low density, fine-grained, predominantly granular usually containing fine sand and silt that may collapse or rapidly settle due to rearrangement of the soil particles when they become saturated under relatively low loads. Collapsible soils are soils susceptible to large volumetric changes when they become saturated. Conditions in the arid and semi-arid climate of the Proposed Project favor the formation of collapsible soils. Based on the laboratory test results from the site-specific geotechnical studies, the soils at the Mohave Substation possess slight collapse potential, and the soils at the Newberry Springs and Ludlow Series Capacitor sites have moderate to high collapse potential (Wood, 2018a, 2018b, and 2018c). Collapsible soils are quite sensitive to either a rise in the groundwater table or increased surface water infiltration.

Slope Stability

Important factors that affect the slope stability of an area include the steepness of the slope, the relative strength of the underlying rock material, and the thickness and cohesion of the overlying colluvium. The steeper the slope and/or the less strong the rock, the more likely the area is susceptible to landslides. The steeper the slope and the thicker the colluvium, the more likely the area is susceptible to debris flows. Another indication of unstable slopes is the presence of old or recent landslides or debris flows. The term landslide includes a wide range of ground movements, such as rock falls, deep failure of slopes, and shallow debris flows. Although gravity acting on an over-steepened slope is the primary reason for a landslide, other contributing factors include: over-steepened slopes due to erosion or undercutting; increased saturation of weak rock and soil slopes may trigger movement; earthquake ground shaking may trigger landslides; or excess weight above or on the slope from accumulated rain, snow, rock or ore stockpiles, or from man-made structures could cause slopes to fail.

The locations where new and modified Proposed Project components will be installed are located along alluvial fans, pediments, and gently sloping terrain. Slope stability issues are not expected to occur at these sites. A review of the County of San Bernardino Hazard Maps indicates that there are some limited areas of mapped existing landslides between 1,000 and 3,700 feet of the Eldorado-Lugo and Lugo-Mohave 500 kV Transmission Lines; however, proposed work in these locations will be limited to the installation of optical ground wire on existing structures and no modifications will be made to the existing towers and no new structures are being constructed in this area (SCE, 2018). Lugo Substation is located approximately 20,000 feet north of an area mapped on the County of San Bernardino Hazard Maps as having a low-moderate landslide susceptibility (SCE, 2018). All projects areas with new structures are located in flat terrain with very low landslide hazard.

Subsidence

Land subsidence can occur in valleys containing aquifer systems that are, in part, made up of fine-grained sediments and that have undergone extensive groundwater development. As the groundwater is withdrawn, the pore-fluid pressure in the sediments decreases allowing the weight of the overlying sediment to permanently compact or compress the fine-grained units. This effect is most pronounced in younger, unconsolidated sediments. Land subsidence is generally characterized by a broad zone of deformation where differential settlements are small. Subsidence within the Mojave Desert area is generally found in the vicinity of dry lakebeds due to groundwater extraction. Approximate depth to groundwater in the vicinity of the Proposed project ranges from approximately 37 to 73 feet below ground surface (bgs) along the Lugo-Mohave 500 kV Transmission Line from Pisgah Substation to Mohave Substation and greater than 180 feet bgs for the remainder of the Proposed Project (SCE, 2018).

Land subsidence studies conducted by the USGS for a portion of the Mojave Desert for the period 2004 to 2009 indicate that subsidence has occurred at several locations within the study area, including at

Lucerne Lake and Troy Lake, both located in the Proposed Project vicinity (USGS, 2018c). The area of subsidence at Lucerne Lake is located just southeast of the Proposed Project; however, none of the Proposed Project components are located within the subsidence area. The Troy Lake subsidence area is located approximately 8 miles east of the Newberry Springs Series Capacitor site.

Seismicity and Faulting

The Proposed Project area is located in a geologically complex and seismically active region which includes northwest-southeast trending faults, mountain ranges, and valleys. The seismicity of the Project area is dominated by the intersection of the north-northwest trending San Andreas fault system and the east-west trending Transverse Ranges fault system. Both systems are responding to strain produced by the relative motions of the Pacific and North American Tectonic Plates. This strain is relieved by right-lateral strike-slip faulting on the San Andreas and related faults, and by vertical, reverse-slip or left-lateral strike-slip displacement on faults in the Transverse Ranges. The effects of this strain and deformation include mountain building, basin development, deformation of Quaternary marine terraces, widespread regional uplift, and generation of earthquakes. Both the Transverse Ranges and Coast Ranges areas are characterized by numerous geologically young faults. These faults can be classified as historically active, active, potentially active, or inactive, based on the following criteria (CGS, 1999):

- Faults that have generated earthquakes accompanied by surface rupture during historic time (approximately the last 200 years) and faults that exhibit aseismic fault creep are defined as Historically Active.
- Faults that show geologic evidence of movement within Holocene time (approximately the last 11,000 years) are defined as Active.
- Faults that show geologic evidence of movement during the Quaternary time (approximately the last 1.6 million years) are defined as Potentially Active.
- Faults that show direct geologic evidence of inactivity during all of Quaternary time or longer are classified as Inactive.

Although it is difficult to quantify the probability that an earthquake will occur on a specific fault, this classification is based on the assumption that if a fault has moved during the Holocene epoch, it is likely to produce earthquakes in the future. Blind thrust faults which do not intersect the ground surface are not classified as active or potentially active in the same manner as faults that are present at the earth's surface. Activity classification of blind thrust faults is predominantly based on geologic data from deep oil wells, geophysical profiles, historic earthquakes, and microseismic activity along the fault.

The Project area will be subject to ground shaking associated with earthquakes on faults of the San Andreas, Garlock, Eastern California Shear Zone, and Transverse Ranges fault systems. Active faults of the San Andreas system are predominantly strike-slip faults accommodating translational movement. Active reverse or thrust faults in the Transverse Ranges include blind thrust faults responsible for the 1987 Whittier Narrows Earthquake and 1994 Northridge Earthquake, and the range-front faults responsible for uplift of the San Gabriel and San Bernardino Mountains. The Transverse Ranges fault system consists primarily of blind, reverse, and thrust faults accommodating tectonic compressional stresses in the region. Blind faults have no surface expression and have been located using subsurface geologic and geophysical methods. This combination of translational and compressional stresses gives rise to diffuse seismicity across the region.

The significant faults in the Proposed Project area are faults of the Eastern California Shear Zone (ECSZ) and the San Andreas fault zone. The Eastern California Shear Zone is a region of active, predominantly strike-slip, deformation east of the San Andreas fault that extends from the southern Mojave Desert along

the east side of the Sierra Nevada and into western Nevada. The Eastern California Shear Zone accommodates approximately 20 to 25 percent of relative plate motion between the Pacific and North America plates and is bounded on the east by the diffuse extensional deformation of the Basin and Range region and in the Mojave area by the San Andreas fault zone on the west. Local faults of the ECSZ include the Lenwood-Lockhart, the Helendale-South Lockhart, the Calico-Hidalgo fault zone, the Pisgah-Bullion fault zone, the Hector Mine (Lavic Lake) fault zone, and the Camp Rock-Emerson-Copper Mtn. fault zone. The San Andreas fault zone is a 680-mile active right-lateral strike-slip complex of faults that has been responsible for many of the damaging earthquakes in southern California in historical times. The San Andreas Fault Zone is the longest active fault in California and represents the boundary between the Pacific and North American plates. Historically, both the ECSZ and the San Andreas fault zone have produced significant earthquakes that have caused surface rupture and damage in the project region.

Since periodic earthquakes accompanied by surface displacement can be expected to continue in the study area through the lifetime of the Proposed Project, the effects of strong ground shaking and fault rupture are of primary concern to safe and reliable operation Proposed Project. Active faults that represent a significant seismic threat to the Proposed Project are listed in Table 5.7-3. Data presented in this table include closest distance to Project components, estimated earthquake magnitude, and type of fault. Figure 5.7-2 shows locations of significant active faults in the Proposed Project area and surrounding region.

Fault Rupture

Fault rupture is the surface displacement that occurs when movement on a fault deep within the earth breaks through to the surface. Fault rupture and displacement almost always follows preexisting faults, which are zones of weakness; however, not all earthquakes result in surface rupture (i.e., earthquakes that occur on blind thrusts do not result in surface fault rupture). Rupture may occur suddenly during an earthquake or slowly in the form of fault creep. In addition to damage caused by ground shaking from an earthquake, fault rupture is damaging to buildings and other structures due to the differential displacement and deformation of the ground surface that occurs from offset/ground displacement across the fault. In California, Alquist-Priolo Earthquake Fault Zones have been defined by the California Geological Survey along active faults with the potential for surface rupture. However, not all active faults have been zoned, as the criteria specifies that a fault must be shown to be “sufficiently active” and “well defined” by detailed site-specific geologic explorations in order to determine whether an Alquist-Priolo Earthquake Hazard Zone can be established with associated building setbacks. Many known active faults are not sufficiently “well defined” at the surface to qualify to be Alquist-Priolo zoned but could still cause significant surface fault rupturing. Although the Project will not be subject to the regulations and guidelines related to the Alquist-Priolo Special Studies Zones Act because there will be no occupied structures constructed in the Earthquake Fault Zones as part of this Project, the presence of these mapped zones indicates significant potential for fault rupture in the areas the Project crosses the “zones.”

The Proposed Project crosses numerous active and potentially active faults, including several with mapped Alquist-Priolo Earthquake Fault Zones: the Helendale-South Lockhart, the Lenwood-Lockhart, the Camp Rock-Emerson-Copper Mountain, the Claico-Hidalgo, the Pisgah-Bullion, and the Hector Mine (Lavic Lake) fault (CGS, 2018b, USGS and CGS, 2006). However, none of the Proposed Project new or modified components are within any of these Alquist-Priolo zones. Additionally, no other mapped active or potentially active faults cross or are in close proximity to the Proposed Project new or modified components. The Alquist-Priolo zoned Hector Mine (Lavic Lake) fault zone is the closest active fault zone to the mid-line series capacitor sites, located approximately 1.7 miles west of the Newberry Springs Series Capacitor site.

Table 5.7-3. Significant Active and Potentially Active Faults in the Vicinity of the Proposed Project

Fault Zone or Fault (Fault Section)	Active or Potentially Active	Distance and Direction from Nearest New or Modified Project Structure[1]	Nearest New or Modified Project Structure	Maximum Estimated Earthquake Magnitude[2]	Fault Type	Dip Direction	Most Recent Deformation	Slip Rate (mm/year)
CALIFORNIA								
Hector Mine (Lavic Lake) fault zone	Active	1.7 miles west	Newberry Springs series capacitor	—	Right Lateral Strike Slip	90° (V)	Historic (<150 years)	0.2–1.0
Cleghorn fault zone	Potentially Active	3.7 miles southwest	Lugo Substation	6.8	Left Lateral Strike Slip	85°	Late Quaternary (<130 ka)	1.0–5.0
Pisgah-Bullion fault zone	Active	4.3 miles southwest	Ludlow series capacitor	7.3	Right Lateral Strike Slip,	90° (V)	Holocene (<15 ka)	0.2–1.0
Helendale–South Lockhart fault zone	Active	5.0 miles southwest	Barstow fiber optic repeater	7.4	Right Lateral Strike Slip	,90°(V)	Late Quaternary (<130 ka)	0.2–1.0
Cady fault	Potentially Active	7.1 miles north	Newberry Springs series capacitor	7.2	Left Lateral Oblique	—	Undifferentiated Quaternary (<1.6 Ma)	Unspecified
North Frontal thrust system (Western Section)	Active	7.1 miles east	Lugo Substation	7.2	Thrust	30° to 35° S	Late Quaternary (<130 ka)	0.2–1.0
San Andreas fault zone (San Bernardino Mountains)	Active	7.5 miles southwest	Lugo Substation	6.9	Right Lateral Strike Slip,	35°N to 90° (V)	Holocene (<15 ka)	< 5.0
Lenwood-Lockhart fault zone	Active	8.2 miles east	Barstow fiber optic repeater	7.5	Right Lateral Strike Slip	90°(V)	Holocene (<15 ka)	0.2–1.0
Rodman fault	Potentially Active	9.0 miles east	Ludlow series capacitor	—	Right Lateral Strike Slip	—	undifferentiated Quaternary (<1.6 Ma)	Unspecified
Ludlow fault	Potentially Active	8.5 miles southwest	Newberry Springs series capacitor	—	Right Lateral Strike Slip	—	undifferentiated Quaternary (<1.6 Ma)	Unspecified
San Andreas fault zone (Mojave Section)	Active	9.1 miles southwest	Lugo Substation	7.3	Right Lateral Strike Slip	90° (V)	Historic (<150 years)	< 5.0
San Jacinto fault zone (San Bernardino Section)	Active	9.4 miles southwest	Lugo Substation	7.1	Right Lateral Strike Slip	NE; SW	Holocene (<15 ka)	< 5.0
Calico-Hidalgo fault zone	Active	10.6 miles southwest	Ludlow series capacitor	7.4	Right Lateral Strike Slip,	90° (V), locally 50° to 70° NE	Holocene (<15 ka)	0.2–1.0
Arrastre Canyon Narrows fault	Potentially Active	11.9 miles east	Lugo Substation	—	—	—	Late Quaternary (<130 ka)	Unspecified
Bowen Ranch fault	Potentially Active	11.9 miles east	Lugo Substation	—	—	—	Late Quaternary (<130 ka)	Unspecified
San Gabriel fault zone	Potentially Active	12.9 miles southwest	Lugo Substation	7.3	Right Lateral Strike Slip,	55° to 75° N	undifferentiated Quaternary (<1.6 Ma)	0.2–1.0

Table 5.7-3. Significant Active and Potentially Active Faults in the Vicinity of the Proposed Project

Fault Zone or Fault (Fault Section)	Active or Potentially Active	Distance and Direction from Nearest New or Modified Project Structure[1]	Nearest New or Modified Project Structure	Maximum Estimated Earthquake Magnitude[2]	Fault Type	Dip Direction	Most Recent Deformation	Slip Rate (mm/year)
North Frontal thrust system (Eastern Section)	Active	13.3 miles southeast	Barstow fiber optic repeater	7.0	Reverse	10° to 50° S	Holocene (<15 ka)	0.2–1.0
Sierra Madre fault zone (Cucamonga Section)	Active	13.4 miles southwest	Lugo Substation	7.2	Thrust	43° to 60° N	Holocene (<15 ka)	0.2–1.0
Johnson Valley fault zone (Northern Johnson Valley Section)	Active	13.8 miles east	Barstow fiber optic repeater	6.9	Right Lateral Strike Slip,	90° (V)	Holocene (<15 ka)	0.2–1.0
Manix fault	Active	14.8 miles northwest	Newberry Springs series capacitor	—	Left Lateral Strike Slip	—	Historic (<150 years)	Unspecified
Camp Rock-Emerson-Copper Mountain fault	Active	15.4 miles northeast	Barstow fiber optic repeater	7.1	Right Lateral Strike Slip	90° (V)	Historic (<150 years)	0.2–1.0
Santa Ana fault	Potentially Active	15.8 miles southeast	Lugo Substation	6.9	Thrust	—	undifferentiated Quaternary (<1.6 Ma)	Unspecified
Harper fault zone	Potentially Active	22.4 miles northwest	Barstow fiber optic repeater	7.1	Right Lateral Strike Slip,	90° (V)	Late Quaternary (<130 ka)	Unspecified
Red Pass fault	Active	24.1 miles northwest	Newberry Springs series capacitor	—	Right Lateral Strike Sip	SW; NE	Holocene (<15 ka)	Unspecified
San Gorgonio Mountain fault	Potentially Active	28.6 miles southeast	Barstow fiber optic repeater	—	Right Lateral Thrust	—	Late Quaternary (<130 ka)	Unspecified
Johnson Valley fault zone (Southern Johnson Valley Section)	Active	29.1 miles southwest	Ludlow series capacitor	—	Right Lateral Strike Slip	70° W. to 90° (V)	Historic (<150 years)	0.2–1.0
NEVADA								
Black Hills fault	Active	6.8 miles northwest	Eldorado Substation	6.8	Normal	SE	Holocene (<15 ka)	< 0.2
Frenchman Mountain fault	Potentially Active	21.2 miles north	Eldorado Substation	6.6	Normal	35° to 60°W	Late Quaternary (<130 ka)	< 0.2

Source: Modified from SCE, 2018, Attachment H: USGS Earthquake Hazards Program Fault Data table; and USGS 2018a

1 - Fault distances and parameters obtained from USGS Earthquake Hazards Program, 2008 National Seismic Hazard Maps – Source Parameters website (USGS, 2018a) and CGS Quaternary Fault and Fold Database of the United States, (USGS & CGS, 2006).

2 - Maximum Estimated Earthquake Magnitude – the maximum earthquake that appears capable of occurring under the presently known tectonic framework, magnitude listed is "Ellsworth-B" magnitude from the USGS Earthquake Hazards Program, 2008 National Seismic Hazard Maps – Source Parameters website (USGS, 2018a) unless otherwise noted.

Strong Ground Shaking

An earthquake is classified by the amount of energy released, which traditionally has been quantified using the Richter scale. Recently, seismologists have begun using a Moment Magnitude (M) scale because it provides a more accurate measurement of the size of major earthquakes. For earthquakes of less than M 7.0, the Moment and Richter Magnitude scales are nearly identical. For earthquake magnitudes greater than M 7.0, readings on the Moment Magnitude scale are slightly greater than a corresponding Richter Magnitude.

The intensity of the seismic shaking, or strong ground motion, during an earthquake is dependent on the distance between the Project area and the epicenter of the earthquake, the magnitude of the earthquake, and the geologic conditions underlying and surrounding the Project area. Earthquakes occurring on faults closest to the Project area would most likely generate the largest ground motion.

The intensity of earthquake-induced ground motions can be described using peak site accelerations (PGAs), represented as a fraction of the acceleration of gravity (g). Peak ground acceleration is the maximum acceleration experienced by a particle on the Earth's surface during the course of an earthquake, and the units of acceleration are most commonly measured in terms of fractions of g, the acceleration due to gravity (980 cm/sec2). SCE used the CGS Probabilistic Seismic Hazards Ground Motion Interpolator website was used to estimate PGAs at the Proposed Project site (SCE, 2018). The interpolator uses data from the 2008 Probabilistic Seismic Hazard Assessment Maps (PSHA) to interpolate peak ground accelerations with a 2 percent probability of exceedance in 50 years (return interval of 2,475 years for a maximum considered earthquake (SCE, 2018). The PSHA maps indicate PGAs of 0.583g and 0.784g at the Pisgah and Lugo Substations, respectively. PGAs along the existing Eldorado-Lugo and Lugo-Mohave 500 kV Transmission Lines range from 0.113g to 0.784g, with the high values near the western end of the alignment. Low PGA values ranging from 0.113g to 0.193g of mapped in the vicinity of Mohave Substation and the Eldorado-Mohave 500 kV Transmission Line. The Ludlow and Newberry Series Capacitor sites are mapped with PGAs of 0.557g and 0.577g, respectively; PGAs at the Barstow, Kelbaker, and Lanfair Fiber Optic Repeaters are 0.468g, 0.206g, and 0.118g respectively (SCE, 2018). Proposed Project components near to and west of the Kelbaker Fiber Optic Repeater site can expect to experience moderate to severe ground shaking in the event of a large local or regional earthquake.

A review of historic earthquake activity from 1900 to 2018 indicates that 99 earthquakes of magnitude M4.5 or greater have occurred within 30 miles of the Proposed Project, with 15 of these greater than M6.0 (USGS, 2018b). This includes three significant earthquakes, the 1952 M7.5 Kern County Earthquake, the 1992 M7.3 Landers Earthquake, and the 1999 M7.1 Hector Mine Earthquake. The Kern County earthquake of 1952 caused immense and widespread damage and resulted in the loss of 12 lives and at least $60 million in damage. The 1992 Landers Earthquake had total rupture length of 53 miles, and the faults offsets of 6 to 18 feet. It caused relatively little damage for its size due to its remote location, most of the damage occurred to transportation infrastructure and power lines. The 1999 Hector Mine Earthquake surface rupture was located entirely within the boundaries of the Twentynine Palms Marine Corps Base and crossed neither paved roads nor structures and caused very little damage (SCEDC, 2018). Many of the smaller earthquakes in the area have been aftershocks of these large events.

The 1999 Hector Mine Earthquake is the closest of these large earthquake to the Proposed Project, located approximately 13.3 miles south of the Ludlow Series Capacitor site (USGS, 2018b).

Liquefaction

Liquefaction is the phenomenon in which saturated granular sediments temporarily lose their shear strength during periods of earthquake-induced strong ground shaking. The susceptibility of a site to liquefaction is a function of the depth, density, and water content of the granular sediments and the magnitude and frequency of earthquakes in the surrounding region. Saturated, unconsolidated silts, sands, and silty sands within 50 feet of the ground surface are most susceptible to liquefaction. Liquefaction-related phenomena include lateral spreading, ground oscillation, flow failures, loss of bearing strength, subsidence, and buoyancy effects (Youd and Perkins, 1978). In addition, densification of the soil resulting in vertical settlement of the ground can also occur.

In order to determine liquefaction susceptibility of a region, three major factors must be analyzed. These include: (a) the density and textural characteristics of the alluvial sediments; (b) the intensity and duration of ground shaking; and (c) the depth to groundwater.

Most of the alluvial deposits underlying the new Proposed Project components are not generally expected to be liquefiable due to deep groundwater levels in the project area, generally greater than 180 feet bgs. However, there are locations within the Project area where shallow groundwater, less than 50 feet bgs, occurs. Based on limited historic groundwater data from the Department of Water Resources (DWR) online Water Data library and the USGS National Water Information System online mapper (USGS, 2018d), scattered areas with groundwater levels of 37 to 73 feet below ground surface (bgs) occurs in along the project alignments; however, groundwater is greater than 100 feet bgs for most of the Proposed Project (DWR, 2018, USGS, 2018c). Historic groundwater levels near the Barstow Repeater site are approximately 42 to 47 feet bgs, greater than 600 feet bgs near the Lanfair Repeater site, and greater than 300 feet bgs in the area near the Kelbaker Repeater site (DWR, 2018, USGS, 2018c). Due to groundwater levels of less than 50 feet bgs there is a potential that liquefiable sediments may be present at the Barstow Fiber Optic Repeater site.

No groundwater level data is available in the DWR and USGS databases for the area near the Newberry Springs and Ludlow Series Capacitor sites; however, the site-specific geotechnical studies for these sites indicates that groundwater is greater than 51 feet bgs (Wood, 2018b and 2018c). Groundwater levels at the Mohave Substation were measured at greater than 51 feet bgs during the geotechnical study for that site (Wood, 2018a) and the USGS website indicates that groundwater is greater than 180 feet bgs (USGS, 2018d). Estimated groundwater levels, based on the DWR and USGS websites, at the other substations are greater than 450 feet near Lugo Substation, and greater than 250 feet near the Eldorado Substation.

Seismically Induced Landslides

Other forms of seismically induced ground failures which may affect the Project area include ground cracking, and seismically induced landslides. Landslides triggered by earthquakes have been a significant cause of earthquake damage; in southern California, large earthquakes such as the 1971 San Fernando and 1994 Northridge earthquakes triggered landslides that were responsible for destroying or damaging numerous structures, blocking major transportation corridors, and damaging life-line infrastructure. Areas that are most susceptible to earthquake-induced landslides are steep slopes in poorly cemented or highly fractured rocks, areas underlain by loose, weak soils, and areas on or adjacent to existing landslide deposits. As noted above, the Proposed Project components are located within areas of gentle slopes and generally flat terrane flat with no existing landslides mapped in these areas, therefore seismically induced landslides are not likely to impact the Proposed Project.

Paleontological Setting

The following section describes the existing conditions and the results from literature searches, record searches, and field surveys for paleontological resources. This discussion is based on a report prepared by Rincon unless otherwise noted (Rincon, 2018).

Resources

Paleontological Locality Search. Formal locality searches of the paleontological collections of the Natural History Museum of Los Angeles County (LACM), the San Bernardino County Museum (SBCM), the Nevada State Museum (NSM), and the Las Vegas Natural History Museum (LVNHM) were conducted. Locality data was requested for the entire extent of the United States Geological Survey (USGS) quadrangles that encompass the area of direct impact.

Paleontological Literature Review. A literature search of peer-reviewed scientific journals and other publications relevant to the paleontology of the geologic units found within the Proposed Project work areas was conducted. Literature searches included all fossil types (vertebrate, invertebrate, plant, micro-fossils, and trace) previously documented in the geologic units in the Proposed Project area or similar units nearby.

Geologic Map Review. A review of published geologic maps for the entire area of direct impact was conducted to identify the geology of the Proposed Project area and compile a stratigraphic inventory for the work areas. Map information was supplemented with more current geologic research on biostratigraphy and radio-isotopic dating for the region, where available.

Paleontological Field Survey. Rincon paleontologists conducted a field survey to identify surface exposures of geologic units that could contain fossils, survey those exposures for fossils, and record any new fossil localities, if encountered.

Qualified paleontologists conducted a pedestrian paleontological field survey of all work areas where the mapped geologic units have a PFYC classification of High (Class 4), Very High (Class 5), Unknown (Class U), or SVP rating of high or undetermined. Work areas with low to no paleontological resource potential (PFYC classification of PFYC 2 or lower) were generally subject to a windshield survey; however, in those areas where there were bedrock exposures in the immediate vicinity (i.e., within 500 meters), the survey included a pedestrian component to examine exposures for fossils and evaluate lithology.

Results

Fossil Localities. No records of previously record fossil localities were found within any of the proposed work areas, or within the overall area of direct impact. However, geologic units mapped within the Proposed Project work areas do have fossil records from the broader region and throughout California. Fossil locality searches were conducted for all USGS quadrangle maps on which the area of direct impact was projected.

Paleontological Sensitivity Assessment. Groups of geologic units of similar age and with similar lithology are discussed below, but a detailed description for each of the 50 mapped units within the area of direct impact is not provided. Each unit has been evaluated for paleontological sensitivity according to both the BLM PFYC and SVP criteria. Those units with high or undetermined sensitivity are listed in Table 5.7-4, High or Undetermined Paleontological Sensitivity for Mapped Units within the Project Area, provides specific information on each of the 50 uniquely mapped units including associated lithology and age. In addition, each unit has been evaluated for paleontological sensitivity according to both the BLM PFYC and SVP criteria.

Table 5.7-4. High or Undetermined Paleontological Sensitivity for Mapped Units within the Project Area.

				Paleontological Sensitivity at Surface	
Unit Category	**Unit**	**Unit Age**	**Lithologic Description**	**BLM PFYC**	**SVP**
Cenozoic volcanic rocks	Quaternary hillslope – plutonic rocks	Holocene to Pleistocene	Felsic plutonic and hillslope deposits	U–Unknown	Undetermined
Cenozoic volcanic rocks	Quaternary hillslope – volcanic rocks	Holocene to Pleistocene	Felsic volcanic rocks and hillslope deposits	U–Unknown	Undetermined
Cenozoic volcanic rocks	Quaternary hillslope – mafic volcanic rocks	Holocene to Pleistocene	Hillslope deposits overlying mafic volcanic bedrock	U–Unknown	Undetermined
Quaternary sediments	Quaternary hillslope	Holocene to Pleistocene	Partly consolidated hillslope deposits	U–Unknown	Undetermined
Quaternary sediments	Quaternary pediment and plutonic rocks	Holocene to Pleistocene	Veneered pediment and felsic plutonic grus	U–Unknown	Undetermined
Quaternary sediments	Intermediate colluvial deposits/mafic volcanic rocks	Pleistocene	Colluvial and hillslope deposits	4a–High	High
Quaternary sediments	Quaternary alluvial fan	middle to late Pleistocene	Intermediate alluvial fan	4a–High	High
Quaternary sediments	Quaternary alluvial fan	middle to late Pleistocene	Intermediate grus fan	4a–High	High
Quaternary sediments	Quaternary older valley sediments	Pleistocene	Quaternary fanglomerate and gravel, weakly consolidated, mostly unstratified	4a–High	High
Quaternary sediments	Quaternary older alluvium	Pleistocene	Quaternary alluvium, massive to crudely bedded	4a–High	High
Quaternary sediments	Intermediate older alluvium	Early to middle Pleistocene	Alluvial fan sand	4a–High	High
Quaternary sediments	Quaternary older gravel	Pleistocene	Quaternary gravel, rounded cobbles	4a–High	High
Quaternary sediments	Quaternary alluvial fan	Early to middle Pleistocene	Very old alluvial fan	4a–High	High
Paleogene to Neogene sediments	Paleogene to Neogene (Tertiary) sediments	Pliocene to Paleocene	Undivided, nonmarine sediments	U–Unknown	Undetermined
Paleogene to Neogene sediments	Crowder Formation	Miocene	Arkosic sandstone, conglomerate, and paleosols	5a–Very High	High
Paleogene to Neogene sediments	Paleogene to Neogene (Tertiary) sandstone (may include undifferentiated Barstow Formation in certain localities)	Miocene	Nonmarine sandstone	4a–High	High

Quaternary Sediments (Pleistocene to Holocene)

- *Late to Middle Holocene Alluvium and Surficial Sediments.* Holocene sediments comprise much of the surface sediments underlying the Proposed Project work areas. These sediments contain gravel, sand, silt, and clay deposited in river channels and active washes (e.g., the modern Mojave River). Surficial deposits in the Mojave Desert are typically unconsolidated and commonly form thin (i.e., less than 2 meters [approximately 5 feet]) to very thick (i.e., tens of meters) deposits, depending on depositional setting (e.g., thin flood-plain silty clays versus thicker terrace and levee sands). Holocene sediments typ-

ically do not contain significant fossils where they are too young, as defined by the BLM PFYC as less than 10,000 years old and by the SVP as less than 5,000 years old; however, they may be shallowly underlain by early Holocene (11,700–8,200 years old) or Pleistocene (2.58 Ma to 11,700 years old) sediments that are old enough to contain fossils. Middle to late Holocene units are considered to have Low (PFYC Class 2, SVP Low) paleontological sensitivity.

- *Early Holocene to Pleistocene Alluvium and Surficial Sediments.* Early Holocene to Pleistocene alluvium and other surface sediments are composed of a similar lithology of gravels, sands, silts, and clays as the younger Holocene surficial deposits, but are more consolidated, deeply incised, and thicker. Early Holocene to Pleistocene sediments can also potentially contain fossils, as they are predominantly older than 5,000 to 10,000 radiocarbon years, thresholds defined by the SVP (2010) and BLM (2016), respectively. These units are considered to have Low (PFYC Class 2, SVP Low) paleontological sensitivity at the surface; however, sensitivity may increase with depth. Where sediments are comprised mostly armored piedmont and grus-weathering plutonic rocks, paleontological sensitivity is considered to be Unknown (PFYC Class U) or Undetermined (SVP).
- *Pleistocene Alluvium and Surficial Sediments.* Pleistocene deposits are found throughout the Proposed Project area but are not as extensively mapped at the surface as Holocene deposits. Pleistocene alluvium and surficial units comprise alluvial fan and older river-channel deposits of conglomerate, gravels, sands, and silts. These deposits tend to be weakly to moderately consolidated and may be incised, indicative of their pre-Holocene age. Because of the Pleistocene age and terrestrial depositional setting of these deposits, a relatively high potential of uncovering fossil resources is present, especially large vertebrate mammals. These units have a High (PFYC Class 4, SVP High) paleontological sensitivity.

Cenozoic Sedimentary Rock, Paleogene to Neogene (formerly, Tertiary)

Pliocene and older sediments occur at only a few work areas, mainly within the Mojave National Preserve. These units are composed of generally poorly sorted coarse alluvial gravel and sand (aeolian in part). In general, these sediments lack soil development and are in a deeply dissected terrain with little or no remnant depositional geomorphology. These units have a high potential to yield fossils due to their age; however, their coarse lithology with common boulders and cobble clasts indicate high-energy alluvial and fluvial depositional environments that are typically not conducive to fossil preservation due to damage or transportation of biological material. These units are generally assigned an Unknown (PFYC Class U) or Undetermined (SVP) paleontological sensitivity where the unit is unnamed and lithology is unspecified, and are assigned a high (PFYC Class 4 or PFYC 5, SVP High) paleontological sensitivity where the unit is formally named and well-documented in the scientific literature (e.g., the Miocene Crowder Formation).

Miocene sedimentary rocks mapped in the Project area include a small outcrop of unnamed sandstone east of the Pisgah Crater and the Crowder Formation. The Crowder Formation is a coarse-grained sandstone, conglomerate, and paleosol unit that occurs approximately 2 miles southeast of the Lugo Substation. The Crowder Formation is well-known for producing abundant vertebrate fossils, especially micromammals (e.g., rodents) from the clay-rich paleosol layers that formed between the sandstone and conglomerate strata. Crowder Formation fossils have been mainly recovered during bulk sample processing of the paleosols.

Cenozoic Volcanic and Volcaniclastic Rocks

Miocene to Oligocene volcanic and volcaniclastic rocks within the Proposed Project area include volcaniclastic air-fall tuff, basalt breccia fanglomerate, and mud flows. These volcanic units were deposited throughout a period of intense volcanic activity during crustal extension in the central part of the

Mojave Desert province. Although igneous rocks typically have low to no paleontological sensitivity, volcaniclastic air-fall tuffs can potentially contain fossils due to their mixing with clastic sediments during the depositional processes following volcanic eruption. Typically, these units have Unknown (BLM PFYC Class U) or Undetermined (SVP) potential. The crystalline volcanic lava flow rocks in the Proposed Project area do not contain fossils due to the extremely high heat during solidification from molten rock. As such, these units have Very Low (BLM PFYC Class 1) or No (SVP) potential to yield fossils of any kind.

Mesozoic to Precambrian Igneous and Metamorphic Rocks

Mesozoic to Precambrian igneous and metamorphic rocks are intermittently exposed at outcrops throughout the Proposed Project area. These rock units comprise fine- to coarse-grained granites, monzonites, schists, gneisses, and marbles. These units are part of the ancient basement rocks and have Very Low (BLM PFYC Class 1) or No (SVP) potential to yield fossils of any kind.

5.7.2 Regulatory Background

State and Local

California

California Building Code. The Proposed Project is subject to the applicable sections of Title 24, Part 2 of the CBC, which is administered by the California Building Standards Commission. Under State law, all building standards must be centralized in Title 24 to be enforceable. The CBC contains necessary California amendments, which are based on the American Society of Civil Engineers/Structural Engineering Institute (ASCE/SEI) Standard. The ASCE/SEI Standard provides requirements for general structural design and includes means for determining earthquake loads, as well as other loads for inclusion into building codes. The provisions of the CBC apply to the construction, alteration, movement, replacement, and demolition of every building or structure, or any appurtenances connected or attached to such buildings or structures, throughout California. Chapter 16 of the CBC contains specific requirements for seismic safety. Chapter 18 of the CBC regulates excavation, foundations, and retaining walls. Chapter 33 of the CBC contains specific requirements pertaining to site demolition, excavation, and construction to protect people and property from hazards associated with excavation cave-ins and falling debris or construction materials. Chapter 70 of the CBC regulates grading activities, including drainage and erosion. Construction activities are subject to occupational safety standards for excavation, shoring, and trenching, as specified in the State of California Division of Occupational Safety and Health (commonly called Cal/OSHA) regulations (Title 8 of the CCR) and in Section A33 of the CBC.

Alquist-Priolo Earthquake Fault Zoning Act. The Alquist-Priolo Earthquake Fault Zoning Act of 1972, Public Resources Code (PRC) Sections 2621–2630 (formerly the Special Studies Zoning Act) regulates development and construction of buildings intended for human occupancy to avoid the hazard of surface fault rupture. While this Act does not specifically regulate oil field components not intended for human occupancy; it does help define areas where fault rupture, and thus related damage, is most likely to occur. This Act groups faults into categories of active, potentially active, and inactive. Historic and Holocene age faults are considered active, Late Quaternary and Quaternary age faults are considered potentially active, and pre-Quaternary age faults are considered inactive. These classifications are qualified by the conditions that a fault must be shown to be "sufficiently active" and "well defined" by detailed site-specific geologic explorations in order to determine whether building setbacks should be established. Cities and counties affected by the zones must regulate certain development "projects" within the zones. They must withhold development permits for sites within the zones until geologic investigations demonstrate that the sites are not threatened by surface displacement from future faulting.

Seismic Hazards Mapping Act. The Seismic Hazards Mapping Act (the Act) of 1990 (PRC, Chapter7.8, Division 2, Sections 2690–2699.) is to reduce the threat to public health and safety and to minimize the loss of life and property by identifying and mitigating seismic hazards. The Act directs the California Department of Conservation, Division of Mines and Geology [now called California Geological Survey (CGS)] to delineate Seismic Hazard Zones or Zones of Required Investigation. Zones of Required Investigation referred to as "Seismic Hazard Zones" in CCR Section 3722, are areas shown on Seismic Hazard Zone Maps where site investigations are required to determine the need for mitigation of potential liquefaction and/or earthquake-induced landslide ground displacements. A geotechnical investigation of the site must be conducted, and appropriate mitigation measures incorporated into the project design, before development permits may be granted. Cities, counties, and State agencies are directed to use seismic hazard zone maps developed by CGS in their land-use planning and permitting processes. The Act requires that site-specific geotechnical investigations be performed prior to permitting most urban development projects within seismic hazard zones. However, to date, seismic hazard mapping has not been completed by the State Geologist for the project area. Therefore, this act does not apply to the Proposed Project.

California Environmental Quality Act. CEQA requires that public agencies and private interests identify the potential environmental consequences of their proposed projects on any object or site of significance to the scientific annals of California (Division I, California Public Resources Code [PRC] Section 5020.1 [b]). Appendix G in Section 15023 provides an Environmental Checklist of questions (PRC 15023, Appendix G) that includes the following: Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

CEQA does not define unique paleontological resources or sites. However, the Society of Vertebrate Paleontology (SVP) has provided guidance specifically designed to support state and federal environmental review. The SVP broadly defines significant paleontological resources (SVP, 2010) as fossils and fossiliferous deposits consisting of identifiable vertebrate fossils, large or small, uncommon invertebrate, plant, and trace fossils, and other data that provide taphonomic, taxonomic, phylogenetic, paleoecologic, stratigraphic, and/or biochronologic information. Paleontological resources are considered to be older than recorded human history and/or older than middle Holocene (i.e., older than about 5,000 radiocarbon years).

Significant paleontological resources are determined to be fossils or assemblages of fossils that are unique, unusual, rare, diagnostically important, or are common but have the potential to provide valuable scientific information for evaluating evolutionary patterns and processes, or which could improve our understanding of paleochronology, paleoecology, paleophylogeography, or depositional histories. New or unique specimens can provide new insights into evolutionary history; however, additional specimens of even well represented lineages can be equally important for studying evolutionary pattern and process, evolutionary rates, and paleophylogeography. Even unidentifiable material can provide useful data for dating geologic units if radiocarbon dating is possible. As such, common fossils (especially vertebrates) may be scientifically important, and therefore considered significant.

Public Resources Code Section 5097.5. Section 5097.5 of the California Public Code Section states that no person shall knowingly and willfully excavate upon, or remove, destroy, injure or deface any historic or prehistoric ruins, burial grounds, archaeological or vertebrate paleontological site, including fossilized footprints, inscriptions made by human agency, or any other archaeological, paleontological or historical feature, situated on public lands, except with the express permission of the public agency having jurisdiction over such lands. Violation of this section is a misdemeanor.

As used in this section, public lands are lands owned by, or under the jurisdiction of, the state, or any city, county, district, authority, or public corporation, or any agency thereof. Consequently, local project

proponents, are required to comply with PRC 5097.5 for their own activities, including construction and maintenance, as well as for permit actions (e.g., encroachment permits) undertaken by others.

Nevada

Nevada Building Code (NBC). The provisions of Nevada Building Code apply to the construction, alteration, relocation, enlargement, replacement, repair, equipment, use and occupancy, location, maintenance, removal and demolition of every building or structure or any appurtenances connected or attached to such buildings or structures. The Nevada Building Code is based on the IBC. Chapter 16 of the NBC contains requirements for structural design, including for wind and seismic loads. Chapter 18 of the NBC regulates excavation, foundations, and retaining walls. Chapter 33 of the NBC contains specific requirements pertaining to safety during site demolition, excavation, and construction to protect people and property from hazards associated with excavation cave-ins and falling debris or construction materials.

Nevada Revised Statutes. The Nevada Revised Statutes (NRS) are the current codified laws of the State of Nevada. Nevada Revised Statutes Section 704.865 provides that "A person, other than a local government, shall not commence to construct a utility facility in the State without first having obtained a permit therefore from the Commission. The replacement of an existing facility with a like facility, as determined by the Commission, does not constitute construction of a utility facility." The Public Utilities Commission of Nevada is the Lead Agency for compliance with the Nevada Utility Environmental Protection Act.

Nevada addresses paleontological resource protections under two chapters in Title 33 of their NRS; State Museums and Historic Preservation and Archeology:

(NRS, Title 33, Chapter 381): State Museums:

- **NRS 381.195:** Defines a prehistoric site as any archeological or paleontological site, ruin, deposit, fossilized footprints and other impressions, petroglyphs and pictographs, habitation caves, rock shelters, natural caves, burial ground or sites of religious or cultural importance to an Indian tribe.
- **NRS 381.197:** Permit required to investigate, explore or excavate historic or prehistoric site; applicability of penalties. Except for action taken under an agreement with the Office of Historic Preservation of the State Department of Conservation and Natural Resources pursuant to NRS 383.430, and except as otherwise provided in this section, a person shall not investigate, explore or excavate an historic or prehistoric site on federal or state lands or remove any object therefrom unless the person is the holder of a valid and current permit issued pursuant to the provisions of NRS 381.195 to 381.227, inclusive. Conduct that would otherwise constitute a violation of this section is not a violation of this section if it is also a violation of NRS 383.435. (Added to NRS by 1959, 290; A 2005, 569; 2011, 2981)

(NRS, Title 33, Chapter 383): Historic Preservation and Archeology

- **NRS 383.011:** Defines cultural resources as any objects, sites or information of historic, prehistoric, archeological, architectural, or paleontological significance. This was added to the Statutes of Nevada in 2015 under Senate Bill 20, Chapter 18 by the Committee on Natural Resources.

Local

The CPUC has sole and exclusive jurisdiction over the siting and design of the Proposed Project components located in the State of California. Pursuant to CPUC G.O. 131-D, Section XIV.B, "Local jurisdictions acting pursuant to local authority are preempted from regulating electric power line projects, distribution lines, substations, or electric facilities constructed by public utilities subject to the CPUC's juris-

diction. However, in locating such projects, the public utilities shall consult with local agencies regarding land use matters." Consequently, public utilities are directed to consider local regulations and consult with local agencies, but the county and cities' regulations are not applicable as the county and cities do not have jurisdiction over the Proposed Project. For informational purposes, local regulations in California jurisdictions are provided in Appendix C. The Proposed Project is subject to local regulations in the State of Nevada.

Clark County Comprehensive Plan. The Safety Element of the Clark County Comprehensive Plan contains the following policies to address geologic and seismic hazards:

- ***Natural and Man-made Hazards Policy 1:*** *Minimize public exposure to natural and man-made hazards*
- ***Natural and Man-made Hazards Policy 2:*** *Ensure that land use plans and development regulations consider natural and man-made hazards and mitigation programs*
- ***Natural and Man-made Hazards Policy 3:*** *Provide public facilities and services to protect against natural and man-made hazards*
- ***Natural and Man-made Hazards Policy 4:*** *Support educational programs to inform the community about natural and man-made hazards*
- ***Natural and Man-made Hazards Policy 5:*** *Coordinate with local, regional, state and federal governments and the private sector to provide protection against natural and man-made hazards*

Clark County Building Code. The 2012 NBC which is based on the 2012 IBC has been adopted by Clark County.

South County Land Use Plan. The South County Land Use Plan does not contain any specific goals or policies that are relevant to the Proposed Project.

Laughlin Land Use Plan. The Laughlin Land Use Plan does not contain any specific goals or policies that are relevant to the Proposed Project.

Boulder City Master Plan. The Boulder City Master Plan does not contain any specific goals or policies that are relevant to the Proposed Project.

City of Boulder City Building Code. The 2012 IBC has been adopted by the City of Boulder City.

Federal

Bureau of Land Management

Federal Earthquake Hazards Reduction Act. In 1977, the U.S. Congress passed the Earthquake Hazards Reduction Act to reduce the risks to life and property from future earthquakes through the establishment and maintenance of an effective earthquake hazards and reduction program. To accomplish this, the act established the National Earthquake Hazards Reduction Program (NEHRP). The agencies responsible for coordinating NEHRP are the Federal Emergency Management Agency (FEMA), the National Institute of Standards and Technology (NIST), the National Science Foundation (NSF); and the United States Geological Survey (USGS). In 1990, NEHRP was amended by the National Earthquake Hazards Reduction Program Act (NEHRPA), which refined the description of the agency responsibilities, program goals, and objectives. The four goals of the NEHRP are: (1) develop effective practices and policies for earthquake loss-reduction and accelerate their implementation; (2) improve techniques to reduce seismic vulnerability of facilities and systems; (3) improve seismic hazards identification and risk-assessment methods and their use; and (4) improve the understanding of earthquakes and their effects.

International Building Code. Published by the International Code Council, the purpose of the IBC is to establish minimum structural requirements to provide a reasonable level of safety, public health and general welfare through structural strength, and safety to life and property from fire and other hazards attributed to the built environment. The provisions of the IBC apply to the construction, alteration, relocation, enlargement, replacement, repair, equipment, use and occupancy, location, maintenance, removal, and demolition of buildings or structures, as well as any appurtenances connected to applicable buildings or structures. The IBC also incorporates the requirements and regulations set forth in several other ICC codes including the International Energy Conservation Code, the International Existing Building Code, the International Fire Code, and the International Fuel Gas Code. The IBC is in use or adopted in all 50 states of the U.S. and is updated every three years to ensure that new construction methods and technologies are incorporated into existing codes. The IBC has replaced the Uniform Building Code (UBC) as the basis for the California Building Code (CBC).

Clean Water Act. The Clean Water Act (CWA) (33 U.S. Code §1251 et seq.), formerly the Federal Water Pollution Control Act of 1972, was enacted with the intent of restoring and maintaining the chemical, physical, and biological integrity of waters of the U.S. The CWA requires states to set standards to protect, maintain, and restore water quality through the regulation of point-source and certain non-point-source discharges to surface water. Section 402 of the CWA establishes the National Pollutant Discharge Elimination System (NPDES) permit program to regulate point-source discharges of pollutants into waters of the U.S. Discharges or construction activities that disturb 1 or more acres — including the Proposed Project — are regulated under the NPDES stormwater program and are required to obtain coverage under a NPDES Construction General Permit. The Construction General Permit establishes limits and other requirements, such as the implementation of a Storm Water Pollution Prevention Plan (SWPPP), which would further specify best management practices (BMPs) and other measures designed to avoid or eliminate pollution discharges in waters of the U.S.

Archaeological and Paleontological Salvage (23 USC 305). Statute 23 United States Code (USC) 305 amends the Antiquities Act of 1906. Specifically, it states that funds authorized to be appropriated to carry out this title to the extent approved as necessary, by the highway department of any State, may be used for archaeological and paleontological salvage in that state in compliance with the Act entitled *An Act for the preservation of American Antiquities*, approved June 8, 1906 (Public Law [PL] 59-209; 16 USC 431-433), and State laws where applicable.

This statute allows funding for mitigation of paleontological resources recovered pursuant to federal aid highway projects, provided that excavated objects and information are to be used for public purposes without private gain to any individual or organization (Federal Register [FR] 46(19): 9570).

National Historic Preservation Act of 1966 (NHPA; 16 USC 470). The NHPA only applies to paleontological resources that are found in culturally related contexts and are then considered cultural resources.

Federal Land Policy and Management Act of 1976. The Federal Land Policy and Management Act (FLPMA, 43 USC 1701-1782) authorizes inventories of paleontological resources on federal land managed by the BLM, which issues a permit for collecting paleontological resources.

Paleontological Resources Preservation Act of 2009. The Paleontological Resources Preservation Act (PRPA) is part of the Omnibus Public Land Management Act of 2009 (PL 111-011 Subtitle D). This act directs the Secretary of the Interior or the Secretary of Agriculture to manage and protect paleontological resources on federal land, and develop plans for inventorying, monitoring, and deriving the scientific and educational use of such resources. It prohibits the removal of paleontological resources from federal land without a permit issued under this Act, establishes penalties for violation of this act and estab-

lishes a program to increase public awareness about such resources. A paleontological resource use permit is required to collect paleontological resources of scientific interest. The act requires that paleontological resources collected under a permit remain United States property and must be preserved for the public in an approved repository, to be made available for scientific research and public education. The act also requires that the nature and location of paleontological resources on public lands be kept confidential as a means of protecting paleontological resources from theft and vandalism.

Section 6301 of the PRPA and Departmental Proposed Rule at 43 CFR Part 49 defines a paleontological resource as any fossilized remains, traces, or imprints of organisms, preserved in or on the earth's crust, that are of paleontological interest and that provide information about the history of life on earth, except that the term does not include: (A) any materials associated with an archaeological resource… (B) any cultural item… (3) Resources determined in writing by the authorized officer to lack paleontological interest or not provide information about the history of life on earth, based on scientific and other management considerations.

Consistent with the definition of a paleontological resource under the PRPA, paleontological resources that lack scientific interest (e.g., ubiquitous, or do not provide information about the history of life on earth, etc.) are considered scientifically non-significant fossils.

National Park Service

The regulatory requirements identified for the BLM also apply to the NPS.

5.7.3 Applicant Proposed Measures

No APMs have been proposed by SCE specifically for Geology and Soils. SCE identified one APM related to Paleontology, APM CUL-04. This APM would be superseded by Mitigation Measure PAL-3 (Prepare and implement a Paleontological Mitigation and Monitoring Plan).

APM CUL-04: Paleontological Resource Mitigation and Monitoring Plan. [Superseded by Mitigation Measure PAL-1] SCE would prepare and submit to the BLM for review and approval a Paleontological Resources Mitigation and Monitoring Plan (PRMMP) that is consistent with the following requirements:

- The PRMMP would be prepared by a qualified paleontologist, would be based on Society of Vertebrate Paleontology guidelines, and would meet all regulatory requirements. The qualified paleontologist would have a master's degree or a Doctor of Philosophy in paleontology, would have knowledge of the local paleontology, and would be familiar with paleontological procedures and techniques.
- The PRMMP would include a site-specific investigation to identify construction impact areas of moderate (Potential Fossil Yield Classification [PFYC] 3a) to very high (PFYC 5) sensitivity for encountering significant resources and the approximate depths where those resources are likely to be encountered for each Proposed Project component.
- The PRMMP would require the qualified paleontological monitor to monitor all construction-related ground disturbance in sediments determined to have a moderate (PFYC 3a) to very high (PFYC 5) sensitivity.
- The PRMMP would define monitoring procedures and methodology and would specify that sediments of undetermined sensitivity must be monitored on a part-time basis (as determined by the qualified paleontologist). Sediments with very low or low sensitivity would not require paleontological monitoring. The qualified paleontological monitor would have at least a Bachelor of Science degree in geology or paleontology, as well as demonstrated field experience in the collection and identification of fossil material.

- The PRMMP would state which resources would be avoided and which would be recovered for their data potential. Where possible, recovery is preferred over avoidance in order to mitigate the potential for looting of paleontological resources. The PRMMP would also detail methods of recovery, preparation and analysis of specimens, final curation of specimens at a federally accredited repository, data analysis, and reporting.
- The PRMMP would specify that all paleontological work undertaken by SCE on public lands managed by the BLM would be carried out by qualified, permitted paleontologists with the appropriate current paleontological resources use permit.

5.7.4 CEQA Significance Criteria

Appendix G of the CEQA Guidelines (14 CCR 15000 et seq.) provides guidance on assessing whether a project would have significant impacts on the environment. Consistent with Appendix G, the Proposed Project would have significant geology and soils impacts if it would:

a. Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving

i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault

ii) Strong seismic ground shaking

iii) Seismic-related ground failure, including liquefaction

iv) Landslides

b. Result in substantial soil erosion or the loss of topsoil

c. Be located on geologic units or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse

d. Be located on expansive soil, as defined as defined in the 2016 California Building Code (CBC),[1] 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 waste water

f. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.

5.7.5 Methodology

Geology and Soils

The methodology for assessing impacts is the same throughout the project, regardless of jurisdiction. Geologic, soil, and seismic conditions were evaluated with respect to adverse effects implementation of

[1] The CEQA Checklist refers to "Table 18-1-B of the Uniform Building Code (1994)," but this is now obsolete. The California Building Code is updated every three years and the current version of the CBC, which was effective January 1, 2017, is based on the International Building Code (2015).

the Proposed Project may have on local geology and soils, as well as the impact that specific geologic hazards may have upon the Proposed Project components. The methodology applied to assess probable impacts to and from geologic and soils conditions involves comparing actions included under the Proposed Project against the environmental setting presented in this section, with consideration to the significance criteria identified in Appendix G of the State CEQA Guidelines.

Paleontology

A paleontological locality search, paleontological literature review, geologic map review, and paleontological field survey were conducted in order to identify the existence of known fossils or areas with a high potential for the existence of fossils that could potentially be impacted by the Proposed Project.

Potential impacts identified for this analysis are based upon the "paleontological sensitivity" of geologic formations that would be encountered during construction. Paleontological sensitivity is an estimate of the likelihood that fossils will be discovered during excavations in a given area. However, this estimate does not measure the significance of individual fossils that may be present or discovered in an area. Individual fossils that may be discovered must be examined to determine the nature, age, and value of the fossil.

On private and California state land, the sensitivity standards of the Society of Vertebrate Paleontology (SVP, 2010) were used. These national standards provide 4 classification levels of sensitivity as follows:

- **High Sensitivity:** Rock units from which vertebrate or significant invertebrate fossils or significant suites of plant fossils have been recovered are considered to have a high potential for containing significant nonrenewable fossiliferous resources.
- **Low Sensitivity:** Reports in the paleontologic literature of field survey by a qualified vertebrate paleontologist may allow determination that some areas or units have low potentials for yielding significant nonrenewable fossiliferous resources.
- **Undetermined Sensitivity:** Specific areas underlain by sedimentary rock units for which little information is available are considered to have undetermined fossiliferous potential.
- **No Sensitivity:** Metamorphic and granitic rock units do not yield fossils and therefore have no potential to yield significant nonrenewable fossiliferous resources.

On federal land the BLM Potential Fossil Yield Classification (PFYC) system was used. The PFYC system was developed to provide baseline guidance for assessing paleontological resources and allow BLM employees to make initial assessments of paleontological resources. The presence of paleontological resources is known to be correlated with mapped geologic units, and the PFYC was created based on available geologic maps. The system assigns a class value to each geological unit, representing the potential abundance and significance of paleontological resources that occur in that geological unit.

- **Very Low Potential (1)** – Geologic units are not likely to contain recognizable paleontological resources. Impact mitigation is unnecessary except in rare or isolated circumstances.
- **Low (2)** – Geologic units are not likely to contain paleontological resources. Impact mitigation is usually unnecessary except in occasional or isolated circumstances.
- **Moderate Potential (3)** – Sedimentary geologic units where fossil content varies in significance, abundance, and predictable occurrence. Management options could include record searches, pre-disturbance surveys, monitoring, mitigation, or avoidance.
- **High Potential (4)** – Geologic units that are known to contain a high occurrence of paleontological resources. A field survey by a qualified paleontologist is often needed to assess local conditions. On-

site monitoring or spot-checking may be necessary during land disturbing activities. Avoidance of known paleontological resources may be necessary.

- **Very High Potential (5)** – Highly fossiliferous geologic units that consistently and predictably produce significant paleontological resources. A field survey by a qualified paleontologist is almost always needed and on-site monitoring may be necessary during land use activities. Avoidance or resource preservation through controlled access, designation of areas of avoidance, or special management designations should be considered.
- **Unknown (U)** – Geologic units that cannot receive an informed PFYC assignment. Until a provisional assignment is made, geologic units with unknown potential have medium to high management concerns. Field surveys are normally necessary, especially prior to authorizing a ground-disturbing activity.

5.7.6 Project Impacts and Mitigation Measures

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? Refer to Division of Mines and Geology Special Publication 42.

Construction

LESS THAN SIGNIFICANT. Although many active and potentially active faults cross the project alignment, including several Alquist-Priolo zoned faults, no faults cross or are located in close proximity to new or modified Proposed Project components. The Alquist-Priolo zoned Hector Mine (Lavik Lake) fault zone is the closest fault to new/modified Proposed Project components, being located 1.7 miles west of the Newberry Springs Capacitor. Although portions of the Proposed Project are located in an area that may experience moderate to strong ground shaking due to large local or regional earthquakes, the series capacitors and fiber optic repeater sites would be designed based on geotechnical study recommendations, standard engineering practices, and relevant regulations. Therefore, the impact related to rupture of a known fault is less than significant.

Operation and Maintenance

LESS THAN SIGNIFICANT. Operation and maintenance activities would be incorporated into the existing O&M schedule for the existing transmission lines, substations, and associated facilities. O&M practices would also include routine inspections and emergency repair within substations and rights-of-way (ROWs) (SCE, 2018). As noted above, no active faults cross Proposed Project components, therefore there would be no change in the impacts due to fault rupture along the project routes due to operation and maintenance of the Proposed Project. The risk of loss, injury, or death during O&M activities would be less than significant.

Mitigation Measures

No mitigation is required.

ii) Strong seismic ground shaking?

Construction

LESS THAN SIGNIFICANT. The Proposed Project site is located in a seismically active area and is likely to experience one or more earthquakes within the project's lifetime. Such an event could occur during construction; however, standard work site safety practices (e.g., clipping on to structures when working off the ground) would serve to reduce risk during ground shaking. Estimated PGA along the Proposed Project range from 0.113g to 0.784g across the Proposed Project (SCE, 2018) with the higher values located in the western portion of the project, where most of the active and potentially active faults are located. Proposed Project components near to and west of the Kelbaker Fiber Optic Repeater site can expect to experience moderate to severe ground shaking in the event of a large local or regional earthquake. Project construction itself would not trigger strong seismic ground shaking.

Operation and Maintenance

Although portions of the Proposed Project are located in an area that may experience moderate to strong ground shaking due to large local or regional earthquakes, the series capacitors and fiber optic repeater sites would be designed per geotechnical recommendations, standard engineering practices, and relevant regulations. As part of the facility design process, SCE would conduct geotechnical investigations at the fiber optic repeater sites to ensure that new structures would be designed and constructed to withstand seismic-induced hazards and potential geologic instability and that the new access roads for the new series capacitors would also be assessed in the geotechnical studies. (SCE, 2018). The modified tower structures on the transmission lines, new sub transmission and distribution poles, and new underground conduit and vaults for distribution and fiber optic lines would be designed as required by California Public Utilities Commission General Orders 95 and 128 (overhead electrical line construction requirements and underground electrical supply and communication systems requirements, respectively). Implementation and compliance with standard design guidelines, and relevant State and federal regulations reduces potential impacts related to damage from seismically induced ground shaking to less than significant.

Operation and maintenance activities would be incorporated into the existing O&M schedule for the existing transmission lines, substations, and associated facilities. O&M practices would also include routine inspections and emergency repair within substations and ROWs (SCE, 2018). There would be no change in the impacts due to damage from seismically induced ground shaking along the project routes due to operation and maintenance of the Proposed Project. The risk of loss, injury, or death during O&M activities would be less than significant.

Mitigation Measures

No mitigation is required.

iii) Seismic-related ground failure, including liquefaction?

Construction

LESS THAN SIGNIFICANT. Activities during construction would not induce seismic-related ground failure or liquefaction. The Proposed Project components are primarily underlain by relatively flat to gently sloping terrain and no landslides are mapped near the Proposed Project's new and modified components. Although portions of the Proposed Project may experience moderate to strong seismically induced

ground shaking, it is unlikely that slope failures would occur at or near the Proposed Project components during construction, resulting in a less than significant impact due to seismically induced slope failure.

Operation and Maintenance

Most of the Proposed Project components are located in areas with groundwater levels greater than 100 feet bgs; however, the Barstow Fiber Optic Repeater site is located in an area with groundwater levels of less than 50 feet bgs (42-57 feet bgs) where liquefiable sediments may be present. As part of project design, geotechnical investigations conducted for the fiber optic repeater sites would ensure that structures installed under the Proposed Project would be able to withstand seismic-induced hazards and potential geologic instability and that the new access roads for the new series capacitors would also be assessed in the geotechnical studies (SCE, 2018). The modified tower structures for the transmission lines, new sub transmission and distribution poles, and new underground conduit and vaults for distribution and fiber optic lines would be designed as required by CPUC General Orders 95 and 128 (overhead electrical line construction requirements and underground electrical supply and communication systems requirements, respectively). Implementation and compliance with standard design guidelines, and relevant State and federal regulations reduces potential impacts related to damage from seismically induced liquefaction ensure that during O&M activities the possibility of seismic-related ground failure and liquefaction that could result in loss, injury, or death are less than significant.

Operation and maintenance activities would be incorporated into the existing operation and maintenance schedule for the existing transmission lines, substations, and associated facilities. Operation and maintenance practices would also include routine inspections and emergency repair within substations and ROWs (SCE, 2018). There would be no change in the impacts due to damage from seismically induced ground failure, including landslides and liquefaction, along the project routes due to operation and maintenance of the Proposed Project.

Mitigation Measures

No mitigation is required.

iv) Landslides?

Construction

LESS THAN SIGNIFICANT. As discussed above, the Proposed Project components are primarily underlain by relatively flat to gently sloping terrain and no landslides are mapped near the Proposed Project components. No construction work is planned that would destabilize slopes. It is unlikely that project construction activity could result in landslides.

Operation and Maintenance

LESS THAN SIGNIFICANT. Although portions of the Proposed Project may experience moderate to strong seismically induced ground shaking, it is unlikely that slope failures would occur at or near the Proposed Project components, resulting in a less than significant impact due to seismically induced slope failure.

Operation and maintenance activities would be incorporated into the existing Operation and maintenance schedule for the existing transmission lines, substations, and associated facilities. Operation and maintenance practices would also include routine inspections and emergency repair within substations and ROWs (SCE, 2018). Existing access roads would be used. These are already subject to the seismic activity that occurs in the region. There would be no change in the impacts due to damage from

seismically induced landslides along the project routes due to operation and maintenance of the Proposed Project.

Mitigation Measures

No mitigation is required.

b. Would the project result in substantial soil erosion or the loss of topsoil?

Construction

LESS THAN SIGNIFICANT WITH MITIGATION. Construction-related ground disturbance consisting of clearing and grading, trenching for underground telecommunication and distribution lines, construction of temporary access roads, and improvements to existing access and spurs could increase the potential for erosion. Grading is proposed at eight locations; two of these locations would be graded to reduce the clearance discrepancies between overhead conductors and the ground surface, the remaining six locations would be graded as part of site preparation for the installation of the new mid-line series capacitor facilities, replacement series capacitors within Mohave Substation, and the three fiber optic repeaters. The movement of equipment and materials during construction could destabilize the soil surface and increase erosion potential from water and wind. The most likely time for erosion to occur is after initial disturbance and before reestablishment of vegetative cover or placement of structures. Some of the soils underlying the Proposed Project have moderate to high susceptibility to wind erosion and moderate susceptibility to sheet and rill erosion by water (Table 5.7-2). However, as the Proposed Project would disturb a surface area greater than one acre, it would be required to obtain, under Clean Water Act regulations, a National Pollution Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Construction Activity. Compliance with the NPDES would require that the SCE submit a project specific Storm Water Pollution Prevention Plan (SWPPP). The SWPPP would require development and implementation of BMPs to identify and control erosion, which would reduce the potential for construction to trigger erosion. To ensure no violation occurs of water quality standards or waste discharge requirements, the following mitigation measure would be required: HWQ-1: Implement an Erosion Control Plan and demonstrate compliance with water quality permits. Additionally, Mitigation Measure BR-2. Prepare and implement a Worker Environmental Awareness Program (WEAP), provides for all on-site personnel to be made aware of environmental issues and required protocols. This would ensure that proper procedures are taken to implement BMPs during construction to address erosion risks. With implementation of the SWPPP, which would include BMPs to control erosion and prevent off-site sedimentation, substantial soil erosion is not anticipated to occur, and impacts would be less than significant. Therefore, potential impacts related to erosion caused by construction would be less than significant with mitigation.

Operation and Maintenance

LESS THAN SIGNIFICANT. Operation and maintenance activities would be incorporated into the existing operation and maintenance schedule for the existing transmission lines, substations, and associated facilities. Operation and maintenance practices would also include routine inspections and emergency repair within substations and ROWs (SCE, 2018). There would be no change in the impacts due to soil erosion along the project routes due to operation and maintenance of the Proposed Project.

Mitigation Measures

HWQ-1 Implement an Erosion Control Plan and demonstrate compliance with water quality permits. (The full text of this mitigation measure is provided in Section, 5.10 Hydrology and

Water Quality. The Plan may be part of the Stormwater Pollution Prevention Plan (SWPPP) and would describe erosion controls and their location and maintenance.)

BR-2 **Prepare and implement a Worker Environmental Awareness Program (WEAP).** (The full text of this mitigation measure is provided in Section 5.4, Biological Resources. The WEAP training would be provided to all personnel and would be conducted by a qualified biologist.)

c. Would the project be located on geologic units 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. Impacts related to landslides and liquefaction are discussed above in question (a), subsections iii and iv.

Subsidence within the Proposed Project area is found in the vicinity of Lucerne and Troy dry lakebeds. Significant subsidence underlying a portion of a structure or transmission line could potentially cause damage due to ground fissures, ground tilt from differential subsidence, loss of clearance height, or increased tension of the line due to relative elevation changes. However, no Proposed Project components are within these subsidence areas. Additionally, all project components would be designed to conform with standard design practices and all appropriate State and federal regulations. Therefore, there is a less than significant impact related to project damage from subsidence.

Conditions in the arid and semi-arid climate of the Proposed Project favor the formation of collapsible soils. Based on the laboratory test results from the site-specific geotechnical studies, the soils at the Mohave Substation possess slight collapse potential, and the soils at the Newberry Springs and Ludlow Series Capacitor sites have moderate to high collapse potential (Wood, 2018a, 2018b, and 2018c). However, the sites would be designed based on geotechnical study recommendations, standard engineering practices, and relevant State and federal regulations would reduce the impact related to collapsible soils to less than significant.

Mitigation Measures

No mitigation is required.

d. Would the project be located on expansive soil, as defined in the 2016 California Building Code (2017), creating substantial direct or indirect risks to life or property?

Construction

LESS THAN SIGNIFICANT. Soils underlying the Proposed Project are generally granular (sandy) and non-expansive (SCE, 2018). Additionally, site specific geotechnical studies for the Newberry Spring and Ludlow Series Capacitors and Mohave Substation confirm the presence of non-expansive granular soil material at these sites. Additionally, in the unlikely event that expansive soils are present, implementation and compliance with recognized standard engineering practices and compliance with relevant State and federal regulations would reduce any potential impacts from expansive soil to less than significant.

Operation and Maintenance

LESS THAN SIGNIFICANT. Operation and maintenance activities would be incorporated into the existing O&M schedule for the existing transmission lines, substations, and associated facilities. O&M practices would also include routine inspections and emergency repair within substations and ROWs (SCE, 2018). There would be no change in the impacts due to operation and maintenance of the Proposed Project.

Mitigation Measures

No mitigation is required.

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?

Construction

NO IMPACT. The Proposed Project would not involve the installation of septic tanks or alternative wastewater disposal systems. Therefore, no impact would occur.

Operation and Maintenance

~~*LESS THAN SIGNIFICANT*~~*NO IMPACT*. Proposed Project operation and maintenance activities would be incorporated into the existing Operation and Maintenance schedule for the existing transmission lines, substations, and associated facilities. Operation and Maintenance of the Proposed Project would not involve the use of a septic tank or alternative wastewater disposal system, as Operation and Maintenance of the Proposed Project is not anticipated to generate wastewater (SCE, 2018). As a result, no impact would occur.

Mitigation Measures

No mitigation is required.

f. Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

Construction

LESS THAN SIGNIFICANT WITH MITIGATION. No paleontological resources have been identified in the project area to date. However, there is the potential for adverse impacts to scientifically significant paleontological resources during ground disturbance within sediments with unknown, high, or very high paleontological sensitivity (PFYC U, PFYC 4, or PFYC 5). Ground disturbing activity that exceeds 5 feet in depth in work areas underlain by Holocene units may also result in impacts to paleontological resources because older sensitive Pleistocene units may occur at depth. Impacts would be the same regardless of land category.

The Proposed Project includes one APM related to Paleontology, APM CUL-04, but this analysis recommends mitigation to supersede this APM. While APM CUL-04 identifies basic content of the PRMMP, additional detail and direction is required to ensure that qualified personnel are engaged, workers are adequately trained, the PRMMP is provided to the CPUC for review and that it adequately addresses procedures for monitoring project activities and for protecting, recovering, and curating any discoveries, and monitoring is conducted as appropriate. For these reasons, APM CUL-04 would be superseded by Mitigation Measures PAL-1, PAL-2, PAL-3, and PAL-4, as follows: MM PAL-1 (Retain qualified paleontological staff) specifies the qualifications of paleontological resources staff; MM PAL-2 (Provide paleontological environmental awareness training) establishes training for all project staff; MM PAL-3 (Prepare and implement a Paleontological Resources Monitoring and Treatment Plan) requires the development of a monitoring and treatment plan; and MM PAL-4 (Conduct monitoring for paleontological resources) addresses inadvertent discoveries.

The construction, operation and maintenance of the Proposed Project could have an indirect impact on paleontological resources. The primary indirect impact would be associated with increased access to sensitive sediments potentially resulting in increased erosion and unauthorized fossil collection. Indirect effects would be addressed by Mitigation Measures PAL-2, PAL-3, and PAL-4 which would educate project staff members and establish a treatment protocol in the event fossils were encountered.

Implementation of MM PAL-1 through PAL-4 would evaluate and protect unanticipated discoveries of unique paleontological resources or unique geologic features, thereby reducing this impact to less than significant.

Operation and Maintenance

LESS THAN SIGNIFICANT. Activities associated with O&M for the Proposed Project would occur at previously disturbed sites and would not disturb any previously unidentified paleontological resources. The impact of O&M on paleontological resources would be less than significant.

Mitigation Measures

PAL-1 **Retain qualified paleontological staff.** Project Paleontologist – Prior to the start of ground disturbance, a qualified paleontologist to serve as Project Paleontologist shall be retained by SCE. The qualifications of the Project Paleontologist shall be submitted to CPUC and BLM for approval. This individual shall retain a BLM paleontological resource use permit for the project and other appropriate permits. To do so this individual shall have the following qualifications as stipulated in BLM Manual 8270-1:

- Professional instruction in a field of paleontology relevant to the work proposed (vertebrate, invertebrate, trace, paleobotany, etc.), obtained through:
  - Formal education resulting in a graduate degree from an accredited institution in paleontology, or in geology, biology, botany, zoology or anthropology if the major emphasis is in paleontology; or
  - Equivalent paleontological training and experience including at least 24 months under the guidance of a professional paleontologist who meets qualification above that provided increased responsibility leading to professional duties similar to those in qualification above; and
- Demonstrated experience in collecting, analyzing, and reporting paleontological data, similar to the type and scope of work proposed in the application;
- Demonstrated experience in planning, equipping, staffing, organizing, and supervising crews performing the work proposed in the application;
- Demonstrated experience in carrying paleontological projects to completion as evidenced by timely completion and/or publication of theses, research reports, scientific papers and similar documents.

As described in BLM Instruction Manual (IM) 2009-011, the Project Paleontologist will serve as the Principal Investigator (PI) under the BLM permit and is responsible for all actions under the permit, for meeting all permit terms and conditions, and for the performance of all other personnel. This person is also the contact person for the project proponent, CPUC, and the BLM.

Additional Paleontological Staff – The Project Paleontologist may obtain the services of Paleontological Field Agents, Field Monitors, and Field Assistants, if needed, to assist in mitigation, monitoring, and curation activities. These individuals must meet the qualifications described in BLM IM 2009-011.

PAL-2 **Provide paleontological environmental awareness training.** SCE will provide worker's environmental awareness training on paleontological resources protection as part of its WEAP required under Mitigation Measure BR-2, Prepare and implement a Worker Environmental Awareness Program. This training may be administered by the project paleontologist as a stand-alone training or included as part of the overall worker's environmental awareness training. At a minimum, the training would 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 followed in the event of a fossil discovery; and
- penalties for disturbing paleontological resources.

PAL-3 **Prepare and implement a Paleontological Resource Mitigation and Monitoring Plan (PRMMP).** (Supersedes APM CUL-04) Prior to the start of the project, SCE shall submit a Paleontological Mitigation and Monitoring Plan (PRMMP) for the project to the CPUC and BLM for review and approval. The PRMMP shall be prepared and implemented under the direction of the Project Paleontologist and shall address and incorporate Mitigation Measures PAL-1, PAL-3, and PAL-4. The PRMMP shall be based on Society of Vertebrate Paleontology (SVP) assessment and mitigation guidelines and meet all regulatory requirements. A monitoring plan indicates the avoidance or treatments recommended for the area of the proposed disturbance and must at a minimum address the following:

- Identification and mapping of impact areas of high sensitivity that will be monitored during construction;
- A coordination strategy to ensure that a qualified paleontologist will conduct monitoring at the appropriate locations at the appropriate intensity;
- The significance criteria to be used to determine which resources will be avoided or recovered for their data potential;
- Procedures for the discovery, recovery, preparation, and analysis of paleontological resources encountered during construction, in accordance with standards for recovery established by the SVP;
- Provisions for verification that the project proponent has an agreement with a recognized museum repository, for the disposition of recovered fossils and that the fossils shall be prepared prior to submittal to the repository as required by the repository (e.g., prepared, analyzed at a laboratory, curated, or cataloged);
- Specifications that all paleontological work undertaken by the project proponent shall be carried out by qualified paleontologists with appropriate current permits, including but not limited to a Paleontological Resources Use Permit (for work on public lands administered by BLM) and any other permits required by other jurisdictions;
- Description of monitoring reports that will be prepared which shall include daily logs, monthly reports, and a final monitoring report with an itemized list of specimens found to be submitted to the BLM, the CPUC, the project proponent and the designated repository within 90 days of the completion of monitoring;

- The implementation sequence and the estimated time frames needed to accomplish all project-related tasks during the ground-disturbance and post-ground-disturbance analysis phases of the project shall be specified; and
- Person(s) expected to perform each of the tasks, their responsibilities, and the reporting relationships between project construction management and the mitigation and monitoring team shall be identified.
- All impact-avoidance measures (such as flagging or fencing) to prohibit or otherwise restrict access to sensitive resource areas that are to be avoided during ground disturbance, construction, and/or operation shall be described. Any areas where these measures are to be implemented shall be identified. The description shall address how these measures would be implemented prior to the start of ground disturbance and how long they would be needed to protect the resources from project-related impacts.

PAL-4 **Conduct monitoring for paleontological resources.** The applicant shall continuously comply with the following during all ground disturbing activities during the project:

- All ground disturbing activity in Proposed Project work areas identified with unknown, high, or very high paleontological sensitivity (PFYC U, PFYC 4, or PFYC 5) should be monitored on a full-time basis by a BLM-approved Paleontological Field Agent who will work under the supervision of the BLM-permitted paleontologist and principal investigator.
- Ground disturbing activity that exceeds 5 feet in depth in work areas underlain by Holocene units shall be monitored part time. Spot-checking shall take place at least once a day and be conducted by a Qualified Paleontologist.
- The level of effort and intensity for monitoring shall be modified as needed by a Qualified Paleontologist, in consultation with the appropriate agency personnel, based on the sediment types, depths, and distributions observed during monitoring throughout the life of the project.
- Project activities shall be diverted when data recovery of significant fossils is warranted, as determined by the Project Paleontologist. Monitoring shall be conducted as follows:
  - Monitoring of ground disturbance shall consist of the surface collection of visible vertebrate and significant invertebrate fossils within the project site. Upon discovery of paleontological resources by paleontologists or construction personnel, work in the immediate area of the find shall be halted and diverted and the Project Paleontologist shall be notified. Once the find has been inspected and a preliminary assessment has been made, the Project Paleontologist will notify the CPUC and other appropriate agencies of the discovery within 24 hours. If recovery of a large or unusually productive fossil occurrence is warranted, earth-moving activities shall be diverted temporarily around the fossil locality, and a recovery crew shall be mobilized to remove the material as quickly as possible. The monitor shall be permitted to photograph and/or draw stratigraphic profiles of cut surfaces and take samples for analysis of microfossils, dating, or other specified purposes in accordance with the PRMMP.
  - Recovered specimens shall be prepared to a point of identification, including washing of sediments to recover smaller fossil remains. Once excavation has reached specified depths, salvage of fossil material from the sidewalls of the cut shall resume. Specimens shall be identified and curated into a repository with retrievable storage.

- All significant fossil specimens recovered from the project site as a result of the paleontological monitoring and mitigation program shall be treated (prepared, identified, curated, and catalogued) in accordance with the designated repository requirements. Samples shall be submitted to a laboratory, acceptable to the designated repository, for identification, dating, and microfossil and pollen analysis.

5.7.7 References

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NOTE: To protect the integrity of paleontological resources, the report above is not available to the public. The report can be made available to qualified resource professionals with approval from BLM and CPUC.

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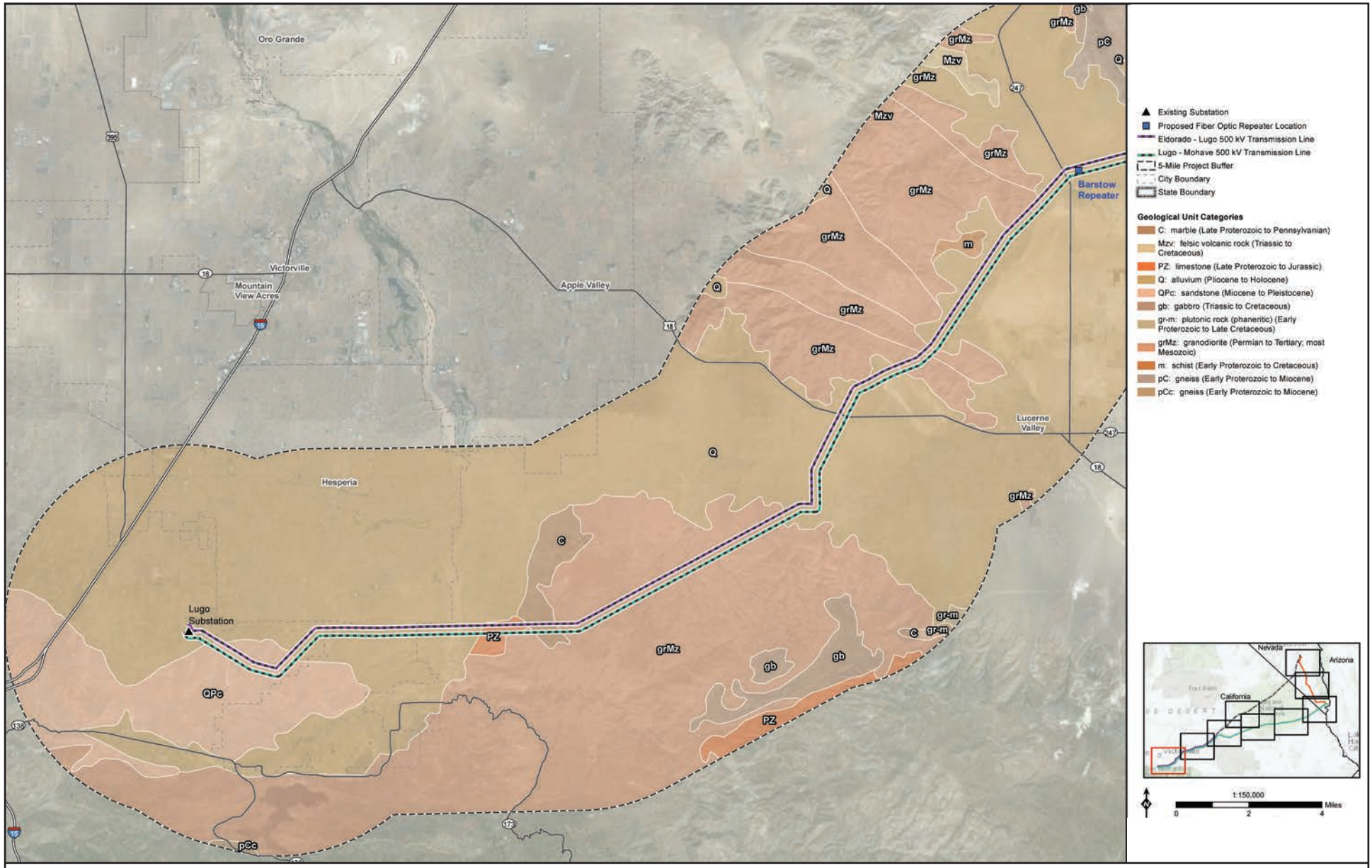
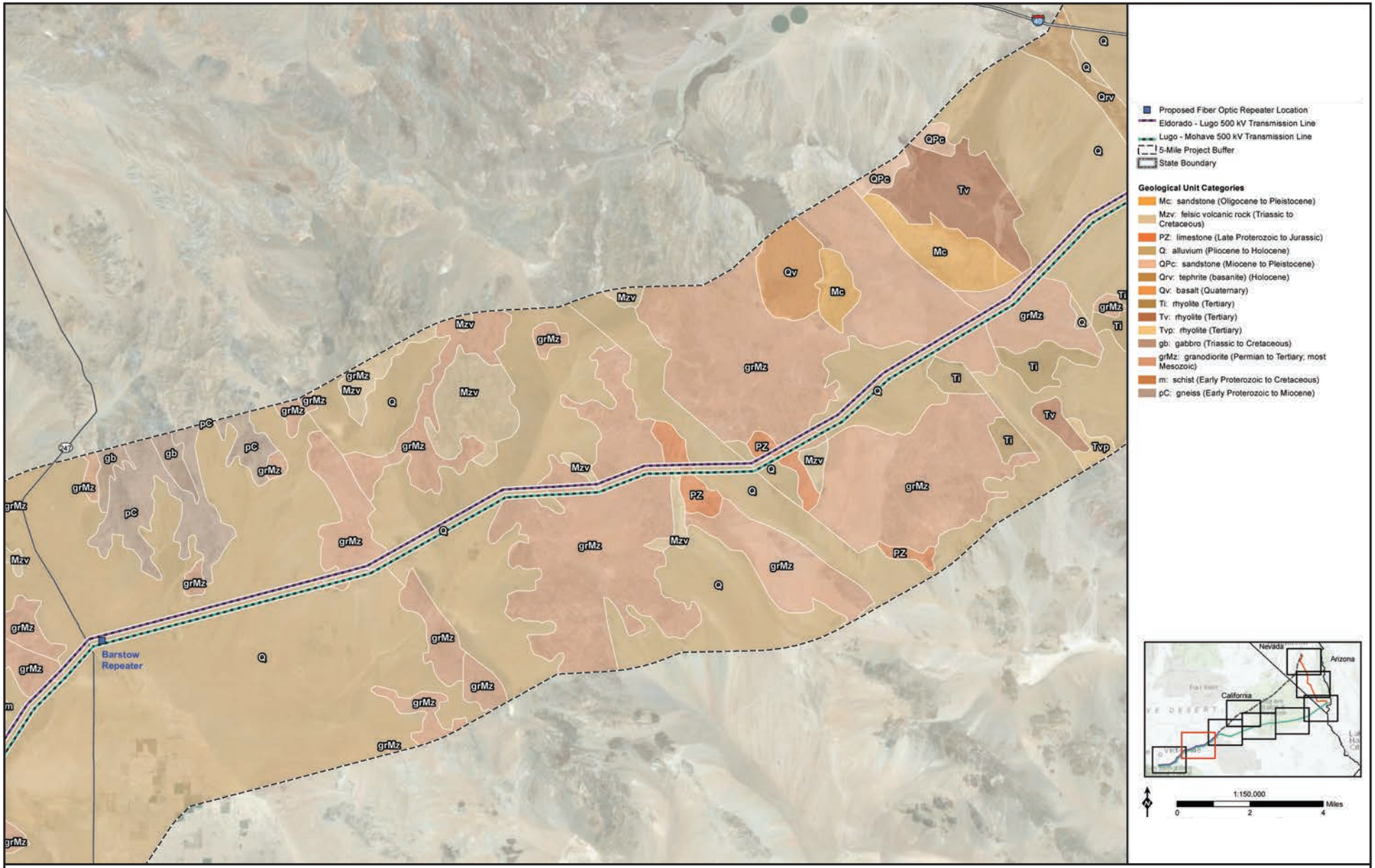


Source: SCE, 2018.

Figure 5.7-1
Geologic Formations in the Proposed Project Area
Map 1 of 9

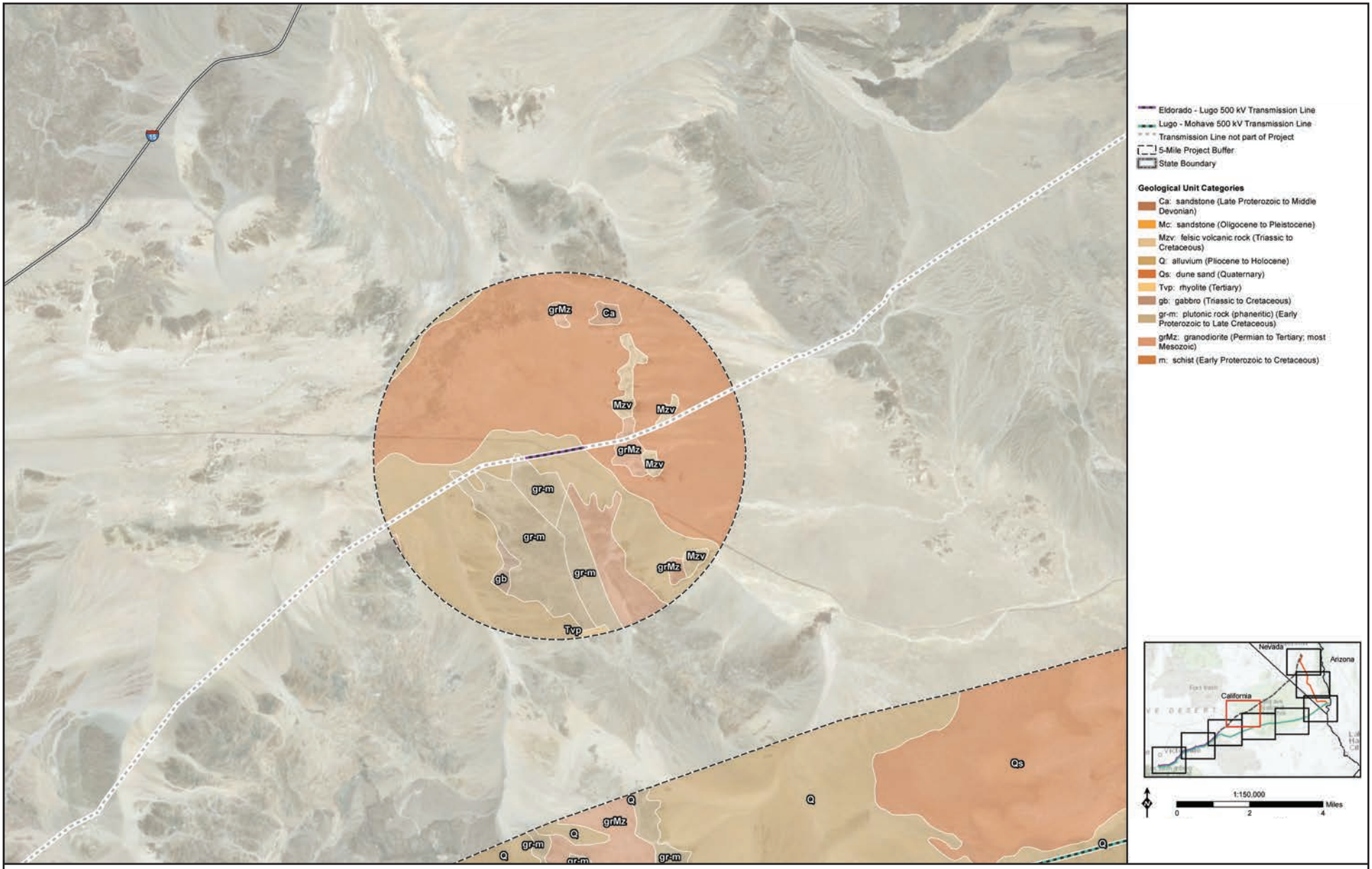


Source: SCE, 2018.

Figure 5.7-1
Geologic Formations in the Proposed Project Area
Map 2 of 9

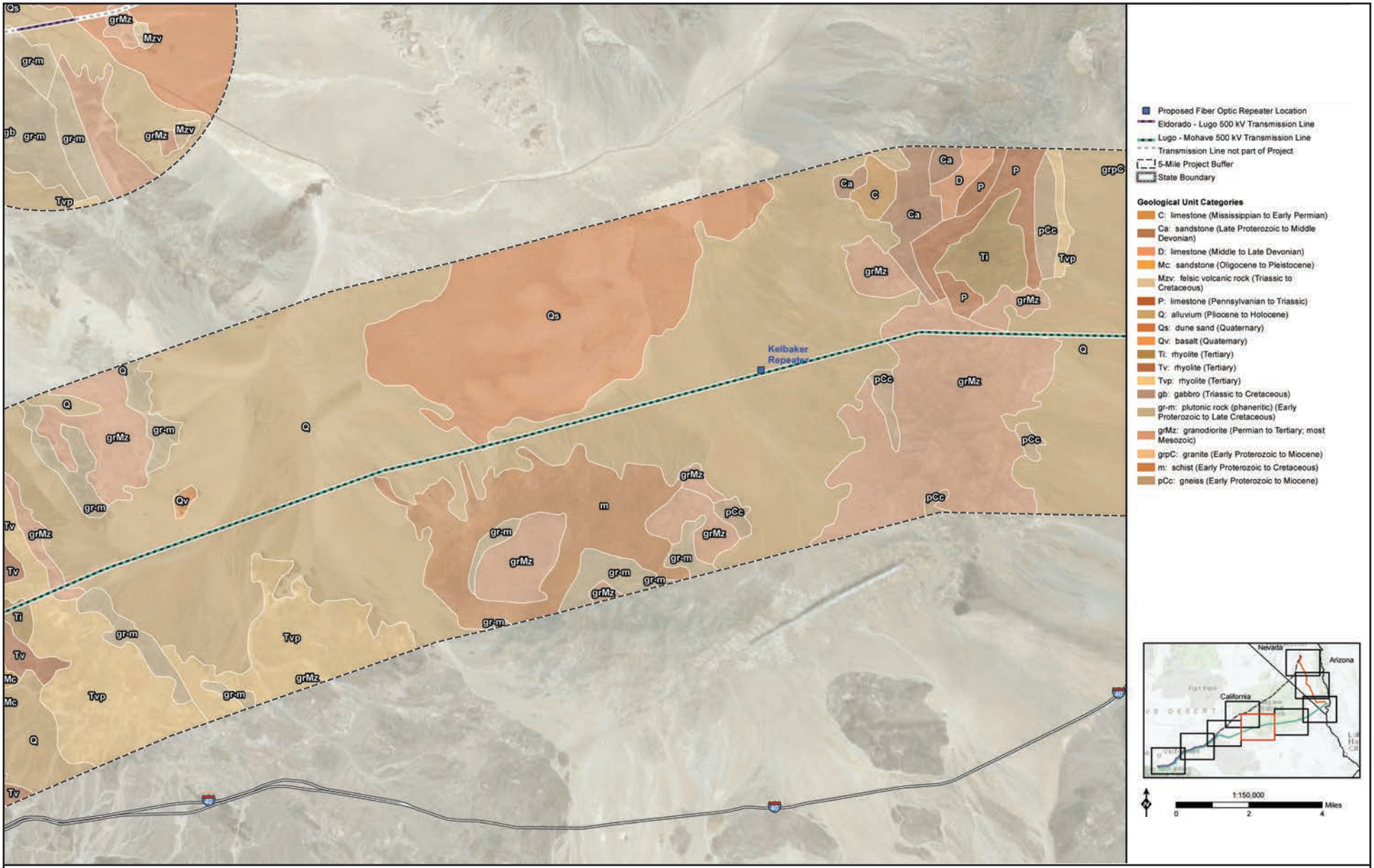
Source: SCE, 2018.

Figure 5.7-1
Geologic Formations in the Proposed Project Area
Map 3 of 9



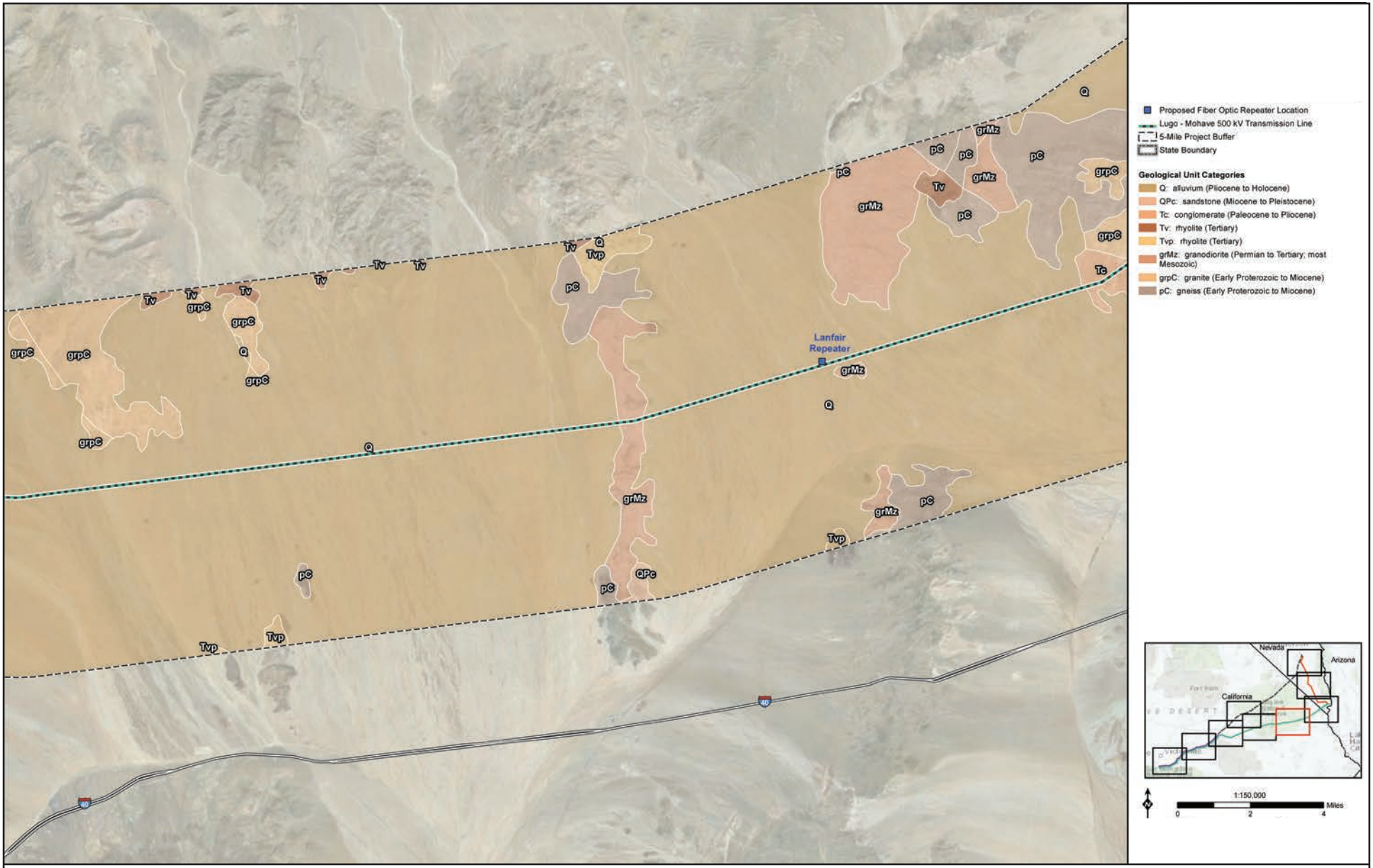
Source: SCE, 2018.

Figure 5.7-1
Geologic Formations in the Proposed Project Area
Map 4 of 9



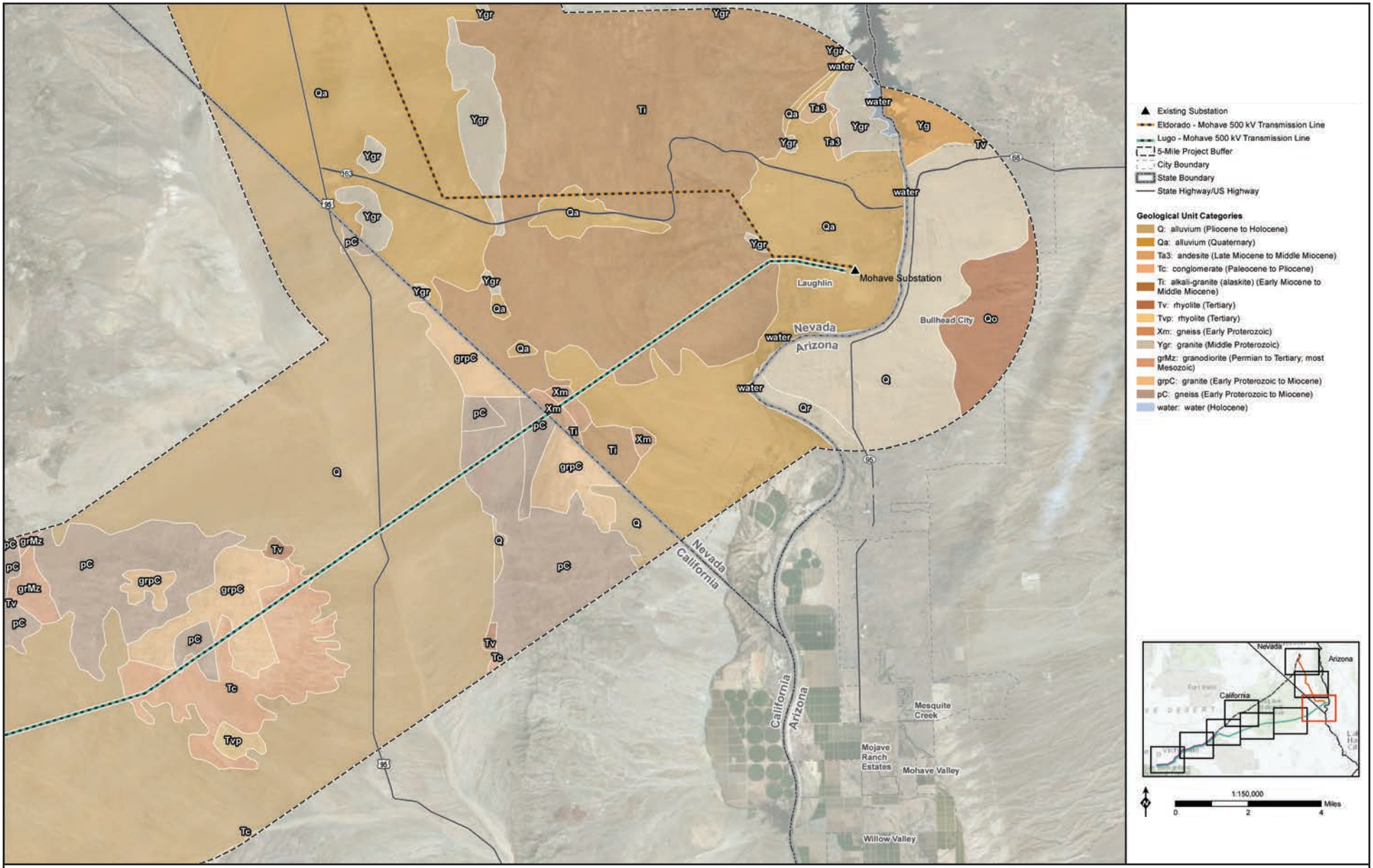
Source: SCE, 2018.

Figure 5.7-1
Geologic Formations in the Proposed Project Area
Map 5 of 9



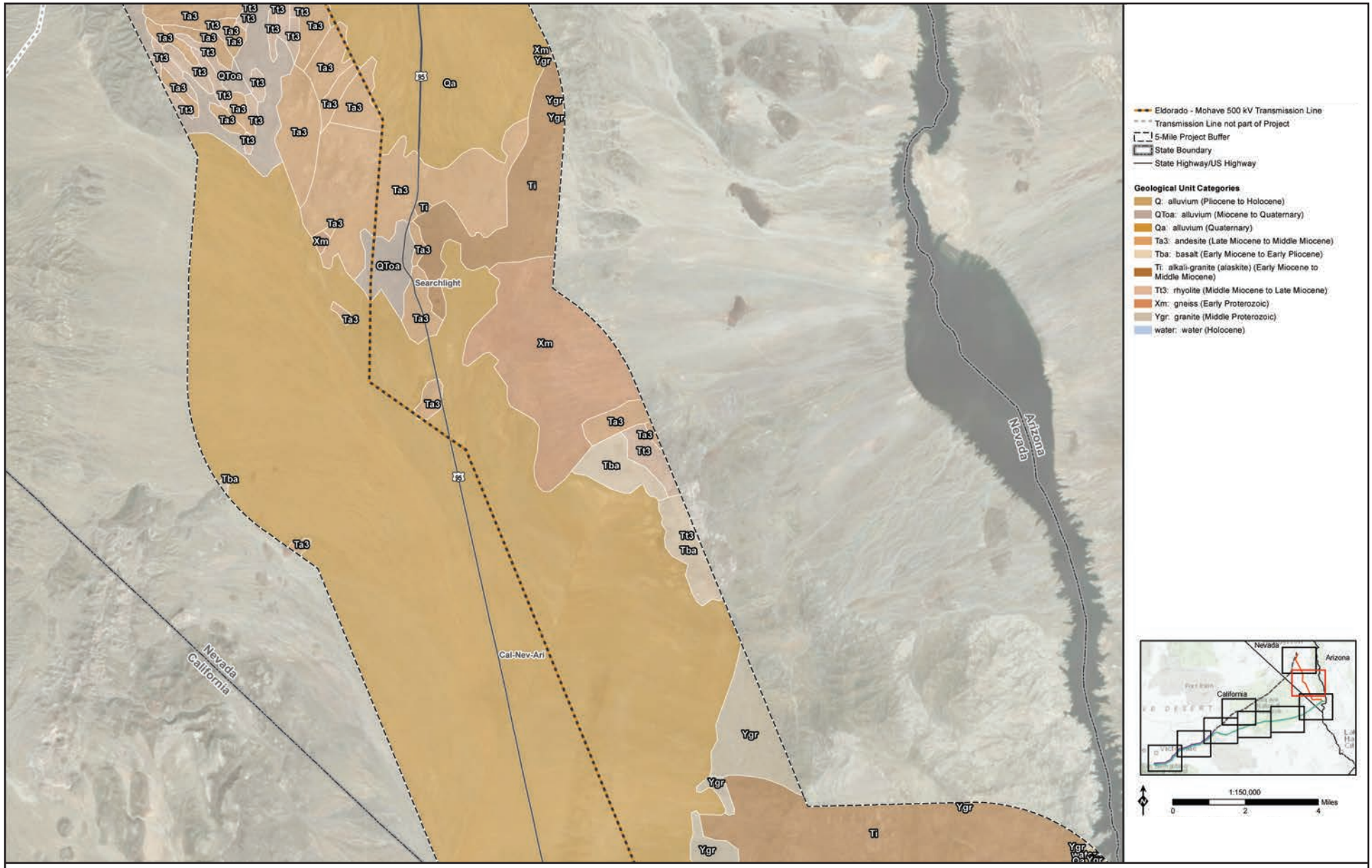
Source: SCE, 2018.

Figure 5.7-1
Geologic Formations in the Proposed Project Area
Map 6 of 9



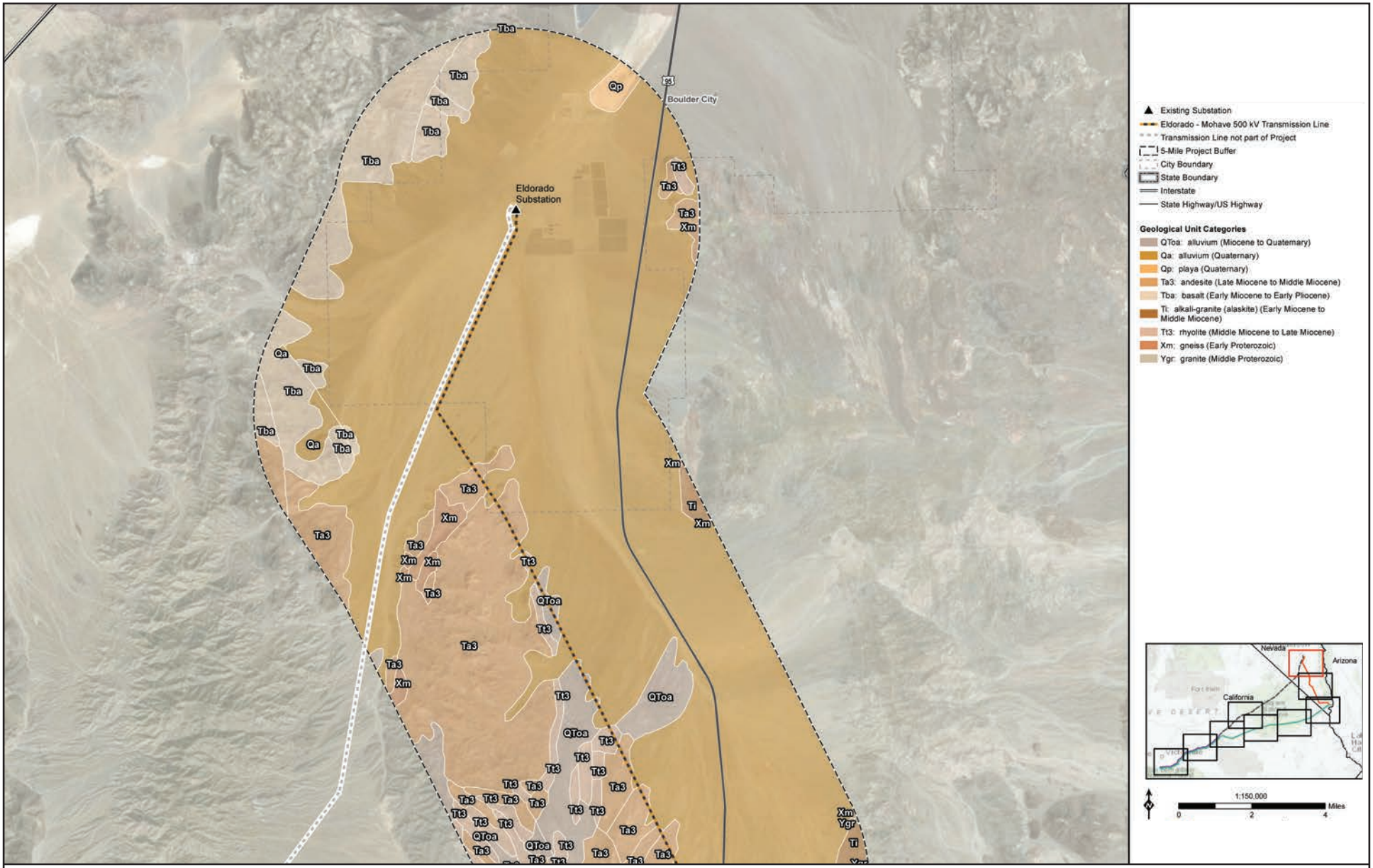
Source: SCE, 2018.

Figure 5.7-1
Geologic Formations in the Proposed Project Area
Map 7 of 9



Source: SCE, 2018.

Figure 5.7-1
Geologic Formations in the Proposed Project Area
Map 8 of 9



Source: SCE, 2018.

Figure 5.7-1
Geologic Formations in the Proposed Project Area
Map 9 of 9

Source: SCE, 2018.

Figure 5.7-2
Active and Potentially Active Faults in the Proposed Project Area

5.8 Greenhouse Gas Emissions

GREENHOUSE GAS EMISSIONS Would the project:	Potentially Significant Impact	Less Than Significant 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?	☐	☐	☒	☐

Significance criteria established by CEQA Guidelines, Appendix G.

5.8.1 Environmental Setting

Physical Setting. The global climate depends on the presence of naturally occurring greenhouse gases (GHG) to provide what is commonly known as the "greenhouse effect" that allows heat radiated from the Earth's surface to warm the atmosphere. The greenhouse effect is driven mainly by water vapor, aerosols, carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), and other constituents. Globally, the presence of GHG affects temperatures, precipitation, sea levels, ocean currents, wind patterns, and storm activity.

Human activity directly contributes to emissions of six primary anthropogenic GHGs: CO_2, CH_4, N_2O, hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6). The standard definition of anthropogenic GHG includes these six substances under the 1997 Kyoto Protocol (UNFCCC, 1998). The most important and widely occurring anthropogenic GHG is CO_2, primarily from the use of fossil fuels as a source of energy.

Effects of GHG Emissions. Changing temperatures, precipitation, sea levels, ocean currents, wind patterns and storm activity provide indicators and evidence of the effects of climate change. From 1950 onward, relatively comprehensive data sets of observations are available. Research by California's Office of Environmental Health Hazard Assessment (OEHHA) documents climate change indicators by categorizing the effects as: changes in California's climate; impacts to physical systems including oceans, lakes, rivers, and snowpack; and impacts to biological systems including humans, vegetation and wildlife. The primary observed changes in California's climate include increased annual average air temperatures, more-frequent extremely hot days and nights, and increasingly severity of drought. Impacts to physical systems affected by warming temperatures and changing precipitation patterns show decreasing snowmelt runoff, shrinking glaciers, and rising sea levels. Impacts to terrestrial, marine, and freshwater biological systems, with resulting changes in habitat, agriculture, and food supply are occurring in conjunction with the potential to impact human well-being (OEHHA, 2018).

California GHG Emissions Trends. California first formalized a strategy to achieve GHG reductions in 2008, when California produced approximately 483 million metric tons of CO_2 equivalent (MMTCO2e) according to the official Air Resources Board inventory (ARB, 2018). The State's economy-wide emissions have been declining in recent years, and California emitted approximately 429 MMTCO2e in 2016 (ARB, 2018). Globally, anthropogenic GHG emissions have increased by roughly 80 percent, from around 27,000 to 49,000 MMTCO2e per year between 1970 and 2010 (IPCC, 2014). However, in this global context, California emits less than 1 percent of the global anthropogenic GHG.

5.8.2 Regulatory Background

State and Local

California

California Global Warming Solutions Act of 2006 [Assembly Bill 32 (AB 32)]. The California Global Warming Solutions Act of 2006 (AB 32) required that California's GHG emissions be reduced to 1990 levels by 2020. The reduction is being accomplished through an enforceable statewide cap on global warming emissions beginning in 2012. AB 32 directs the ARB to develop regulations and a mandatory reporting system to track and monitor global warming emissions levels (AB 32, Chapter 488, Statutes of 2006). The ARB Climate Change Scoping Plan, initially approved December 2008 (ARB, 2008) and most recently updated by ARB in December 2017, provides the framework for achieving California's goals (ARB, 2017).

In passing AB 32, the California Legislature found that:

> *Global warming poses a serious threat to the economic well-being, public health, natural resources, and the environment of California. The potential adverse impacts of global warming include the exacerbation of air quality problems, a reduction in the quality and supply of water to the state from the Sierra snowpack, a rise in sea levels resulting in the displacement of thousands of coastal businesses and residences, damage to marine ecosystems and the natural environment, and an increase in the incidences of infectious diseases, asthma, and other human health-related problems.*

Other major Executive Orders, legislation, and regulations adopted for the purpose of reducing GHG emissions support the implementation of AB 32 and California's climate goals, as described below.

California Governor's Executive Orders on GHG Emissions. In September 2018, Executive Order B-55-18 established a new statewide goal to achieve carbon neutrality as soon as possible, and no later than 2045, and achieve and maintain net negative emissions thereafter. The ARB was directed to develop the framework for implementing the goal of carbon neutrality. Executive Order B-30-15 (April 2015) established a California GHG reduction target of 40 percent below 1990 levels by 2030. One purpose of this interim target is to ensure California meets its target of reducing greenhouse gas emissions to 80 percent below 1990 levels by 2050 (Executive Order S-3-05, June 2005). This executive order also specifically addresses the need for climate adaptation and directs state agencies to update the California Climate Adaptation Strategy to identify how climate change will affect California infrastructure and industry and what actions the state can take to reduce the risks posed by climate change. Senate Bill 32 (SB 32) of 2016 codified this GHG emissions target to 40 percent below the 1990 level by 2030.

California Renewables Portfolio Standard (RPS) Program. Electric utilities in California must procure a minimum quantity of the sales from eligible renewable energy resources as specified by RPS requirements. The Clean Energy and Pollution Reduction Act of 2015 [Senate Bill 350 (SB 350)] established California's state policy objectives on long-term energy planning and procurement as signed into law on October 7, 2015. The 100 Percent Clean Energy Act of 2018 [Senate Bill 100 (SB 100)] revised the RPS targets to establish the policy that eligible renewable energy resources and zero-carbon resources supply 100 percent of retail sales of electricity to California end-use customers and 100 percent of electricity procured to serve all state agencies by December 31, 2045. With SB 350 and SB 100, California's objectives include:

- *To set the Renewable Portfolio Standard (RPS) for the procurement of California's electricity from renewable sources at 33 percent by 2020, 50 percent by 2026, and 60 percent by 2030;*
- *To plan for 100 percent of total retail sales of electricity in California to come from eligible renewable energy resources and zero-carbon resources by December 31, 2045; and*
- *To double the energy efficiency savings in electricity and natural gas end uses by retail customers by 2030.*

Cap-and-Trade Program (17 CCR 95801 to 96022). The California Cap on Greenhouse Gas Emissions and Market-Based Compliance Mechanisms Regulation (Cap-and-Trade Program) was initially approved by ARB in 2011. The Cap-and-Trade Program applies to covered entities that fall within certain source categories, including petroleum refiners and suppliers of transportation fuels, and is triggered when facility emissions exceed 25,000 metric tons of CO_2 equivalent (MTCO2e) in a year. The covered entities must hold compliance instruments sufficient to cover the actual GHG emissions, as evidenced through the ARB's Mandatory Reporting Regulation requirements. This means that transportation fuel suppliers bear the GHG compliance obligation in the Cap-and-Trade Program for the GHG emissions from motor vehicle and off-road equipment fuels used by construction workforces and crews.

Emission Reductions of SF_6 from Gas Insulated Switchgear (17 CCR 95350 to 95359). In 2010, ARB adopted a regulation for reducing or phasing-out SF_6 emissions from electric power system gas insulated switchgear. The regulation requires owners of such switchgear to: (1) annually report their SF_6 emissions; (2) determine the emission rate relative to the SF_6 capacity of the switchgear; (3) provide a complete inventory of all gas insulated switchgear and their SF_6 capacities; (4) produce a SF_6 gas container inventory; and (5) keep all information current for ARB enforcement staff inspection and verification.

Nevada

Nevada Revised Statutes (NRS). The Nevada Bureau of Air Quality Planning (BAQP) prepares the statewide GHG inventory and projections reports that are required by NRS Section 445B.380. Under this rule, every four years the BAQP releases the GHG emissions data quantifying Nevada's emissions characteristics to facilitate informed policy decisions in addressing global climate change. No other GHG requirements appear in the NRS.

Local

The CPUC has sole and exclusive jurisdiction over the siting and design of the Proposed Project components located in the State of California. Pursuant to CPUC G.O. 131-D, Section XIV.B, "Local jurisdictions acting pursuant to local authority are preempted from regulating electric power line projects, distribution lines, substations, or electric facilities constructed by public utilities subject to the CPUC's jurisdiction. However, in locating such projects, the public utilities shall consult with local agencies regarding land use matters." Consequently, public utilities are directed to consider local regulations and consult with local agencies, but the county and cities' regulations are not applicable as the county and cities do not have jurisdiction over the Proposed Project. However, for Greenhouse Gas Emissions, local plans help implement state goals and are, therefore, considered. The Proposed Project is subject to local regulations in the State of Nevada.

San Bernardino County, San Bernardino County Regional Greenhouse Gas Reduction Plan. San Bernardino County adopted a Regional GHG Reduction Plan in September 2011, which identified statewide, San Bernardino County, and local community measures to reduce GHG from new development by 2020. These measures target all sectors but are primarily targeted at reducing GHG caused by solid waste

landfills and from the building, energy and transportation sectors (San Bernardino County, 2011). The County's development review procedures include a review standard of 3,000 MTCO2e per year for identifying actions that require project-specific technical analysis for GHG. This analysis allows comparison of GHG emissions with the standard, although the Proposed Project would not be subject to the County's development review process.

Federal

Presidential Executive Order 13783. Presidential Executive Order 13783 on Promoting Energy Independence and Economic Growth, dated March 28, 2017, revoked the preceding Executive Order 13653 (Preparing the United States for the Impacts of Climate Change), dated November 1, 2013. The 2017 Order also rescinded the President's Climate Action Plan from June 2013 and the Climate Action Plan Strategy to Reduce Methane Emissions from March 2014. Further, the Order directs the Council on Environmental Quality to rescind its final guidance entitled "Final Guidance for Federal Departments and Agencies on Consideration of Greenhouse Gas Emissions and the Effects of Climate Change in National Environmental Policy Act Reviews," which is referred to in "Notice of Availability," 81 Fed. Reg. 51866 (August 5, 2016). As soon as practicable, each agency is to suspend, revise, or rescind, or publish for notice and comment proposed rules suspending, revising, or rescinding any such actions, consistent with existing law and the policies of Order 13783.

5.8.3 Applicant Proposed Measures

The Proposed Project does not include any APMs related to Greenhouse Gas Emissions.

5.8.4 CEQA Significance Criteria

Appendix G of the CEQA Guidelines (14 CCR 15000 et seq.) provides guidance on assessing whether a project would have significant impacts on the environment. Consistent with Appendix G, the Proposed Project would have significant greenhouse gas emissions impacts if it would:

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

5.8.5 Methodology

All construction- and operation-related emissions are quantified based on the best available forecast of activities. For each of the activities of the Project Description, the Applicant (SCE, 2018) developed emissions estimates within a database that draws emissions factors from the California Emissions Estimator Model (CalEEMod; version 2016.3.2) software developed by the California Air Pollution Control Officers Association (CAPCOA). The emission factors were drawn from the most recent version of the CalEEMod software, which relies upon mobile source emission factors from the Air Resources Board (ARB) OFFROAD inventory and EMFAC2014 models. The activity assumptions, emission factors, and resulting quantities of emissions appear in Appendix C: Air Quality/GHG Data Tables.

The quantities of direct and indirect GHG emissions are compared against the CEQA threshold of significance for GHG emissions recommended by the California local air quality management district (AQMD). The Mojave Desert AQMD recommends that CEQA lead agencies should determine the significance of GHG emissions by evaluating whether the direct and indirect GHG emissions generated by a project

exceed 100,000 tons or 90,719 metric tons (MT) of CO2e per year, or 548,000 pounds per day (lb/day), although the daily value would not apply to the Proposed Project because the construction phase would extend for more than one year (MDAQMD, 2016).

5.8.6 Project Impacts and Mitigation Measures

a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

Construction

LESS THAN SIGNIFICANT. The activities associated with the Proposed Project include mobilizing construction equipment, crews, and materials, and would require use of motor vehicles and off-road equipment during all construction activities and clean-up. These activities would cause GHG emissions due to fuels used by the construction vehicles and off-road equipment. The different sources include helicopters, diesel-powered off-road equipment, and gasoline-powered construction vehicles and equipment including trucks and autos for moving crews, equipment, materials, and water and for fuel delivery. Equipment and motor vehicles would directly emit CO_2, CH_4, and N_2O due to fuel use and combustion. Motor vehicle fuel combustion emissions in terms of CO2e are approximately 95 percent CO_2, with CH_4 and N_2O emissions occurring at rates of less than 1 percent of the mass of combustion CO_2 emissions.

As shown in Table 5.8-1 below, the resulting one-time quantity of GHG emitted during construction of the project would be a total of 13,520 MTCO2e, estimated to occur over approximately 15 months, spanning two calendar years. Emissions were calculated by the Applicant using emission factors from the California Emissions Estimator Model (CalEEMod; v.2016.3.2). Additional details appear in Appendix C: Air Quality/GHG Data Tables. These emissions would cease at the conclusion of construction. These one-time project-level construction-phase emissions would not exceed the MDAQMD threshold level of GHG emissions (90,719 MTCO2e per year) that could have a significant impact on the environment.

Operation and Maintenance

LESS THAN SIGNIFICANT. Upon completion of construction, operations and maintenance activities to support the project would not result in a notable incremental increase in GHG emissions. Routine O&M would involve occasional additional worker-vehicle trips that would consume diesel fuel and gasoline. The Proposed Project would also install emergency-use, standby generators that would consume small volumes of propane. Use of these fuels would be necessary for normal O&M activities including periodic inspections, equipment testing, and propane fuel deliveries. No new full-time staffing or induced population growth would occur, because no new crews would be added by the project and maintenance would be incorporated with existing maintenance programs.

Minor new stationary sources of GHG added by the Proposed Project would include new equipment within the existing substations, mid-line series capacitor sites, and fiber optic repeater sites. The mid-line series capacitor sites and fiber optic repeater sites would include new emergency-use standby generators fired on propane. Routine use of the propane-powered engines during occasional non-emergency testing of the standby generators would emit small amounts of GHG. Switches and other equipment proposed for installation at existing substations and the proposed Newberry Springs Series Capacitor and Ludlow Series Capacitor would include gas-insulated switchgear containing SF_6, a potent GHG, which could leak over the life of the project. Emissions of SF_6 are quantified (in terms of CO2e) with other project sources in Table 5.8-1.

Table 5.8-1. Proposed Project GHG Emissions

Sources	One-Time During Construction (CO_2 ton)	One-Time During Construction (CH_4 ton)	One-Time During Construction (MTCO2e)	Proposed Project Total (MTCO2e/year)
Helicopters	6,223	0.2	5,650	—
Off-Road Equipment	4,968	1.5	4,541	—
On-Road Motor Vehicles	3,668	0.1	3,329	—
Total, Duration of Construction	**14,858**	**1.8**	**13,520**	—
Construction, 30-year Amortized	—	—	—	451
Operation and Maintenance (Testing of Standby Generators)	—	—	—	4
Circuit Breakers (SF_6 Leaks, in CO2e)	—	—	—	989
Total, Proposed Project	—	—	—	**1,444**
Threshold of Significance				**90,719**
Significant?				No

Source: Appendix C (SCE, 2018; Responses to Data Requests).

Installation of the Proposed Project would also result in a small amount of total permanent ground disturbance (approximately 7.0 acres) that would eliminate a minor unquantified amount of natural sequestration of carbon. Soil and vegetation act as a sink by removing CO_2 from the atmosphere. To consider the overall effect of construction GHG emissions over the life of the facilities along with the effect of operation and maintenance, the quantity of construction GHG can be amortized by averaging over a 30-year life for the Proposed Project. The resultant total quantities of GHG generated by the Proposed Project would not have a significant impact on the environment because the MDAQMD threshold level (90,719 MTCO2e per year) would not be exceeded, and the impact associated with the GHG emissions would be less than significant.

Mitigation Measures

No mitigation is required.

b. Conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases?

LESS THAN SIGNIFICANT. The Proposed Project, including the direct and indirect emissions of construction plus operation and maintenance, would improve California's ability to supply renewable energy to end-use customers and to achieve statewide renewable energy goals. Interconnected renewable resources would serve the needs of California's customers and would facilitate compliance with the Renewables Portfolio Standard (RPS), as set forth by SB 350 and SB 100. The sources of GHG emissions associated with the project activities would not conflict with the California's GHG emissions reduction targets, as set forth within the Climate Change Scoping Plan under the requirements of California Global Warming Solutions Act (AB 32) and SB 32. The Proposed Project would not be subject to the County's development review process or the review standard in the County Regional GHG Reduction Plan.

The following major policies are listed as "known commitments" within the 2017 Climate Change Scoping Plan (ARB, 2017):

- **Renewables Portfolio Standard and SB 350.** Reducing GHG emissions in the electricity sector through the implementation of the 50 percent RPS and doubling of energy savings (SB 350).
- **Low Carbon Fuel Standard.** Transition to less-polluting transportation fuels that have a lower carbon footprint.
- **Mobile Source Strategy.** Reduce GHG and other pollutants from the transportation sector through transition to zero-emission and low-emission vehicles, cleaner transit systems and reduction of vehicle miles traveled.
- **Cap-and-Trade Program.** Implement the post-2020 program to reduce GHG from large sources, such as transportation fuel suppliers, through declining caps to ensure the State's 2030 target is achieved.

Project activities related to both construction and operation would emit GHG mostly through the use of transportation fuels that are within the policies of the Climate Change Scoping Plan. The majority of emissions would be from mobile sources, the off-road equipment and on-road motor vehicles, that are not directly subject to GHG controls but would be users of transportation fuels from refiners and suppliers that are required to comply with Air Resources Board (ARB) Cap-and-Trade and Low Carbon Fuel Standard regulations to reduce GHG emissions. Helicopters would use aviation fuels that are exempt from the Low Carbon Fuel Standard. Stationary source emissions of SF_6 would be subject to and required to comply with the ARB regulation for GHG from gas insulated switchgear (17 CCR 95350 to 95359). No regulations or requirements apply to GHG emissions from project activities in Nevada. To the extent that construction and operation of the Proposed Project could facilitate delivery of energy from renewable resources (solar power plants), the transmission facilities could facilitate a reduction in GHG emissions of California's electricity supply, which would contribute to RPS compliance and to meeting the State's GHG reduction goals under AB 32 and subsequent targets for 2030 and beyond. The Proposed Project would not conflict with any applicable GHG management plan, policy, or regulation. This impact would be less than significant, and no mitigation is required.

Mitigation Measures

No mitigation is required.

5.8.7 References

ARB (Air Resources Board). 2018. *California Greenhouse Gas Inventory for 2000-2016* — by Category as Defined in the 2008 Scoping Plan. Updated: June 22, 2018.

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MDQAMD (Mojave Desert Air Quality Management District). 2016. California Environmental Quality Act (CEQA) and Federal Conformity Guidelines. August.

OEHHA (Office of Environmental Health Hazard Assessment, California Environmental Protection Agency). 2018. *Indicators of Climate Change in California*. May.

San Bernardino County. 2011. Greenhouse Gas Emissions Reduction Plan. September.

SCE (Southern California Edison). 2018. Eldorado-Lugo-Mohave Series Capacitor Project: Proponent's Environmental Assessment (PEA). Volumes 1 through 8. April.

UNFCCC (United Nations Framework Convention on Climate Change). 1998. Text of the Kyoto Protocol. https://unfccc.int/kyoto-protocol-html-version. Accessed November 5, 2018.

5.9 Hazards and Hazardous Materials

HAZARDS AND HAZARDOUS MATERIALS Would the project:	Potentially Significant Impact	Less Than Significant 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?	☐	☐	☐	☒
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 2 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, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	☐	☒	☐	☐

Significance criteria established by CEQA Guidelines, Appendix G.

5.9.1 Environmental Setting

Environmental hazards include accidental spills of hazardous materials, the presence of existing subsurface contamination, the risk of wildfire, and aircraft safety. Hazardous materials include fuel, oil, and lubricants. If encountered, contaminated soil can pose a health and safety threat to workers or the public. The following discussion addresses existing environmental conditions in the affected area, identifies and analyzes environmental impacts, and recommends measures to reduce or avoid adverse impacts anticipated from project construction. In addition, existing laws and regulations relevant to public health and safety are described. In some cases, compliance with these existing laws and regulations would serve to reduce or avoid certain impacts that might otherwise occur with the implementation of the Proposed Project.

The area of influence for hazards associated with releases of hazardous materials (e.g., spills and leaks); past soil and groundwater contamination; and hazards associated with potential for exposure of workers or the public to unsafe situations, would include the project work areas, adjacent land areas, and roadways adjacent to and in the vicinity of the Proposed Project.

Land Use

The Proposed Project is located in San Bernardino County, California and Clark County, Nevada, within the Mojave Desert. The Proposed Project primarily traverses federal lands under the jurisdiction of BLM and NPS, with a minor amount of DoD; other lands traversed by the Project include State, County, and private land.

Existing and past land use activities are commonly used as indicators of sites or areas with potential for hazardous material storage and use or potential environmental contamination. For example, many current and historic industrial and defense sites have soil or groundwater contamination by hazardous substances. Other hazardous materials sources include leaking underground tanks in commercial and rural areas, contaminated surface runoff from polluted sites and agricultural land, and contaminated groundwater plumes that may exist along the transmission line routes.

The Proposed Project would modify two existing transmission lines that extend northeast from Lugo Substation in Hesperia, California, to Eldorado Substation in Boulder City, Nevada, and to Mohave Substation in Clark County, Nevada, and one that extends from Mohave Substation northwest to Eldorado Substation. The Project alignments traverses predominantly undeveloped desert along most of the Project alignment through California and Nevada, with low-density rural residential areas near the alignments in Hesperia and Lucerne Valley, California, and Searchlight, Nevada. A small pocket of high density residential development is located immediately south of the alignments in Laughlin, Nevada. The Proposed Project does not traverse commercial or industrial land use areas.

Hazardous Materials

The Proposed Project would involve limited transport, storage, use, and disposal of hazardous materials during construction. Some examples of hazardous materials handling during construction would include the transport of fuels, lubricating fluids, and solvents associated with construction equipment, as well as the transport of potentially contaminated soils excavated from the Project site. All hazardous materials would be stored, handled, and used in accordance with applicable regulations. Safety Data Sheets would be made available at the construction site for all crew workers (SCE, 2018). Table 5.9-1: Typical Hazardous Materials Used for Construction, provides a list of the hazardous materials that are anticipated to be used during construction of the Proposed Project. Spills and leaks of hazardous materials during construction activities could result in soil or groundwater contamination.

Construction of the Proposed Project would result in generation of various waste materials, including material from existing infrastructure that would be removed as part of the Proposed Project (e.g., conductor, steel, concrete, excess soil, and debris). This material would be temporarily stored in one or more staging yards as the material awaits salvage, recycling, and/or disposal; any material deemed hazardous waste would need to be properly disposed of per State or federal regulations. The existing wood poles removed for the Proposed Project would be returned to a staging yard, and either reused by SCE, disposed of in a Class I hazardous waste landfill, and/or disposed of in the lined portion of a Regional Water Quality Control Board (RWQCB) certified municipal landfill (SCE, 2018).

Table 5.9-1. Typical Hazardous Materials Used for Construction

- ABC fire extinguisher
- Acetylene gas
- Air tool oil
- Ammonium hydroxide
- Battery acid (in vehicles and in substations' meter house)
- Bottled oxygen
- Brake fluid
- Canned spray paint
- Chain lubricant (contains methylene chloride)
- Connector grease (penotox)
- Contact cleaner 2000
- Diesel fuel
- Diesel fuel additive
- Eyeglass cleaner (contains methylene chloride)
- Gasoline
- Gasoline treatment
- Hot stick cleaner (cloth treated with polydimethylsiloxane)
- Hydraulic fluid
- Insulating oil (inhibited, non-PCB)
- Jet A-1 fuel
- Lubricating grease
- Mastic coating
- Methyl alcohol
- Mineral oil
- Motor oils
- Paint thinner
- Propane
- Puncture seal tire inflator
- Safety fuses
- Starter fluid
- Sulfur hexafluoride (within the line breakers in the substations)
- Two-cycle oil (contains distillates and hydro-treated heavy paraffinic)
- WD-40
- ZEP (safety solvent)
- ZIP (1,1,1-trichloroethane)

Source: SCE, 2018, SCE Eldorado-Lugo-Mohave Series Capacitor Project PEA, Table 4.8-2

Environmental Contamination

Ground disturbance during construction would be susceptible to potentially encountering environmental contamination if located in the vicinity of hazardous material or environmentally contaminated sites. SCE conducted a review of regulatory databases compiled by Environmental Data Resources, Inc. (EDR) (SCE, 2018). The EDR database searched federal, State, and local environmental databases for sites that use, store, and/or dispose of hazardous materials and for sites with known environmental contamination within 1-mile either side of the Project alignment. Eleven hazardous sites were identified, including the Eldorado Substation and Lugo Substation sites. These sites are summarized in Table 5.9-2, Hazardous Material Sites within 1 Mile of the Proposed Project.

Two open hazardous materials sites and one closed landfill were identified within 1 mile of where proposed ground disturbance would occur. As noted in Table 5.9-2, the Former Mohave Generating Station Site is adjacent to Mohave Substation and is reported to be in remediation; the extent of the contaminant plume and the existing contaminant levels are unknown, therefore there is the potential that subsurface contaminants may have spread to the vicinity of the Mohave Substation. No other soil or groundwater contamination was identified in the vicinity of the Proposed Project components that require ground disturbance.

Table 5.9-2. Hazardous Material Sites Within 1 Mile of the Proposed Project

Site	Cleanup Status	Description	Databases	Closest Distance to Proposed Project[1]	Nearest Proposed Project Component[1]
Lugo Substation	N/A	Minor release of polychlorinated biphenyls (PCBs) to soil. Following the initial cleanup, no additional corrective action measures or remedial activities were specified. UST listed from 1988 containing regular unleaded gasoline, current status of the UST unspecified. Site stores, and disposes of materials and liquids containing PCBs, waste oil, organic solids, empty containers, and other unspecified waste materials. Site had a fire that occurred at a transformer station on site.	ERNS, SWEEPS UST, CHMIRS, NPDES, RCRA-LQG, and CA HAZNET	0 miles	Lugo Substation
SCE/Unnamed Site, 33261 Haynes Road	Closed landfill	Site is upgradient. Landfill or surface impoundment that was closed as a landfill. Site also listed as a former clandestine drug lab operation. No clean actions required; however, subsurface materials associated with the former landfill may be located in the vicinity of the Proposed Project.	CA HAZNET (multiple times) and CHMIRS	0.1 miles	Lugo-Mohave 500 kV Transmission Line, Barstow fiber optic repeater site
Ford Cady Borate – Pilot Project	N/A	Site is downgradient. No releases reported. Borate solution mine, boric acid recovered form acid injection wells. Ongoing groundwater monitoring conducted as part of RWQCB requirements (SWRCB, 2018).	LDS/WDS	1 mile	Lugo-Mohave 500 kV Transmission Line, Tower M64-T2

Table 5.9-2. Hazardous Material Sites Within 1 Mile of the Proposed Project

Site	Cleanup Status	Description	Databases	Closest Distance to Proposed Project[1]	Nearest Proposed Project Component[1]
BLM Communication Site	N/A	Site is upgradient. No releases reported. One permanently out-of-use UST on-site.	SWEEPS UST	Adjacent	Eldorado-Mohave 500 kV Transmission Line
Laughlin High School	N/A	Site is upgradient. No releases reported. One active UST on site.	SWEEPS UST	0.7 miles	Eldorado-Mohave 500 kV Transmission Line
Mobil Gas Station and Convenience Store	N/A	Site is downgradient. No releases reported. Two active USTs on site.	SWEEPS UST	0.7 miles	Lugo-Mohave 500 kV Transmission Line
Laughlin Water Reclamation Facility/Waste-water Treatment Plant	Active water reclamation facility, waste-water treatment plant	Site is downgradient. No releases reported. Two permanently out-of-use USTs were previously reported on site. The current status of each UST is unknown. One UST reported by NDEH.	SWEEPS UST	0.4 miles	Underground Mohave Conduit and telecom-munication cable
Former Mohave Generating Station	Open – In remediation	Site is upgradient. Soil and ground-water contaminated with volatile organic compounds, petroleum hydrocarbons, metals, oils, and other unspecified contaminants.	NV UST, NV LUST, and CERCLIS-NFRAP	Adjacent	Mohave Substation
Casino Drive Lift Station #24	Open; however, no longer included on the NDEH open LUST sites list	Site is upgradient. Soil and ground-water contaminated with diesel.	NV LUST	0.9 miles	Mohave Substation
Laughlin Landfill	N/A	Site is downgradient. No releases reported.	NV SHWS and SWF/LF	0.8 miles	Eldorado-Mohave 500 kV Transmission Line
Eldorado Substation	N/A	Storage, bulking, and/or off-site transfer of asbestos containing waste, organic solids, and other unspecified waste materials	CA HAZNET and RCRA-SQG	Proposed project component	Eldorado Substation

Sources: Modified from SCE, 2018, SCE Eldorado-Lugo-Mohave Series Capacitor Project PEA, Table 4.8-1; and NDEP, 2018a, Site Cleanup Database, open cases report.

N/A – Not Applicable

1 - Distances were measured from each hazardous site to the closest Proposed Project component requiring ground disturbance.

Formerly Used Defense Sites

Numerous Formerly Used Defense Sites (FUDS) are located in the Mojave Desert area. Military munitions and explosives of concern (MEC), and principally unexploded ordnance (UXO), are known or suspected to be at or in the vicinity of former military sites in the Mojave Desert. Many of these sites are former bombing range sites and are known or suspected to contain munitions and explosives of concern (e.g., unexploded ordnance), and therefore may present an explosive hazard. These types of sites may also have heavy metal contamination due to the former use of munitions. Four former World War II–era practice bombing ranges occur in the Project area, as summarized in Table 5.9-3, FUDS Sites in the Vicinity of the Proposed Project. The U.S. Army Corps of Engineers manages and directs the FUDS program administration; environmental cleanup at FUDS properties is conducted in accordance with the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA).

Table 5.9-3. FUDS Sites in the Vicinity of the Proposed Project

FUDS Site Name	FUDS Site Description	Proximity to Proposed Project[1]	Nearest Proposed Project Workspace
Goffs Campsite	Goffs Campsite, approximately 426 acres, consists of a railhead, ammunition storage area, and campsite, all located in an undeveloped region of San Bernardino County, California, approximately 35 miles west of Needles. Used for Desert training in WWII.	0.4 miles	Goffs Yard
Victorville Precision Bombing Range (PBR) No. 6	Victorville PBR No. 6, approximately 1,490 acres, includes target zones and buffer areas located in an undeveloped region of San Bernardino County, California, approximately 16 miles east of Victorville. Military munitions and explosives of concern (e.g., unexploded ordnance) are known or suspected to be present at this location. Used by the Army Air Corps as a practice bombing range during WWII.	0.8 miles	Guard Structure
Victorville PBR No. 7	Victorville PBR No. 7, approximately 640 acres, includes a former bombing range in an undeveloped region of San Bernardino County, California, approximately 24 miles east of Victorville. Military munitions and explosives of concern (e.g., unexploded ordnance) are known or suspected to be present at this location. Used as a practice bombing range during WWII.	1.3 miles	LST M33-T1 and Landing Zone 44
Daggett Army Airfield	Daggett Army Air Field, approximately 1,100 acres, includes an airfield, lubricating oil storage and distribution facilities, and associated support buildings. It is currently owned and operated by the County of San Bernardino's Public Works Group and is located in San Bernardino County, approximately 11 miles southeast of Barstow and 4 miles southeast of Daggett.	1.5 miles	Coolwater Yard

Source: SCE, 2018, SCE Eldorado-Lugo-Mohave Series Capacitor Project Response to Comments, Question 73
1 - Distances were measured from each FUDS site to the closest Proposed Project component requiring ground disturbance.

Schools

There are no schools located within 0.25 miles of the Proposed Project. Three schools (one in California and two in Clark County, Nevada) are located within 1-mile of the transmission lines associated with the Proposed Project. The schools and their approximate distance from the Proposed Project and components are:

- Krystal School of Science, Math & Technology, 17160 Krystal Drive, Hesperia – located approximately 1 mile north of the Lugo-Mohave and Eldorado-Lugo 500 kV Transmission Lines.
- William G. Bennet Elementary School, 2750 S. Needles Highway, Laughlin – located approximately 0.50 miles south of the Lugo-Mohave and Eldorado-Mohave 500 kV Transmission Lines and the proposed underground conduit and telecommunication cable in Bruce Woodbury Drive.
- Laughlin Junior/Senior High School, 1900 Cougar Drive, Laughlin – located approximately 0.55 miles north of the proposed underground conduit and telecommunication cable and 0.75 miles north of the Lugo-Mohave and Eldorado-Mohave 500 kV Transmission Lines.

Aviation Hazards

There are four airports and one airstrip within 2 miles of the Proposed Project. The four public airports are: the Hesperia Airpark in Hesperia, California, the Laughlin/Bullhead International Airport in Bullhead City, Arizona, the Kidwell Airport in Cal-Nev-Ari, Nevada, and the Searchlight Airport in Searchlight, Nevada. The southwest edge of the Hesperia Airport runway is approximately 0.9 miles north of the

Lugo-Mohave 500 kV Transmission Line. The runway is oriented in a general northeast/southwest direction and planes would not directly cross the alignment when landing or taking off. Approximately 3,700 feet of the Eldorado-Lugo and Lugo-Mohave Transmission Line alignments are within Safety Zone III for the Comprehensive Land Use Plan for the Hesperia Airport; however, there are no proposed work areas in this location, with the exception of stringing new OPWG line. The Laughlin/Bullhead International Airport is in Bullhead City, Arizona, across the Colorado River approximately 1.9 mile east of the Mohave Substation. It's runway trends north-south; however, as it is east of the Proposed Project planes would not directly cross the Project alignments during landing and takeoff. The Kidwell Airport is approximately 1.5 miles west of the Eldorado-Mohave 500 kV Transmission Line. It has one slightly northwest-southeast trending runway and planes would not directly cross the Project alignment during landing or take off. The Searchlight Airport is approximately 1.7 miles east of the Eldorado-Mohave 500 kV Transmission Line. Its runway is north-south trending and planes would not directly cross the Project alignment during landing and takeoff.

The Ludlow Airstrip is a small private airstrip with one east-west trending runway. It is located east of Crucero Road and north of Interstate 40 at exit 50 in San Bernardino County, California. It is just under 2 miles south of the Lugo-Mohave 500 kV Transmission Line. Planes would not directly cross the Project alignments during landing and takeoff.

Two inactive/closed airstrips, the Dick Taylor Airstrip and the Rabbit Ranch Airstrip, are located 0.2 miles and 0.6 miles from the Proposed Project (SCE, 2018).

Wildland Fire Hazards

In California the Proposed Project passes through areas of undeveloped desert with sparse low scrub brush and grasses and scattered rural residential properties in the City of Hesperia and unincorporated San Bernardino County. Fire services are provided to the City of Hesperia by the City of Hesperia Fire Department; San Bernardino County Fire Department provides services to more than 60 communities/ cities and all unincorporated areas of the county. Federal lands within California are served by a partnership of federal, State, and local firefighting agencies. With this partnership the State is divided into "direct protection areas" where one agency takes the lead in initially attacking fires, drawing on the resources of the others as necessary.

Within California, CAL FIRE is responsible for mapping fire hazard severity zones. Fire hazard severity zone levels range from moderate to very high and are further divided into State, local, and federal responsibility areas. The existing transmission lines and substations associated with the Proposed Project are located within all three responsibility areas. The majority of the Proposed Project is located within the CAL FIRE moderate fire hazard severity zone, with small portions of the Proposed Project near Hesperia and the southern edge of Lucerne Valley mapped as High and Very High (CAL FIRE, 2007a, 2007b, 2007c, and 2007d). (See also Section 5.20, Wildfire, where wildfire is addressed in more detail.)

In Nevada, the Proposed Project traverses undeveloped desert with sparse low scrub and grasses and is adjacent to a high density residential are in Laughlin. Fire services to unincorporated Clark County and the communities of Laughlin, Searchlight, and Cal-Nev-Ari are provided by the Clark County Fire Department, and fire services for Boulder City are provided by the Boulder City Fire Department. BLM Nevada Fire and Aviation is responsible for firefighting, fire prevention, and rehabilitation of public lands in Nevada. BLM Nevada works cooperatively with other federal agencies, Counties, and local Fire Departments to suppress wildland fires throughout the state.

Within Nevada, wildland fire threat is mapped by the Nevada Division of Forestry and is presented on the Nevada Natural Resources and Fire Information Portal (NDF, 2018). Based on this mapping, most of the Proposed Project in Nevada is in very, very low to low fire threat areas, with small pockets of low to moderate fire threat near the community of Searchlight. The Mohave Substation and the immediate area is mapped as ranging from moderate to high fire threat. The fire threat is based on historical fire occurrence, landscape characteristics including surface fuels and canopy fuels, percentile weather derived from historical weather observations and terrain conditions (NDF, 2018).

Emergency Response and Evacuations Plans

Emergency response plans include elements to maintain continuity of government, emergency functions of governmental agencies, mobilization and application of resources, mutual aid, and public information during times of emergency. Emergency response plans are maintained at the federal, State, and local levels for all types of man-made and natural disasters. It is the responsibility of the government to undertake an ongoing comprehensive approach to emergency management to avoid or minimize the effects of hazardous events. Local governments have the primary responsibility for preparedness and response activities.

California

County of San Bernardino. The San Bernardino County Fire Department's OES maintains the San Bernardino County Emergency Operations Plan (EOP), which provides guidance for the county to respond to catastrophic natural, environmental, or conflict-related risks. The EOP implements the standards and principles of the National Incident Management System, the Standardized Emergency Management System, the National Response Framework, and the Incident Command System. In addition, San Bernardino County Fire Department participates in the Mountain Area Safety Taskforce (MAST), which is a coalition of federal, State, and local government agencies, private companies, and volunteer organizations tasked with preventing catastrophic wildfires. The MAST provides emergency planning strategies to the public and issues evacuation route maps for several areas in San Bernardino County. West of Lucerne Valley the existing Lugo-Mohave 500 kV Transmission Line spans State Route (SR-) 18, which is designated as an evacuation route by the MAST (SCE, 2018).

City of Hesperia. The City of Hesperia implements an Emergency Preparedness Program to provide residents and businesses with resources for emergency planning and response. Potential emergency shelters and evacuation routes are provided in the Safety Element of the City of Hesperia General Plan 2010 (SCE, 2018).

Nevada

Clark County. The Clark County Office of Emergency Management (OEM) maintains the Clark County EOP, in which Clark County Public Works (CCPW) acts as the Lead Agency. CCPW provides support in response to emergency situations caused by earthquakes, floods, storms, severe heat, volcanic ash fallout, avalanches, and fires. The Clark County OEM facilitates the coordination between agencies and resources to mitigate, prepare for, and respond to emergencies (SCE, 2018).

City of Boulder City. The City of Boulder City maintains an EOP and city representatives attend emergency management meetings to coordinate with Clark County and other entities in Southern Nevada. The Boulder City EOP is not available for public dissemination (SCE, 2018).

5.9.2 Regulatory Background

Hazardous substances are defined by federal and State regulations that aim to protect public health and the environment. Hazardous materials have certain chemical, physical, or infectious properties that cause them to be considered hazardous. Hazardous substances are defined in the federal Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Section 101(14), and in the California Code of Regulations (CCR), Title 22, Chapter 11, Article 2, Section 66260 et seq.

For purposes of this environmental analysis, soil that is excavated from a site containing hazardous materials would be considered a hazardous waste if it exceeded specific CCR Title 22 criteria or criteria defined in CERCLA or other relevant federal regulations. Remediation (cleanup and safe removal/ disposal) of hazardous wastes found at a site is required if excavation of these materials occurs; it may also be required if certain other activities occur. Even if soils or groundwater at a contaminated site do not have the characteristics required to be defined as hazardous wastes, remediation of the site may be required by regulatory agencies. Cleanup requirements are determined on a case-by-case basis by the agency having lead jurisdiction.

State and Local

State of California

California Environmental Protection Agency. Cal/EPA was created in 1991. It unified California's environmental authority in a single cabinet-level agency, bringing the Air Resources Board (ARB), State Water Resources Control Board (SWRCB), Regional Water Quality Control Boards (RWQCBs), Integrated Waste Management Board (IWMB), Department of Toxic Substance Control (DTSC), Office of Environmental Health Hazard Assessment (OEHHA), and Department of Pesticide Regulation (DPR) under one agency. These agencies were placed within the Cal/EPA "umbrella" for the protection of human health and the environment and to ensure the coordinated deployment of State resources. Their mission is to restore, protect, and enhance the environment, and to ensure public health, environmental quality, and economic vitality.

Department of Toxic Substance Control. DTSC is a department of Cal/EPA and is the primary agency in California that regulates hazardous waste, cleans-up existing contamination and looks for ways to reduce the hazardous waste produced in California. DTSC regulates hazardous waste in California primarily under the authority of RCRA and the California Health and Safety Code. Other laws that affect hazardous waste are specific to handling, storage, transportation, disposal, treatment, reduction, cleanup, and emergency planning. The California Hazardous Waste Control Law (HWCL) is administered and enforced by the DTSC to regulate hazardous wastes. While the HWCL is generally more stringent than RCRA, until the EPA approves the California program, both the State and federal laws apply in California. The HWCL lists 791 chemicals and about 300 common materials that may be hazardous; establishes criteria for identifying, packaging and labeling hazardous wastes; prescribes management controls; establishes permit requirements for treatment, storage, disposal and transportation; and identifies some wastes that cannot be disposed of in landfills.

California Occupational Safety and Health Administration. Cal/OSHA is the primary agency responsible for worker safety in the handling and use of chemicals in the workplace. Cal/OSHA standards are generally more stringent than federal regulations. The employer is required to monitor worker exposure to listed hazardous substances and notify workers of exposure (8 CCR Sections 337-340). The regulations specify requirements for employee training, availability of safety equipment, accident-prevention programs, and hazardous substance exposure warnings.

Porter-Cologne Water Quality Act. This state law provides a comprehensive water quality management system for the protection of California waters. The act designates the SWRCB as the ultimate authority over State water rights and water quality policy, and also established nine RWQCBs to oversee water quality on a day-to-day basis at the local and regional level. The Lahontan and Colorado River Basin RWQCBs are responsible for protecting the beneficial uses of surface water and groundwater resources in the Proposed Project area in California. The Lahontan RWQCB adopted a Water Quality Control Plan (Basin Plan) in March 1995 and the most recent Basin Pan includes fully approved sets of amendments adopted since 1995. The Colorado River Basin RWQCB adopted its Basin Plan in 1993. These Basin Plans set forth implementation policies, goals, and water management practices in accordance with the Porter-Cologne Water Quality Control Act. The Basin Plans establish both numerical and narrative standards and objectives for water quality aimed at protecting aquatic resources. Project discharges to surface waters are subject to the regulatory standards set forth in applicable regional basin plans, which prevent the discharge of hazardous materials into waters of the State.

The RWQCBs have the responsibility of granting National Pollutant Discharge Elimination System (NPDES) permits and setting waste discharge requirements for stormwater runoff from construction sites. The Proposed Project's NPDES permits in California would be under the jurisdiction of the Lahontan and Colorado River Basin RWQCBs.

Senate Bill 1082 (Health and Safety Code Chapter 6.11). In 1993, the Cal-EPA was mandated to establish a "unified hazardous waste and hazardous materials management" regulatory program (Unified Program). The **Unified Program** consolidates, coordinates, and makes consistent the administrative requirements, permits, inspections, and enforcement activities of the following six environmental and emergency response programs:

- Hazardous Materials Release Response Plans and Inventories
- California Accidental Release Prevention Program
- Underground Storage Tank Program
- Aboveground Petroleum Storage Act
- Hazardous Waste Generator and Onsite Hazardous Waste Treatment Programs
- California Uniform Fire Code: Hazardous Material Management Plans and Hazardous Material Inventory Statements.

The Unified Program is implemented at the local level by local government agencies certified by the Secretary of Cal-EPA. These agencies, known as Certified Unified Program Agencies (CUPA) implement all of the Unified Program elements and serve as a local contact for area businesses. The CUPA for the Project area in California is the Hazardous Materials Division of the San Bernardino County Fire Department.

California Public Utilities Commission General Order 166. CPUC GO 166 provides standards to ensure that electric utilities are prepared for emergencies and disasters in order to minimize damage and inconvenience to the public that may occur as a result of electric system failures, major outages, or hazards posed by damage to electric distribution facilities. GO 166 Standard 1, Emergency Response Plan, requires under paragraph E that a Fire Prevention Plan be prepared as part of the Emergency Response Plan in: (1) investor-owned electric utilities in Imperial, Los Angeles, Orange, Riverside, Santa Barbara, San Bernardino, San Diego, and Ventura Counties; and (2) investor-owned electric utilities in all other counties with overhead electric facilities located in areas of high fire risk. GO 166 applies to all electric utilities subject to the jurisdiction of the CPUC with regard to matters relating to electric service reliability and safety.

California Public Resources Code (CPRC) Sections 4292 and 4293. These sections of the Public Resources Code specify requirements related to fire protection and prevention in transmission line corridors. CPRC Section 4292 states that any person that owns, controls, operates, or maintains any electrical transmission or distribution line has primary responsibility for fire protection of such areas, and shall maintain around and adjacent to any pole or tower which supports a switch, fuse, transformer, lightning arrester, line junction, or dead end or corner pole, a firebreak which consists of a clearing of not less than 10 feet in each direction from the outer circumference of such a pole or tower (CPRC 4292). CPRC 4293 states that any person that owns, controls, operates, or maintains any electrical transmission or distribution line upon any mountainous land, or in forest-covered land, or grass covered land which has primary responsibility for the fire protection of such area, shall maintain a clearance of the respective distances.

State of Nevada

Nevada Revised Statutes Section 704.865 provides that "A person, other than a local government, shall not commence to construct a utility facility in the State without first having obtained a permit therefor from the [Public Utilities] Commission. The replacement of an existing facility with a like facility, as determined by the Commission, does not constitute construction of a utility facility." The Public Utilities Commission of Nevada is the Lead Agency for compliance with the Nevada Utility Environmental Protection Act.

Nevada Administrative Code (NAC) Chapter 459 – Hazardous Materials, provides regulations for the handling, transportation, disposal, and storage of hazardous materials. Chapter 459 also includes regulations that pertain to storage tanks, explosives, voluntary cleanup of hazardous substances, enforcement actions, spill response, and funding for Brownfield projects.

The Nevada Bureau of Corrective Actions operates under the regulations provided in Chapter 445A – Water Controls of the NAC and manages the cleanup of regulated substances following a release. The Bureau of Corrective Actions administers Superfund and Brownfield programs, environmental response programs, and the UST program for the State. The Bureau also specifies spill reporting requirements and provides current information on a number of active hazardous sites and remediation projects located in the State of Nevada.

Local

The CPUC has sole and exclusive jurisdiction over the siting and design of the Proposed Project components located in the State of California. Pursuant to CPUC G.O. 131-D, Section XIV.B, "Local jurisdictions acting pursuant to local authority are preempted from regulating electric power line projects, distribution lines, substations, or electric facilities constructed by public utilities subject to the CPUC's jurisdiction. However, in locating such projects, the public utilities shall consult with local agencies regarding land use matters." Consequently, public utilities are directed to consider local regulations and consult with local agencies, but the county and cities' regulations are not applicable as the county and cities do not have jurisdiction over the Proposed Project. For informational purposes, local regulations in California jurisdictions are provided in Appendix C. The Proposed Project is subject to local regulations in the State of Nevada.

Clark County, Nevada. The Safety Element of the Clark County Comprehensive Plan contains the following policies to address hazards and hazardous materials:

- *Minimize public exposure to natural and man-made hazards*
- *Ensure that land use plans and development regulations consider natural and man-made hazards and mitigation programs*
- *Provide public facilities and services to protect against natural and man-made hazards*
- *Support educational programs to inform the community about natural and man-made hazards*
- *Coordinate with local, regional, State and federal governments and the private sector to provide protection against natural and man-made hazards*

The South Clark County Land Use Plan does not contain any specific goals or policies that are relevant to the Proposed Project.

Laughlin, Nevada. The Laughlin Land Use Plan does not contain any specific goals or policies that are relevant to the Proposed Project.

Boulder City, Nevada. The Public Safety Element of the Boulder City Master Plan does not contain any specific goals or policies that are relevant to electric utility projects.

Federal

Bureau of Land Management. It is BLM California and BLM Nevada policy to comply with all federal, state, and local environmental laws and regulations.

National Park Service. Both Federal and State regulations would apply to National Park Service land. Under federal clean-air and water laws, state environmental regulators have jurisdiction over federal lands if state law is stricter than federal regulations.

The following are federal laws and regulations that are administered by federal agencies or that have been delegated to state agencies. They apply to the entire Proposed Project, including lands under state or federal jurisdiction.

Title 40 of the Code of Federal Regulations (CFR) established the U.S. Environmental Protection Agency (EPA) in the Executive branch as an independent Agency in 1970 and provides regulations related to the EPA's operations. The EPA's mission is to protect human health and to safeguard the natural environment — air, water, and land — upon which life depends. The EPA's roles include environmental research, education, and enforcement. It has responsibility for developing, maintaining, and enforcing national standards under a variety of environmental laws, and delegates to some states and tribes the responsibility for issuing permits and for monitoring and enforcing compliance. Where national standards are not met, the EPA can issue sanctions and take other steps to assist the states and tribes in reaching the desired levels of environmental quality.

The **Toxic Substances Control Act (1976)** and the **Resource Conservation and Recovery Act of 1976** (RCRA) established a program administered by the EPA for regulating the generation, transportation, treatment, storage, and disposal of hazardous waste. RCRA was amended in 1984 by the **Hazardous and Solid Waste Act** (HSWA), which affirmed and extended the "cradle to grave" system of regulating hazardous wastes. The use of certain techniques for the disposal of some hazardous wastes was specifically prohibited by HSWA. Under the authority of the RCRA, the California Department of Toxic Substance Control (DTSC) regulates hazardous waste, cleans up existing contamination, and looks for ways to reduce hazardous waste production.

Comprehensive Environmental Response, Compensation, and Liability Act. CERCLA, also informally known at the Superfund program, was enacted by Congress on December 11, 1980. This law provided broad federal authority to respond directly to releases or threatened releases of hazardous substances that may endanger public health or the environment. CERCLA established requirements concerning closed and abandoned hazardous waste sites; provided for liability of persons responsible for releases of hazardous waste at these sites; and established a trust fund to provide for cleanup when no responsible party could be identified. CERCLA also enabled the revision of the National Contingency Plan (NCP). The NCP provided the guidelines and procedures needed to respond to releases and threatened releases of hazardous substances, pollutants, and/or contaminants. The NCP also established the National Priorities List (NPL). CERCLA was amended by the **Superfund Amendments and Reauthorization Act** (SARA) on October 17, 1986.

Clean Water Act. The Clean Water Act (CWA) is the principal Federal statute protecting navigable waters and adjoining shorelines from pollution. The law was enacted with the intent of restoring and maintaining the chemical, physical, and biological integrity of the waters of the United States. Since its enactment, the CWA has formed the foundation for regulations detailing specific requirements for pollution prevention and response measures. The EPA implements provisions of the CWA through a variety of regulations, including the NCP and the Oil Pollution and Prevention Regulations. Implementation of the CWA is the responsibility of each state.

As part of the Clean Water Act, the USEPA oversees and enforces the **Oil Pollution Prevention regulation** (Title 40 CFR Part 112), which is often referred to as the "SPCC rule" because the regulations describe the requirements for facilities to prepare, amend, and implement Spill Prevention, Control and Countermeasure (SPCC) Plans. A facility is subject to SPCC regulations if the total above ground oil storage capacity exceeds 1,320 gallons, or the underground oil storage capacity exceeds 42,000 gallons, and if, due to its location, the facility could reasonably be expected to discharge oil into or upon the "Navigable Waters" of the United States. The rule specifies that proactive, and not passive, measures be used to respond to oil discharges.

National Pollutant Discharge Elimination System. The NPDES permit program, created in 1972 by the CWA, helps address water pollution by regulating point sources that discharge pollutants to waters of the United States. The permit provides two levels of control: technology-based limits and water quality-based limits (if technology-based limits are not sufficient to provide protection of the water body). Under the CWA, EPA may authorize state, tribal, and territorial governments to administer the NPDES permit program, enabling them to perform many of the permitting, administrative, and enforcement aspects of the NPDES program. In states authorized to implement CWA programs, EPA retains oversight responsibilities. Within the State of California, the California SWRCB issues both general permits and individual permits under the NPDES permit program. The SWRCB delegates much of its NPDES authority and administration to nine Regional Water Quality Control Boards (RWQCBs). The RWQCBs have the responsibility of granting National Pollutant Discharge Elimination System (NPDES) permits and waste discharge requirements for stormwater runoff from construction sites. The Proposed Project's NPDES permits in California would be under the jurisdiction of the Lahontan and Colorado River Basin RWQCBs. The State of Nevada requires that projects disturbing one or more acres must obtain a Construction Stormwater General Permit (NVR100000) from the Nevada Division of Environmental Protection (NDEP) Bureau of Water Pollution Control. This Construction Stormwater General Permit is also required for projects disturbing less than one acre that are part of a larger common plan for development or sale that would ultimately disturb one acre or more.

Occupational Safety and Health Administration. OSHA is in the U.S. Department of Labor and its mission is to assure the safety and health of America's workers by setting and enforcing standards; providing training, outreach, and education; establishing partnerships; and encouraging continual improvement in workplace safety and health. OSHA staff establish protective standards, enforce those standards, and reaches out to employers and employees through technical assistance and consultation programs. OSHA standards are listed in Title 29 CFR Part 1910.

Hazardous Materials Transportation Act. The HMTA is administered by the U.S. Department of Transportation and regulates interstate transport of hazardous materials and wastes. The HMTA contains requirements for hazardous material shipments and packaging, and guidelines for marking, manifesting, labeling, packaging, placarding, and spill reporting. Specific regulations dealing with hazardous materials are covered under Title 49, Part 173 et seq. of the CFR and Title 49, Part 397.

Spark Arrester Requirements. All off-road vehicles being operated on public lands must be equipped with a properly installed spark arrester pursuant to 43 CFR §8343.1(c) and California Vehicle Code 38366(a). The spark arrester must meet either the U.S. Department of Agriculture, Forest Service standard 5100-1a or the 80 percent efficiency level standard determined by the Society of Automotive Engineers (SAE) recommended practices J335 or J350.

Federal Aviation Regulation (49 CFR Part 77). This FAA regulations establishes standards and notification requirements for objects that may impact navigable airspace. Airports and navigable airspace that are not administered by the DoD are under the jurisdiction of the FAA. This regulation includes: (a) FAA notification requirements for proposed construction, or the alteration of existing structures, that meet specific standards; (b) the standards used to determine obstructions to air navigation, and navigational and communication facilities; (c) the process for aeronautical studies of obstructions to air navigation or navigational facilities to determine the effect on the safe and efficient use of navigable airspace, air navigation facilities or equipment; and (d) the process to petition the FAA for discretionary review of determinations, revisions, and extensions of determinations.

5.9.3 Applicant Proposed Measures

The Proposed Project does not include any APMs related to Hazards and Hazardous Material impacts.

5.9.4 CEQA Significance Criteria

Appendix G of the CEQA Guidelines (14 CCR 15000 et seq.) provides guidance on assessing whether a project would have significant impacts on the environment. Consistent with Appendix G, the Proposed Project would have significant hazards and hazardous materials impacts if it would:

a. *Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials*

b. *Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment*

c. *Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school*

d. *Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment*

e. For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 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, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires

5.9.5 Methodology

The approach to hazards and hazardous materials analysis describes the existing and proposed hazardous material activities (hazardous material handling, storage, disposal, and excavation of potentially contaminated soil and groundwater) associated with the Project and estimates the hazard footprint for each activity (the area these activities could affect or areas of contamination that could affect the Proposed Project). Site location, project design, construction technologies and regulations, operational regulations, and emergency response plans are among the considerations for understanding and reducing potential hazard impacts.

The principal environmental impact involving hazardous materials or waste associated with the Proposed Project would relate to the potential mobilization of contaminants, resulting in exposure of workers and the public (e.g., excavation and handling of contaminated soil). Hazardous materials in the construction area may require special handling as toxic substances and hazardous waste can create an exposure risk to workers and the public due to spills or upset or from excavation and transport.

5.9.6 Project Impacts and Mitigation Measures

a. Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

Construction

LESS THAN SIGNIFICANT WITH MITIGATION. Construction activities associated with the Proposed Project would use hazardous materials such as gasoline, diesel fuel, oil, and lubricants associated with construction equipment and vehicles and would use and store hazardous materials such as mineral oil, cleaning solvents, paints, adhesives, vehicle fuels, oil, hydraulic fluid, and other vehicle and equipment maintenance fluids in the construction staging yards. A list of the anticipated hazardous materials to be used during construction is presented in Table 5.9-1, Typical Hazardous Materials Used for Construction. Normal maintenance and refueling of construction equipment would be conducted at the staging yards. Refueling of helicopters would likely occur at the airports out of which they are based; however, refueling may also occur at staging and material yard sites. Fueling and maintenance trucks may also be based in the helicopter staging yards.

Various waste materials would be removed as part of the Proposed Project, including existing wood poles, and temporarily stored in one or more staging yards as the material awaits salvage, recycling, and/or disposal; any material deemed hazardous waste would be properly disposed of per State or federal regulations (SCE, 2018). Existing wood poles would either be reused by SCE, disposed of in a Class I hazardous waste landfill, and/or disposed of in the lined portion of a RWQCB certified municipal landfill, thus reducing impacts from hazardous waste to less than significant. OHGW removed as part of the project would also be stored and recycled. (SCE, 2018).

Minor spills or releases of hazardous materials could occur due to improper handling and/or storage practices of hazardous materials during construction activities and at staging areas or work sites. The Lahontan and Colorado River Basin RWQCBs for the State of California and the NDEP for the State of Nevada would require that Project-specific SWPPPs would be prepared prior to construction in accordance with NPDES Construction General Permit requirements. All refueling, maintenance, and storage of fuels and other hazardous materials would be in accordance with the SWPPPs (SCE, 2018). In the PEA submitted to CPUC, SCE states that a Hazardous Materials Management Plan (HMMP) would be prepared for the Proposed Project pursuant to Title 24, Part 9 of the California Code of Regulations (SCE, 2018). The HMMP would include safety information regarding the transport, use, and disposal of hazardous materials in compliance with applicable laws, rules, and regulations. However, SCE has not identified preparation of the HMMP as one of its APMs nor identified specific actions that would be included in the HMMP. To ensure that hazardous materials and waste are appropriately handled, Mitigation Measure HH-1, Prepare and implement a Hazardous Materials and Waste Management Plan, is required.

Any impacts to people or the environment from leaks or spills of hazardous materials that would result from storage, transport, use, or disposal of hazardous materials or hazardous waste would be addressed through compliance with these plans and all applicable federal and State laws and regulations, and SCE guidelines, thus reducing potential impacts to less than significant with mitigation.

Operation and Maintenance

NO IMPACT. Operation and maintenance activities would be incorporated into the existing O&M schedule for the existing transmission lines, substations, and associated facilities. No additional impact would occur because of operating and maintaining the project.

Mitigation Measures

HH-1 **Prepare and implement a Hazardous Materials and Waste Management Plan.** SCE shall prepare and implement a Project-specific Hazardous Materials and Waste Management Plan pursuant to Title 24, Part 9 of the California Code of Regulations (CCR) that identifies hazardous materials to be transported, used, and stored on site for the proposed construction activities — as well as hazardous wastes generated onsite as a result of the proposed construction activities — and appropriate management procedures according to the specifications outlined below.

- **Hazardous Materials and Hazardous Waste Handling:** The Plan will include the following components: (1) the program shall identify types of hazardous materials to be used during the project and the types of wastes that would be generated; (2) proper hazardous materials use, storage and disposal requirements as well as hazardous waste management procedures; and (3) all project personnel shall be provided with project-specific training to ensure that all hazardous materials and wastes associated with the project are handled in a safe and environmentally sound manner and disposed of according to applicable rules and regulations. Specifically, employees handling wastes shall have or receive hazardous materials training and shall be trained in hazardous waste procedures, spill contingencies, waste minimization procedures and treatment, storage and disposal facility (TSDF) training in accordance with current OSHA Hazard Communication Standard and Title 22 CCR. The Plan shall identify the landfill facilities that are authorized to accept the types of waste generated and hauled, and these landfills shall be used for hazardous waste disposal during construction.

- **Transport of Hazardous Materials:** Hazardous materials that would be transported by truck include fuel (diesel fuel and gasoline) and oil and lubricants for equipment. Containers used to store hazardous materials would be properly labeled and kept in good condition. The Plan shall include written procedures for the transport of hazardous materials used in accordance with U.S. Department of Transportation and Caltrans regulations. A qualified transporter would be selected to comply with U.S. Department of Transportation and Caltrans regulations. The Plan shall identify proposed trucking routes.
- **Fueling and Maintenance of Construction Equipment:** Written procedures for fueling and maintenance of construction equipment shall be included in the Plan. Refueling and maintenance procedures may require vehicles and equipment to be refueled on site or by tanker trucks. Procedures will require the use of drop cloths made of plastic, drip pans and trays to be placed under refilling areas to ensure that chemicals do not come into contact with the ground. Refueling would be located in areas where absorbent pad and trays would be available. The fuel tanks would also contain a lined area to ensure that accidental spillage does not occur. Drip pans or other collection devices would be placed under the equipment at night to capture drips or spills. Equipment would be inspected daily for potential leakage or failures. Hazardous materials such as paints, solvents, and penetrants would be kept in an approved locker or storage cabinet.
- **Fueling and Maintenance of Helicopters:** Written procedures for fueling and maintenance of helicopters shall be included in the Plan. Procedures may require helicopters be refueled at construction work areas, helicopter staging areas, or local airports. Procedures would include the use of drop cloths made of plastic, drip pans and trays to be placed under refilling areas to ensure that chemicals do not come into contact with the ground. Refueling areas shall be identified in the Plan and necessary spill response materials shall be available within each refueling area.
- **Emergency Release Response Procedures:** The Plan shall include emergency response procedures in the event of a release of hazardous materials. The Plan must prescribe hazardous materials handling procedures for reducing the potential for a spill during construction and would include an emergency response program to ensure quick and safe cleanup of accidental spills. Hazardous materials shall not be stored near drains or waterways. Fueling shall not take place within 200 feet of drains or waterways with flowing water or within 75 feet of drains or waterways that are dry. All construction personnel, including environmental monitors, would be made aware of state and federal emergency response reporting guidelines for accidental spills.

The Plan shall be submitted to CPUC and BLM 30 days prior to the start of construction for review and approval.

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?

Construction

LESS THAN SIGNIFICANT WITH MITIGATION. As discussed above, the construction of the Proposed Project would involve the use of hazardous materials such as lubricants, oils, cleaning solvents, and fuels, and would potentially generate limited quantities of hazardous waste during construction and demolition of existing facilities. All refueling and maintenance activities and storage of fuels and other hazardous

materials would be in accordance with the SWPPPs, applicable plans, and federal and State regulations. The transport and disposal of hazardous waste would be per State or federal regulations. Compliance and implementation of the Project-specific SWPPPs, federal and State laws and regulations, and Mitigation Measure HH-1 would reduce potential impacts due to release of hazardous materials into the environment to less than significant.

Operation and Maintenance

NO IMPACT. Operation and maintenance activities would be incorporated into the existing O&M schedule for the existing transmission lines, substations, and associated facilities. No additional impact would occur because of operating and maintaining the project.

Mitigation Measures

HH-1 **Prepare and implement a Hazardous Materials and Waste Management Plan** (full text above under impact a).

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?

Construction

NO IMPACT. There are no schools located within 0.25 miles of any of the Proposed Project components. Although hazardous materials would be used during the construction of the Proposed Project, hazardous materials to be used would consist of low toxicity materials such as vehicle fuel, oil, cleaning solvents, and lubricants associated with construction equipment and vehicles. Additionally, all transportation, use, storage, and disposal of hazardous materials will comply with project specific hazardous material plans and federal and State regulations. Therefore, there would be no impact related to hazardous emissions or hazardous materials within 0.25 miles of schools.

Operation and Maintenance

NO IMPACT. No schools are within 0.25 miles of the Proposed Project, and operation and maintenance activities would be incorporated into the existing O&M schedule for the existing transmission lines, substations, and associated facilities. No impact would occur because of operating and maintaining the project.

Mitigation Measures

No mitigation is required.

d. Would the project be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?

Construction

LESS THAN SIGNIFICANT WITH MITIGATION. A review of hazardous material databases by SCE identified 11 hazardous material sites within 1 mile of the Proposed Project, as presented in Table 5.9-2. All but one of the sites are on non-federal lands; the Laughlin Water Reclamation Facility is on BLM land. Most of the sites have no potential to impact the Proposed Project due to regulatory status and/or distance from the Proposed Project components, except as discussed below.

Two of the sites are located on the Proposed Project, the Lugo and Eldorado Substations. The Lugo Substation is listed as having a UST and are both substations listed as sites that store and dispose of hazardous materials and liquids. However, the EDR reports reviewed by SCE (SCE, 2018) did not report any releases, violations, subsurface contaminants, or current remedial actions in connection with Lugo and Eldorado Substations. Therefore, the sites do not represent a hazard to the public or the environment, and impacts would be less than significant.

Two open status sites were listed within 1 mile of the Proposed Project components/ground disturbance areas: the Casino Drive Lift Station #24 and the former Mohave Generating Station. The Casino Drive Lift Station #24 was listed in the EDR database as an open Leaking Underground Storage Tank (LUST) located approximately 0.9 miles from the Mohave Substation; however, due to the site's distance from the substation and the fact that this site is no longer listed on the Nevada Department of Environmental Health Site Cleanup Database, it does not represent a hazard to the public or the environment in the Proposed Project area. Therefore, impacts related to hazardous material or environmental contamination would be less than significant. The former Mohave Generating Station is located adjacent to Mohave Substation and was listed under several databases as an open hazardous site. The former plant is listed as in remediation due to the presence of subsurface contaminants associated with the former operation, decommission, and demolition of the plant. The current status of on-site remediation efforts was not specified in available documentation (SCE, 2018); however, 12 closed corrective action sites and one closed UST site are identified on the NDEP online eMap (NDEP, 2018b). SCE indicates that based on a review of USGS groundwater data, groundwater levels in the vicinity of the Mohave Substation are greater than 200 feet below ground surface. Therefore, based on the depth to groundwater being greater than 200 feet bgs (SCE, 2018), contaminated groundwater is not anticipated to be encountered during potential excavation activities near Mohave Substation. However, despite the presence of closed NDEP corrective action sites at the Mohave Generating Station site, the extent of soil impacts on and surrounding the substation is unknown and there is a potential that unknown soil contaminants could potentially be encountered during excavation activities at and near the Mohave Substation (SCE, 2018).

The former landfill site located within 0.1 miles of the Barstow fiber optic repeater site and existing Lugo-Mohave 500 kV Transmission Line is listed as a closed landfill site. No releases or cleanup actions were reported and it is unlikely there is a potential to encounter subsurface contaminants associated with the former landfill during Proposed Project excavation activities.

Four former World War II–era practice bombing ranges occur in the Project area, as summarized in Table 5.9-3, FUDS Sites in the Vicinity of the Proposed Project. These sites were used as munitions storage, bombing practice ranges, and desert training grounds during WWII, and there is potential for unexploded ordnance (UXO) or heavy metals contamination to be present within their boundaries. However, as shown in Table 5.9-3, none of the Proposed Project components or work areas are within the boundaries of any of the FUDS sites in the project vicinity. Therefore, there would be a less than significant impact related to release of hazardous materials due to the presence of UXO or heavy metals.

One site on BLM land is listed in Table 5.9-2, the Laughlin Water Reclamation Facility; it has no environmental contamination reported and the NDEP reports one closed UST at the site (NDEP, 2018b). The Laughlin Water Reclamation Facility would not present a hazard of contamination to the Proposed Project.

No known hazardous material or environmental contamination sites are located at or adjacent to the Proposed Project on National Park Service lands.

It is possible that unanticipated soil contamination could be encountered. Implementation of Mitigation Measure HH-2, Manage discovery of unanticipated contamination, would ensure that this impact is less than significant.

Operation and Maintenance

NO IMPACT. Operation and maintenance activities for the new Proposed Project components would be incorporated into the existing O&M schedule for the existing transmission lines, substations, and associated facilities. No additional impact would occur because of operating and maintaining the project.

Mitigation Measures

HH-2 **Manage discovery of unanticipated contamination.** In the event that contaminated media are encountered during construction requiring excavation, SCE shall stop work, contact SCE's Safety and Environmental Specialist (SES), request a site assessment, and notify the proper authorities. The potentially contaminated soil should first be segregated into lined stockpiles, dump trucks, or roll-off containers. Samples are to be collected and analyzed to determine the appropriate handling, treatment, and disposal options. If the analytical results indicate that the soils are hazardous, the affected soils would be properly managed on location and transported to a Class I Landfill or other appropriate soil treatment or recycling facility using a Uniform Hazardous Waste Manifest. Work at the affected site would continue at that location only when given clearance by the SES.

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 or excessive noise for people residing or working in the project area?

Construction

LESS THAN SIGNIFICANT. The Proposed Project is located with 2 miles of four public airports and one private airstrip. The closest is the Hesperia Airport, which is located approximately 0.9 miles north of the Lugo-Mohave 500 kV Transmission Line. Approximately 3,700 feet of the Eldorado-Lugo and Lugo-Mohave alignments are within Safety Zone III for the Comprehensive Land Use Plan for the Hesperia Airport; however, there are no proposed work areas in this location. The runways of the remaining three airports (Laughlin/Bullhead International, Kidwell, and Searchlight) are not oriented relative to the Proposed Project so as to result in aviation hazards due to takeoff or landing. As described in Section 4.4.2 (Poles/Towers), new and modified towers/poles for the Proposed Project would range in height from 110 to 190 feet. As required by the Federal Aviation Regulation (49 CFR Part 77), SCE would file FAA notifications for Proposed Project structures. The FAA would conduct its own analysis related to Proposed Project structures in the vicinity of airports and may recommend no changes to the design of the proposed structures; or may request redesigning the proposed structures near the airports to reduce the height of such structures; or marking of the structures, including the addition of aviation lighting; or placement of marker balls on wire spans. SCE would evaluate the FAA recommendations for reasonableness and feasibility, and in accordance with Title 14 Part 77, SCE may petition the FAA for a discretionary review of its determination to address any issues with the FAA determination. FAA agency determinations for permanent structures typically are valid for 18 months, and therefore the FAA notifications would be filed upon completion of final engineering and before construction commences (SCE, 2018). Compliance with FAA regulations and recommendations reduces the potential for aviation safety hazards related to project construction to less than significant. SCE has already received a determination from FAA that marker balls and lights and not required for the Proposed Project.

Operation and Maintenance

NO IMPACT. Operation and maintenance activities for the new Proposed Project components would be incorporated into the existing O&M schedule for the existing transmission lines, substations, and associated facilities. Helicopters are periodically used to inspect existing SCE utility facilities and would continue to be used during O&M to perform aerial inspections of the Proposed Project. Helicopter flight paths would continue to follow existing flight paths, which are generally limited to SCE owned or to-be-acquired ROWs. O&M activities requiring the use of a helicopter would be coordinated with the FAA and local air traffic control prior to commencement in the same or a similar manner as is done currently (SCE, 2018). No additional impact would occur because of operating and maintaining the project.

Mitigation Measures

No mitigation is required.

f. Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

Construction

LESS THAN SIGNIFICANT. A review of the San Bernardino County EOP and MAST designated evacuation routes indicated that SR-18 is a MAST evacuation route that is spanned by Proposed Project components. Additionally, the Proposed Project crosses or is near to several major routes such as Interstate 40, Highways 95 and 163, and various state and county routes that could potentially be used as evacuation routes. SCE would implement the traffic control protocols and the project specific traffic plan to reduce potential impacts related to interference with an adopted emergency response or evacuation plans. Additionally, SCE would coordinate with county and city authorities, including emergency responders implementing the EOPs, regarding appropriate procedures to maintain use of designated evacuation routes. In the event of an evacuation, Proposed Project construction would cease, and obstructed roads would be opened to traffic (SCE, 2018). Therefore, impacts from construction of the project related to interference with emergency response or evacuation plans would be less than significant.

Operation and Maintenance

NO IMPACT. Operation and maintenance activities would be incorporated into the existing O&M schedule for the existing transmission lines, substations, and associated facilities. Operation and maintenance activities would generally not occur in roadways; however, operation and maintenance activities associated with the Proposed Project facilities may infrequently require temporary lane closures to allow access to the Proposed Project. This would be the same as for existing facilities. No additional impact would occur because of operating and maintaining the project.

Mitigation Measures

No mitigation is required.

g. Would the project expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires?

(Note: The topic of wildfire is addressed in detail in Section 5.20, Wildfire, which deals with lands in or near state responsibility areas classified as very high fire hazard severity zones, as defined by CAL FIRE.)

Construction

LESS THAN SIGNIFICANT WITH MITIGATION. Most of the Proposed Project primarily is in areas of undeveloped desert with sparse low scrub brush and grasses and scattered rural residential properties which do not have a high risk of fire. Most of the Proposed Project is located within moderate fire hazard severity zones in California (CAL FIRE, 2007a, 2007b, 2007c, and 2007d) and very, very low to low wildland fire threat (NDF, 2018) in Nevada. Proposed Project activities would generally be located within existing SCE-owned and/or to-be-acquired ROWs where vegetation has been previously cleared (SCE, 2018). However, in California a portion of the Proposed Project near Hesperia and the southern edge of Lucerne Valley is mapped as high and very high fire hazard susceptibility and in Nevada small pockets of low to moderate wildland fire threat are mapped near the community of Searchlight and wildland fire threat ranging from moderate to high is mapped at and near the Mohave Substation.

High heat or sparks from vehicles or equipment used during Proposed Project construction have the potential to ignite dry vegetation and cause fires. SCE would implement standard SCE fire protocols in addition to requiring preparation of a Fire Prevention Plan, as discussed above. Additionally, within California, SCE participates with CAL FIRE, the California Governor's OES, the U.S. Forest Service (USFS), BLM, and various city and county fire agencies in the Red Flag Program (SCE, 2018). SCE's participation in the Red Flag Program, implementation of the Fire Prevention Plan required under CPUC GO 166, and compliance with applicable State and federal laws and regulations during construction reduces potential impacts related to wildland fire. To reduce the wildland fire risk, SCE would implement standard fire prevention protocols and follow a fire prevention plan. However, the standard protocols do not require SCE to coordinate its fire prevention plan with agency fire experts nor require monitoring of the fire protocols during construction. To address this, Mitigation Measure WF-1 would require SCE to allow agency review of the plan and require a project Fire Marshal to ensure the plan is followed and the risk of wildland fire is reduced. With implementation of the mitigation measure, the impact would be less than significant.

Operation and Maintenance

NO IMPACT. Operation and maintenance activities would be incorporated into the existing O&M schedule for the existing transmission lines, substations, and associated facilities. As with current operations and maintenance, SCE would comply with all current federal and State laws related to vegetation clearance and fire prevention. No additional impact would occur because of operating and maintaining the project.

Mitigation Measures

WF-1 **Prepare and implement a Fire Management Plan.** (The full text of this mitigation measure is in Section 5.20, Wildfire. The measure provides that a project-specific Fire Management Plan is to be prepared by SCE and submitted to fire agencies for review and comment and to CPUC for review and approval prior to initiation of construction.)

5.9.7 References

CAL FIRE (California Department of Forestry and Fire Protection). 2007a. Draft Fire Hazard Severity Zones in LRA Map, NE San Bernardino County. Downloaded December 2018. http://www.fire.ca.gov/fire_prevention/fire_prevention_wildland_zones_maps

_____. 2007b. Draft Fire Hazard Severity Zones in LRA Map, NW San Bernardino County. Downloaded December 2018. http://www.fire.ca.gov/fire_prevention/fire_prevention_wildland_zones_maps

_____. 2007c. Draft Fire Hazard Severity Zones in LRA Map, SE San Bernardino County. Downloaded December 2018. http://www.fire.ca.gov/fire_prevention/fire_prevention_wildland_zones_maps

_____. 2007d. Draft Fire Hazard Severity Zones in LRA Map, SW San Bernardino County. Downloaded December 2018. http://www.fire.ca.gov/fire_prevention/fire_prevention_wildland_zones_maps

NDEP (Nevada Department of Environmental Protection). 2018a. Site Cleanup Database. Accessed December 2018. https://ndep.nv.gov/environmental-cleanup/site-cleanup-program/site-cleanup-database

_____. 2018b. E Map GIS data. http://webgis.ndep.nv.gov/. Accessed December 2018.

NDF (Nevada Division of Forestry). 2018. Natural Resources and Fire Information Portal website. Accessed December 2018. https://www.nevadafireinfo.org/maps/.

SCE (Southern California Edison). 2018. Eldorado-Lugo-Mohave Series Capacitor Project: Proponent's Environmental Assessment (PEA). Volumes 1 through 8 and Responses to Questions and Data Requests.

SWRCB (State Water Resources Control Board). 2018. Geotracker website, Fort Cady Borate – Pilot Project (L10001645092). Accessed December 2018. http://geotracker.waterboards.ca.gov/profile_report.asp?global_id=L10001645092

5.10 Hydrology and Water Quality

HYDROLOGY AND WATER QUALITY Would the project:	Potentially Significant Impact	Less Than Significant 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 ground water quality?	☐	☒	☐	☐
b. Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	☐	☐	☒	☐
c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:				
(i) result in substantial erosion or siltation on- or off-site;	☐	☒	☐	☐
(ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;	☐	☐	☒	☐
(iii) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or	☐	☐	☒	☐
(iv) impede or redirect flood flows?	☐	☐	☒	☐
d. In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	☐	☐	☒	☐
e. Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☐	☐	☐	☒

Significance criteria established by CEQA Guidelines, Appendix G.

5.10.1 Environmental Setting

Climate and Precipitation

The Proposed Project is in the Mojave Desert, which is characterized by high aridity, low precipitation, hot summers, and cool winters. Average maximum temperature at Victorville, near the southwest terminus of the project, is 98 degrees Fahrenheit (°F) in July. Average minimum temperature is 29.2 °F in December (WRCC, 2018). Average annual precipitation is approximately 5.5 inches, with February recording the highest monthly average of 1.05 inches and June recording the lowest monthly average of 0.04 inches. At Boulder City near the northeast terminus of the project the average maximum temperature is 102 °F in July. Average minimum temperature is 38.6 °F in January (WRCC, 2018). Average annual precipitation is approximately 5.6 inches, with January and March recording the highest monthly average of 0.66 inches and June recording the lowest monthly average of 0.09 inches. Most rainfall occurs during the winter months, or in association with summer thunder storms which tend to be of shorter duration and higher intensity than winter storms.

Surface Water

Except for one small (0.2-acre) wetland, the surface water features crossed by the project are all desert washes that are either ephemeral (flowing only in response to rainfall), or intermittent watercourses (containing water only in certain reaches). Major watercourses crossed by the project include the following (SCE, 2018):

- Argos Wash
- Black Canyon Wash
- Broadwell Wash
- Budweiser Wash
- Cottonwood Wash
- Governor Edmund G. Brown East Branch California Aqueduct
- Kelso Wash
- Mojave River
- Piute Wash
- Watson Wash
- Willow Wash
- Winston Wash
- Woods Wash

The PEA identified a total of 582 ephemeral drainages covering approximately 252.3 acres, five intermittent drainages covering approximately 8.0 acres, and one approximately 0.2-acre wetland crossed by the project. The wetland and many if not all the drainages are potentially under the jurisdiction of the U.S. Army Corps of Engineers (USACE) under Section 404 of the Clean Water Act, the State Water Resources Control Board (SWRCB), and the Nevada Department of Environmental Protection. Approximately 304.8 acres of drainages and riparian vegetation and approximately 0.2 acres of wetlands may be jurisdictional under the California Fish and Game Code (see the Regulatory Background below).

The watercourses west of a point approximately 30 miles west of the Mohave Substation drain to interior desert dry lakes with no outlet to the ocean. East of that point, drainage is generally to the Colorado River, which leads to the Gulf of California.

In California, the project area is in two Water Quality Control Board regions: the Lahontan Region (covering principally the project area from Hesperia to the middle of the Mojave National Preserve) and the Colorado River Region (covering the project area from the middle of the Preserve to the state line). Except for the Mojave River, classified as impaired for fluoride, none of the California watercourses are classified as impaired under Section 303(d) of the Clean Water Act (SWRCB, 2018). Beneficial uses of the interior drainages of the Lahontan Region, mostly classified as minor surface waters, are generally agricultural supply, municipal and domestic supply, groundwater recharge, recreation, cold freshwater habitat, warm freshwater habitat, and wildlife habitat (LRWQCB, 2016). Beneficial uses of the intermittent only ephemeral streams in the Colorado River Region consist of groundwater recharge, non-contact recreation, and wildlife habitat (CRRWQCB, 2017). None of the waters crossed by the project in Nevada have been assessed for quality or beneficial uses by the NDEP (NDEP, 2016).

Floodplains

Most of the Eldorado Substation is within the 100-year floodplain, consisting of unconsolidated sheet flow associated with the Eldorado Valley. This is a Zone A floodplain with no flood depth determined (FEMA, 2002). The northern portion of the Mohave Substation is within the 100-year Zone AO floodplain of the Bridge Canyon Fan with flood depth approximately one foot. The rest of this substation is within the 500-year floodplain (FEMA, 2002). The 100-year floodplain is used for regulatory purposes. In addition, the existing Eldorado-Lugo 500 kV Transmission Line crosses approximately 2.3 miles of a 100-year flood zone consisting of Zone A with no flood level determined (SCE, 2018; FEMA, 2002). The existing Lugo-Mohave 500 kV Transmission Line crosses approximately 1.9 miles of 100-year flood zones consisting of Zone AO with depth one foot (FEMA, 2002). The existing Eldorado-Mohave 500 kV Trans-

mission Line crosses approximately 9.5 miles of 100-year flood zones (SCE, 2018) mostly consisting of Zone AO with 1-foot to 4-foot depth or Zone A with no flood level determined (FEMA, 2002).

The entire project crosses areas that have not been mapped for flooding but still may be subject to flooding. The existing Eldorado-Lugo 500 kV Transmission Line crosses 80.9 miles of area with possible but undetermined flood zones, and the existing Lugo-Mohave 500 kV Transmission Line crosses approximately 166 miles of possible but undetermined flood hazards.

The Lugo-Mohave and Eldorado-Lugo Transmission Lines cross the Mojave River approximately 1.5 miles downstream of the Mojave Dam, which provides flood-control. Lake Silverwood, contained by Cedar Springs Dam, is on the Mojave River approximately 6 miles upstream of the project. There is a potential for inundation of the Mojave River crossing if one or both dams failed.

Groundwater

Table 5.10-1, Groundwater Basins Crossed by the ELM Project, lists the groundwater basins crossed by the project (SCE, 2018). Reported depth to groundwater ranges from several feet (parts of the Lucerne Valley Groundwater Basin) to 470 feet (Kelso Valley Groundwater Basin). Table 5.10-2, Groundwater Quality, describes groundwater quality in areas crossed by the project. Contaminated groundwater is primarily found in and around urban areas or former military installations. The two Mojave River groundwater basins have superfund sites associated with military installations.

Table 5.10-1. Groundwater Basins Crossed by the ELM Project

State	Groundwater Basin	Transmission Line	Distance Crossed	Other Project Features
California	Lower Mojave River Valley Groundwater Basin	Lugo-Mohave 500 kV	5 miles	None
California	Upper Mojave River Valley Groundwater Basin	Eldorado-Lugo and Lugo-Mohave 500 kV	15 miles	Lugo Substation
California	Kelso Valley Groundwater Basin	Lugo-Mohave 500 kV	24 miles	Kelbaker repeater
California	Broadwell Valley Groundwater Basin	Eldorado-Lugo and Lugo-Mohave 500 kV	6 miles and 15 miles	None
California	Fenner Valley Groundwater Basin	Lugo-Mohave 500 kV	25 miles	Lanfair repeater
California	Lavic Valley Groundwater Basin	Eldorado-Lugo and Lugo-Mohave 500 kV	8 miles	Pisgah Substation; Newberry Springs series capacitor; Ludlow series capacitor
California	Bessemer Valley Groundwater Basin	Eldorado-Lugo and Lugo-Mohave 500 kV	2.5 miles	None
California	Lucerne Valley Groundwater Basin	Eldorado-Lugo and Lugo-Mohave 500 kV	18 miles	Barstow repeater
California	Piute Valley Groundwater Basin	Lugo-Mohave 500 kV	17 miles	None
California	Iron Ridge Area Groundwater Basin	Eldorado-Lugo and Lugo-Mohave 500 kV	4 miles	None
Nevada	Colorado River Valley Groundwater Basin	Eldorado-Lugo 500 kV	20 miles	Mojave Substation
Nevada	Piute Valley Groundwater Basin	Eldorado-Lugo 500 kV	26 miles	None
Nevada	Eldorado Valley Groundwater Basin	Eldorado-Lugo 500 kV	23 miles	Eldorado Substation

Table 5.10-2. Groundwater Quality

State	Groundwater Basin	Groundwater Quality
California	Lower Mojave River Valley	High fluoride and boron concentrations near Newberry Springs. High fluoride and boron concentrations near Camp Cady. Benzene, toluene, ethylbenzene, xylene, methyl tertiary butyl ether contamination near Barstow. 2004). Superfund sites in the Nebo and Yermo Marine Corps depots for trichloroethane (DWR, 2004).
California	Upper Mojave River Valley	High nitrate concentrations, iron and manganese at several locations. Trichloroethane contamination at a superfund site at former George Air Force Base. Benzene, toluene, ethylbenzene, xylene, methyl tertiary butyl ether near Victorville (DWR, 2004).
California	Kelso Valley	Sodium bicarbonate-sulfate character (DWR, 2004).
California	Broadwell Valley	High TDS near Ludlow (DWR, 2004).
California	Fenner Valley	Calcium bicarbonate to sodium bicarbonate character. High fluoride in some areas. Groundwater quality generally good (DWR, 2004).
California	Lavic Valley	One area exceeds drinking water standards for sulfate, chloride, and TDS (DWR, 2004).
California	Bessemer Valley	Unknown (DWR, 2004).
California	Lucerne Valley	High nitrate and TDS associated with irrigated areas in shallow portion of the aquifer (DWR, 2004).
California	Piute Valley	Locally sulfate and fluoride concentrations are high for domestic use. High sodium in areas (DWR, 2004).
California	Iron Ridge Area	Unknown (DWR, 2004).
Nevada	Colorado River Valley	The former Mohave Generating Station site is located adjacent to Mohave Substation and is currently in remediation. Because the extent of the contaminant plume and the existing contaminant levels are unknown, subsurface contaminants may exist near Mohave Substation. Leaking underground storage tanks in the same area (SCE, 2018).
Nevada	Piute Valley	Locally sulfate and fluoride concentrations are high for domestic use. High sodium in areas (DWR, 2004).
Nevada	Eldorado Valley	Unknown

5.10.2 Regulatory Background

State and Local

California

California Public Utilities Commission General Order 131-D. Pursuant to California Public Utilities Commission (CPUC) General Order (G.O.) 131-D, the CPUC has sole and exclusive jurisdiction over the siting and design of electric power line projects, distribution lines, substations, or electric facilities constructed by public utilities in the State of California. Under the California Environmental Quality Act (CEQA), the CPUC is the Lead Agency with respect to such Proposed Project elements within the State of California. SCE is required to comply with G.O. 131-D and is seeking a CPCN from the CPUC for the Proposed Project.

California Fish and Game Code. Sections 1600 through 1617 of the California Fish and Game Code protects the natural flow, bed, channel, and bank of any river, stream, or lake designated by the CDFW where there is, at any time, any existing fish or wildlife resources, or benefit for the resources. A Lake and Streambed Alteration Agreement (LSAA) is required between the CDFW and an entity proposing to substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake. The LSAA is designed to protect the fish and wildlife resources of a river, stream, or lake.

Porter-Cologne Water Quality Control Act. The Porter Cologne Water Quality Control Act of 1967, Water Code Section 13000 et seq., requires the SWRCB to adopt water quality criteria to protect State waters. Each Regional Water Quality Control Board (RWQCB) has developed a Water Quality Control Plan (Basin Plan) specifying water quality objectives, beneficial uses, numerical standards of pollution concentrations, and implementation procedures for Waters of the State. Waters of the State is defined by the Porter Cologne Water Quality Control Act as "any surface water or groundwater, including saline waters, within the boundaries of the State." General objectives of the Basin Plans state that all waters (of the State) shall be maintained free of toxic substances in concentrations which are toxic to, or which produce detrimental physiological responses in, human, plant, animal, or aquatic life. The water quality control plans are intended to protect designated beneficial uses of waters, avoid altering the sediment discharge rate of surface waters, and avoid introducing toxic pollutants to the water resource. The Porter Cologne Water Quality Control Act requires anyone proposing to discharge waste that could affect the quality of the waters of the State to report the waste discharge to the appropriate RWQCB.

Lahontan Regional Water Quality Control Board Water Quality Control Basin Plan. The majority of the Proposed Project is located within the jurisdictional boundaries of the Lahontan RWQCB. The Lahontan RWQCB is responsible for protecting the beneficial uses of surface water and groundwater resources from the Oregon border to the northern Mojave Desert, including all of those in the California east of the Sierra Nevada crest. The Lahontan RWQCB adopted the Basin Plan in 1995 with amendments through 2016. The Basin Plan designates beneficial uses for surface water and groundwater, sets standards and numeric objectives that must be attained or maintained to protect the designated beneficial uses and conform to the State's antidegradation policy, and describes implementation programs to protect all waters in the Lahontan region. NPDES permits, WDRs, and waivers are mechanisms used by the RWQCB to control discharges and protect water quality. The Basin Plan is regularly reviewed and updated with amendments, as necessary.

Colorado River Regional Water Quality Control Board Water Quality Control Basin Plan. Portions of the Proposed Project are located within the jurisdictional boundaries of the Colorado River RWQCB. The Colorado River region covers approximately 13 million acres (20,000 square miles) in the southeastern portion of California, including all of Imperial County and portions of San Bernardino, Riverside, and San Diego Counties. The Colorado River RWQCB adopted its Basin Plan in 1994, and has made amendments through 2017. As with the Lahontan RWQCB, the purpose of the Basin Plan is to designate beneficial uses for surface water and groundwater, set standards and numeric objectives that must be attained or maintained to protect the designated beneficial uses and conform to the State's antidegradation policy, and describe implementation programs to protect all waters in the Colorado River Basin region. The Basin Plan is regularly reviewed and updated with amendments, as necessary.

Nevada

Nevada Revised Statutes Section 704.865. Nevada Revised Statutes provides that "A person, other than a local government, shall not commence to construct a utility facility in the State without first having obtained a permit therefor from the Commission. The replacement of an existing facility with a like facility, as determined by the Commission, does not constitute construction of a utility facility." The Public Utilities Commission of Nevada is the Lead Agency for compliance with the Nevada Utility Environmental Protection Act.

Nevada Revised Statutes 445A. The Nevada Bureau of Water Pollution Control (BWPC) Permits Branch issues and renews discharge permits, which define the quality of the discharge necessary to protect the waters of the State. Waters of the State are defined in NRS 445A.415 as "all waters situated wholly or partly within or bordering upon this State, including but not limited to:

- All streams, lakes, ponds, impounding reservoirs, marshes, water courses, waterways, wells, springs, irrigation systems and drainage systems; and,
- All bodies or accumulations of water, surface and underground, natural or artificial."

Depending on the types of regulated discharges, the duration, and the waters that may potentially be impacted, the BWPC may issue individual, general, or temporary permits. Individual permits are issued by the BWPC in consideration of the following types of waters:

- Discharges to surface waterbodies are permitted under the NPDES program pursuant to Section 402 of the federal CWA as amended and the State of Nevada Water Pollution Control Law (NRS 445A.300-445A.730).
- Discharges that may impact subsurface waters, and other waters of the State that are not covered under the NPDES permits, are permitted pursuant to Water Pollution Control Law and referred to as the State's Water Pollution Control permits.
- Injections of fluids underground for storage or disposal, as authorized pursuant to Section 1422 of the Safe Drinking Water Act and the State Water Pollution Control Law, are permitted under the Underground Injection Control Program.

Local

The CPUC has sole and exclusive jurisdiction over the siting and design of the Proposed Project components located in the State of California. Pursuant to CPUC G.O. 131-D, Section XIV.B, "Local jurisdictions acting pursuant to local authority are preempted from regulating electric power line projects, distribution lines, substations, or electric facilities constructed by public utilities subject to the CPUC's jurisdiction. However, in locating such projects, the public utilities shall consult with local agencies regarding land use matters." Consequently, public utilities are directed to consider local regulations and consult with local agencies, but the county and cities' regulations are not applicable as the county and cities do not have jurisdiction over the Proposed Project. For informational purposes, local regulations in California jurisdictions are provided in Appendix C. The Proposed Project is subject to local regulations in the State of Nevada.

Federal

Bureau of Land Management and National Park Service

Much of the land crossed by the Proposed Project is under the jurisdiction of the BLM and the NPS, with smaller areas under the U.S. Bureau of Reclamation. The regulations and requirements below would apply to activities on federal lands.

Clean Water Act. Formerly the Federal Water Pollution Control Act of 1972, the CWA was enacted with the intent of restoring and maintaining the chemical, physical, and biological integrity of the waters of the United States. The CWA, enforced by the U.S. Environmental Protection Agency (EPA), requires states to set standards to protect, maintain, and restore water quality through the regulation of point source and certain non-point source discharges to surface water.

Section 303(d) of the Clean Water Act requires states to assess surface water quality and prepare a list of waters (known as the Section 303(d) list of water quality limited segments) considered to be impaired by not meeting water quality standards and not supporting their beneficial uses. Impairment may result from point-source pollutants or non-point source pollutants.

Section 401 of the CWA requires that any activity that may result in a discharge into waters of the U.S. be certified by the RWQCB. This certification ensures that the proposed activity follow State and/or federal water quality standards.

Section 402 of the CWA requires that direct and indirect discharges and stormwater discharges into waters of the United States be pursuant to a National Pollutant Discharge Elimination System (NPDES) permit for industrial or construction activities. NPDES permits contain industry-specific, technology-based limits and may include additional water quality-based limits, and pollutant-monitoring requirements. An NPDES permit may include discharge limits based on Federal or State water quality criteria or standards. NPDES permitting authority is delegated to, and administered by, the SWRCB and its nine RWQCBs.

In California, the SWRCB Storm Water Program Construction General Permit (General Construction Storm Water Permit) required by the federal Clean Water Act regulates stormwater runoff from construction sites of one acre or more in size. The Construction General Permit is a statewide, standing permit. Qualifying construction activities, which would include the Proposed Project, must obtain coverage under the permit by filing a Notice of Intent with the Regional Water Quality Control Board, and through the development of and compliance with a Storm Water Pollution Prevention Plan (SWPPP) describing Best Management Practices (BMPs) to protect stormwater runoff. The SWPPP must contain a visual monitoring program, a chemical monitoring program for "non-visible" pollutants to be implemented if there is a failure of BMPs, and a sediment monitoring plan if the site discharges directly to a water body listed on the Section 303(d) list for sediment.

The General Permit prohibits the discharge of pollutants except stormwater and non-stormwater discharges authorized by the General Permit or another NPDES permit. It also prohibits all discharges which contain a hazardous substance in excess of reportable quantities established in 40 C.F.R. §§ 117.3 and 302.4 (pursuant to Section 311 of the Clean Water Act), unless a separate NPDES Permit has been issued to regulate those discharges. In addition, the General Permit incorporates discharge prohibitions contained in water quality control plans implemented by the nine Regional Water Boards. Discharges to Areas of Special Biological Significance are prohibited unless covered by an exception that the State Water Board has approved. Authorized non-stormwater discharges must be: infeasible to eliminate; comply with BMPs as described in the SWPPP; filtered or treated using appropriate technology; meet the established numeric action levels for pH and turbidity; and not cause or contribute to a violation of water quality standards. Discharges to stormwater that cause or threaten to cause pollution, contamination, or nuisance are prohibited. Pollutant controls must use best available technology economically achievable (BAT) for toxic pollutants and non-conventional pollutants and best conventional pollutant control technology (BCT) for conventional pollutants.

The CWA provides definitions for the types of controls that can be used to satisfy BAT and BCT requirements. Specific BAT and BCT pollution controls and Best Management Practices may include runoff control, soil stabilization, sediment control, proper stream crossing techniques, waste management, spill prevention and control, and a wide variety of other measures depending on the site and situation.

In Nevada, the NDEP's Bureau of Water Pollution Control (BWPC) issues the Construction Stormwater General Permit (NVR100000) to control and reduce pollution to Waters of the State that meet the definition of waters of the U.S. The State of Nevada requires that projects disturbing 1 or more acres must obtain a Construction Stormwater General Permit. This construction permit is also required for projects that disturb less than 1 acre and are part of a larger common plan for development or sale that would ultimately disturb 1 acre or more. In addition, if NDEP determines that a project less than 1 acre in size will impact receiving waters or tributaries within a 0.25-mile radius of the project, the owner/operator of the project will also be required to obtain a Construction Stormwater General Permit.

Section 404 of the CWA authorizes the U.S. Army Corps of Engineers to regulate the discharge of dredged or fill material to the waters of the U.S. and adjacent wetlands. Discharges to waters of the U.S. must be avoided where possible and minimized and mitigated where avoidance is not possible

National Flood Insurance Act/Flood Disaster Protection Act. The National Flood Insurance Act of 1968 made flood insurance available for the first time. The Flood Disaster Protection Act of 1973 made the purchase of flood insurance mandatory for the protection of property located in Special Flood Hazard Areas. These laws led to mapping of regulatory floodplains and to local management of floodplain areas according to federal guidelines which include prohibiting or restricting development in flood hazard zones.

5.10.3 Applicant Proposed Measures

The Proposed Project does not include any APMs related to Hydrology and Water Quality.

5.10.4 CEQA Significance Criteria

Appendix G of the CEQA Guidelines (14 CCR 15000 et seq.) provides guidance on assessing whether a project would have significant impacts on the environment. Consistent with Appendix G, the Proposed Project would have significant hydrology and water quality impacts if it would:

a. *Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality*
b. *Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin*
c. *Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:*
    i. *result in substantial erosion or siltation on- or off-site*
    ii. *substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite*
    iii. *create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or*
    iv. *impede or redirect flood flows*
d. *In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation*
e. *Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.*

5.10.5 Methodology

The Proposed Project would be located on land under various jurisdictions, including local, state and federal governments. Hydrology and water quality impact assessment methodologies and conclusions are the same for all jurisdictions. The project's impacts were compared to applicable regulations and standards.

5.10.6 Project Impacts and Mitigation Measures

a. Would the project violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?

Construction

LESS THAN SIGNIFICANT WITH MITIGATION. Construction of the project will involve clearing and grading of construction sites, trenching for conduit installation, augering for wood pole installation, possible horizontal directional drilling (HDD) for installation of underground telecommunication lines, installation of new electrical equipment at four substations, installation of two new capacitors and three fiber optic repeater facilities, installation of new optical ground wire, improvement of existing access roads, and construction of new access roads. Ground-disturbing activities could expose soils to erosion and subsequent transport downstream either overland or within watercourses. Disturbed sediment could enter watercourses resulting in increased turbidity and alteration of channel characteristics that could reduce beneficial uses. Construction will involve the use of hazardous materials such as vehicle fuel, hydraulic fluid, oil, grease, solvents, paint, drilling muds, and concrete that if spilled or otherwise discharged to the ground surface could contaminate surface water or groundwater. Human wastes and trash from construction could be left and transported to watercourses to the detriment of surface water quality. If required, dewatering for trenches could encounter contaminated subsurface water that if discharged to the surface could contaminate surface waters. Foundations in soft or loose soil, or extending below the groundwater level, may require stabilization with a drilling mud slurry. HDD installation could result in frac-out that would have the potential for contamination of surface waters with drilling mud.

Development and implementation of an Erosion Control plan, including a Stormwater Pollution Prevention Plan (SWPPP), would ensure no degradation of water quality resulting from disturbance of ground surfaces by construction. Construction-related spills of hazardous materials and deposition of other wastes would be addressed by the SWPPP as well as by a Hazardous Materials and Waste Management Plan. While unlikely, due to the depth of groundwater throughout the project area, any groundwater encountered during trenching would be tested for contaminants and disposed of according to RWQCB requirements. If horizontal directional drilling is used, implementation of an HDD Fluid Management Plan would serve to reduce the possibility of a frac-out (release of drilling fluid through rock fractures) and ensure clean-up of any drilling mud contamination of surface waters.

There will be one crossing of an impaired water body, the Mojave River, which is contaminated due to fluoride.

Existing regulations, including the Clean Water Act, the California Fish and Game Code, the Porter-Cologne Water Quality Control Act, and Nevada Revised Statutes 445A, are intended to prevent the contamination of waters and avoid violating standards and waste discharge requirements. In addition, to ensure no violation occurs of water quality standards or waste discharge requirements, this analysis recommends the following mitigation measures: Mitigation Measure HWQ-1: Implement an Erosion Control Plan; MM HWQ-2: Prepare and implement an HDD Fluid Management Plan; MM HH-1: Prepare and implement a Hazardous Materials and Waste Management Plan; and MM BR-7: Restore or revegetate temporary disturbance areas. With implementation of applicable laws and these measures, construction impacts would be less than significant with mitigation.

Operations and Maintenance

LESS THAN SIGNIFICANT. Operations activities would be similar to those for the existing line and consist of inspections, testing, repairs of equipment, washing of equipment, brush and weed control, roadway maintenance, and other routine activities. These same activities are currently ongoing and would therefore not be a new impact. Further, under Mitigation Measure BR-7: Restore or revegetate temporary disturbance areas, these areas would be revegetated and restored to avoid leaving permanent land disturbance that would be a potential a source of erosion and sedimentation. Operations impacts would therefore be less than significant.

Mitigation Measures

HWQ-1 **Implement an Erosion Control Plan.** SCE shall develop and submit an Erosion Control Plan to the CPUC and BLM for approval at least 60 days prior to construction. The Erosion Control Plan may be part of the Stormwater Pollution Prevention Plan (SWPPP) and kept onsite and readily available on request.

Soil disturbance at structures and access roads is to be minimized and designed to prevent long-term erosion. The Erosion Control Plan shall include:

- The location of all soil-disturbing activities, including but not limited to new and/or improved access and spur roads.
- The location of all streams and drainage structures that would be directly affected by soil-disturbing activities (such as stream crossings or public storm drains by the right-of-way and access roads).
- BMPs to protect drainage structures, such as public storm drains, downstream of soil disturbance activities.
- Design features to be implemented to minimize erosion during construction and during operation (if the project feature is to remain permanent after construction).
- If soil cement is proposed, the specific locations must be defined in the Plan, and evidence of approval by the appropriate jurisdiction shall be submitted to the CPUC and BLM prior to its use.
- The location and type of BMPs that would be installed to prevent off-site sedimentation and to protect aquatic resources.
- Specifications for the implementation and maintenance of erosion control measures and a description of the erosion control practices, including appropriate design and installation details.
- Proposed schedule for inspection of erosion control/SWPPP measures and schedule for corrective actions/repairs, if required. Erosion control/SWPPP inspection reports shall be provided to the CPUC EM.

Locations requiring erosion control/SWPPP corrective actions/repairs shall be tracked, including dates of completion, and documented during inspections. Inspections and monitoring shall be performed in compliance with the Federal and California Construction General Permits. The inspection reports shall be maintained and kept with their respective SWPPP, kept on site as required by the Federal and State Construction General Permits, and made available upon request to the RWQCB, CPUC, BLM, and representatives of the traversed counties

and cities. Additionally, an Annual Report shall be filed for each reporting period in compliance with Federal and California Construction General Permit reporting requirements.

SCE shall submit Grading Plans to the CPUC and BLM for approval that define the locations of the specific features listed above.

SCE shall submit to the CPUC and BLM evidence of possession of applicable required permits for the representative land disturbance prior to engaging in soil-disturbing construction/demolition activities. Such permits may include, but are not limited to, a CWA Section 402 NPDES California General Permit for Storm Water Discharges Associated with Construction Activities (General Permit) from the applicable Regional Water Quality Control Board(s) (RWQCBs), and the Federal General Permit for Storm Water Discharges Associated with Construction Activities on Tribal Land.

Prior to any ground disturbance in stream channels or other waters jurisdictional to the State of California or the Federal Government, SCE shall obtain a Streambed Alteration Agreement from the California Department of Fish and Wildlife, a Section 404 permit from the USACE, and a CWA Section 401 certification from the SWRCB and submit to the CPUC and BLM evidence of possession of such Agreement/permits.

HWQ-2 **Prepare and implement an HDD Fluid Management Plan.** If Horizontal Directional Drilling (HDD) is required, an HDD Fluid Management Plan shall be prepared and implemented. The plan shall include, at a minimum, the following measures:

- Worst-case scenario development and response effort descriptions.
- Drilling pressure monitoring to ensure pressures do not exceed those needed to penetrate the formation.
- Monitoring by a minimum of two monitors (located both upstream and downstream) throughout drilling operations to ensure early detection and swift response in the event of a surface expression of drilling fluid.
- Site-specific contingency measures shall be developed for the drill site, taking into consideration terrain, access, resource sensitivities, and proximity of suitable areas for staging response equipment for the unanticipated surface expression of drilling fluid.
- Agency notification procedures.
- Training for responding personnel.
- Prevention, containment, clean up, and disposal of released drilling mud. Preventative measures shall include incorporation of the recommendations of a pre-construction geotechnical investigation to determine the most appropriate drilling depth and drilling mud mixture for the HDD bore site. Containment shall be accomplished through construction of temporary berms/dikes and use of silt fences, straw bales, absorbent pads, straw wattles, and plastic sheeting. Clean up shall be accomplished with plastic pails, shovels, portable pumps, and vacuum trucks.
- A copy of the Streambed Alteration Agreement (SAA) shall be provided in the Plan. If the SAA also requires development of a similar plan to address HDD fluid management, that plan, as approved by CDFW, may be used to satisfy this measure provided it adequately addresses the requirements identified herein, as determined by the CPUC and BLM.

HH-1 **Prepare and implement a Hazardous Materials and Waste Management Plan.** (The full text of this mitigation measure is provided in the Hazards and Hazardous Materials section. The plan would address materials and waste transportation and handling, equipment and helicopter fueling and maintenance, and emergency release response measures.)

BR-7 **Restore or revegetate temporary disturbance areas.** (The full text of this mitigation measures is provided in the Biological Resources section. This measure provides performance standards, including details of restoration planning, monitoring, and success standards. Implementation of this mitigation measure would effectively restore wildlife habitat values in temporarily disturbed work areas, or for areas that cannot be feasibly restored, would require compensation if appropriate.)

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?

Construction

LESS THAN SIGNIFICANT. Project construction will use water mainly for dust suppression. Water use is estimated at 124,200 gallons per day on average which, over the 15-month construction period, would amount to a total of 174 acre-feet. The project would obtain water from local municipal sources that have enough supplies to serve the project. The municipal supplies may come from either groundwater or surface water sources, or a combination of both, depending of the water agency. Potential/likely water purveyors include the City of Hesperia Water District (existing 65-million-gallon capacity), the Phelan Piñon Hills Community Service District (existing 1.4-billion-gallon capacity), the City of Victorville Water District (existing 11.4-billion-gallon capacity), the San Bernardino County Service Area 42–Oro Grande (approximately 246,000-gallon capacity), the Golden State Water Company in the City of Barstow (existing 1.7-billion-gallon capacity), EPCOR Water USA (existing 9.8-million-gallon capacity), the City of Henderson Utility Services (existing 97-billion-gallon capacity), Las Vegas Valley Water District, and the Utilities Department of North Las Vegas (existing 11.4-million-gallon capacity). The combined capacity available from these purveyors is over 100 billion gallons or 307,000 acre-feet. The project would potentially use less than 0.06 percent of that existing capacity during construction, after which a water supply related to the Proposed Project would not be required. The actual volume of water available may vary based on conditions (e.g., drought, excess rain). Even if suppliers are at half capacity, the project would use 0.12 % of available supply. The amount used during construction would not create a substantial decrease in groundwater supply. Therefore, impacts would be less than significant.

There is a potential for new impervious areas to impede infiltration of water. Total new impervious areas from construction of the mid-line capacitors and fiber optic repeaters would be approximately 2.1 acres across the five sites. Given the negligible impervious area in comparison to the total watershed area contributing to groundwater basins, it is concluded that the new impervious areas would have no effect on groundwater recharge. This impact is less than significant.

Operations and Maintenance

LESS THAN SIGNIFICANT. During project operation activities would be similar to those currently in place, leading to no new impact. O&M operations are not expected to use large amounts of water, which when needed would be obtained from municipal water suppliers, and the amount of water to be used by the project will be approximately the same as is currently used. This impact is therefore less than significant.

Mitigation Measures

No mitigation is required.

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?

Construction

LESS THAN SIGNIFICANT. Construction of the project would cause minor alterations of terrain in a few locations that could locally alter minor drainage patterns resulting in siltation or erosion. Grading, site preparation, and installation of crushed rock would slightly decrease the permeability of the site. Equipment and structures on the sites would be impervious surfaces that would shed runoff to their surroundings. The proposed facilities are in areas with very little to no development.

The Newberry Springs and Ludlow capacitors would involve 4.1 and 4.3 acres of site development, respectively. Berms would be constructed at each site to divert stormwater run-on away from the site. Access roads would be at-grade and not disturb the overall drainage pattern.

Overall, the potential for alteration of existing drainage patterns leading to erosion and siltation is negligible. The semi-permeable and impervious surfaces introduced at project sites would be relatively small and planned berms and retention basins would be adequate for any increase in runoff that may result.

Operation and Maintenance

NO IMPACT. During O&M, workers and equipment would use existing access or spur roads. Drainage across these features is at grade. The existing drainage pattern would not be affected

Mitigation Measure

No mitigation is required.

(ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?

Construction

LESS THAN SIGNIFICANT. The project will not substantially alter the drainage pattern. Access roads would be at-grade in most places and not disturb the overall drainage pattern, and temporarily disturbed areas will be restored to the existing condition. The Newberry Springs and Ludlow capacitor facilities would include berms that would divert stormwater away from the sites, which are small in comparison to the overall drainage pattern. There are no existing drainage features at either of these locations that could be substantially altered by the construction, and no adjacent features that could be damaged by the alteration of drainage. Retention/detention basins would be provided to mitigate any increase in runoff caused by the new impervious areas. This impact is therefore less than significant.

Operation and Maintenance

NO IMPACT. O&M activities would involve infrequent/periodic vehicle and foot traffic at and around facilities and would not alter the drainage pattern.

Mitigation Measures

No mitigation is required.

(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?

Construction

LESS THAN SIGNIFICANT. New impervious areas are small relative to the large pervious area around the proposed facilities. Impervious areas are mainly limited to the Newberry Springs and Ludlow capacitors and the three optic repeater sites. Retention/detention basins would be provided at the capacitor sites to mitigate any increase in runoff caused by new impervious surfaces. The repeater sites are approximately 0.1 acres. Impervious surfaces within the repeater sites would be small and runoff would be readily absorbed by the surrounding ground surface. Aside from natural watercourses, there are no existing or planned drainageways near the project. This impact is therefore less than significant.

Operation and Maintenance

NO IMPACT. O&M activities would involve infrequent/periodic vehicle and foot traffic at and around facilities and would not create new impervious surfaces.

Mitigation Measures

No mitigation is required.

(iv) impede or redirect flood flows?

Construction

LESS THAN SIGNIFICANT IMPACT. The only project features known to be within floodplains are the Eldorado and Mohave Substations, and a limited number of existing transmission line structure as described in Section 5.10.1. These substations and transmission line structures are existing, and the changes proposed for the project would not create new obstructions to flood flow. This impact is less than significant.

Operation and Maintenance

NO IMPACT. Operation and maintenance activities would consist of short-term periodic site visits to inspect and repair facilities. These activities would not impede or redirect flood flows.

Mitigation Measures

No mitigation required.

d. In flood hazard, tsunami, or seiche zones, would the project risk release of pollutants due to project inundation?

Construction

LESS THAN SIGNIFICANT IMPACT. The project is not adjacent to a lake or ocean that could produce seiche or tsunami. Portions of the project will be on slopes that range as high as 75 percent. However, these soils are in arid, well-drained areas. The substations, series capacitor sites, and optic repeater sites are all on flat land well removed from slopes that could produce floods/mudflows. Portions of the Eldorado and Mohave Substations are within mapped flood zones on Federal Emergency Management Agency (FEMA)

Flood Insurance Rate Maps (FIRM). Eldorado Substation is mostly in an area mapped as Zone A, where there is a 1 percent chance of flooding annually (100-year flood); no base flood elevations or depths were determined for this zone. The Mohave Substation is partially in an area mapped as Zone AO, which has an annual 1 percent chance of flooding (100-year flood). Flood depths at Mohave would be approximately 1 foot. However, the Proposed Project would not increase the risk of release of pollutants due to inundation, as any new equipment would be on pads or elevated steel structures and would contain little if any materials that would be mobilized if flooded. This impact is less than significant.

Operation and Maintenance

NO IMPACT. Operation and maintenance activities would consist of short-term periodic site visits to inspect and repair facilities. These activities would not increase the risk of pollutants being released due to inundation.

Mitigation Measures

No mitigation is required.

e. Would the project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

Construction

NO IMPACT. Construction of the project would result in limited areas of semi-permeable and impermeable surface that would drain to adjacent permeable areas. The runoff would be contained in detention basins and ultimately infiltrated to the ground. There would be no effect on implementation of any water quality control plan or groundwater management plan. Routine operation and maintenance would not introduce additional semi-permeable or impermeable surfaces.

Operation and Maintenance

NO IMPACT. Operation and maintenance activities would consist of short-term periodic site visits to inspect and repair facilities. These activities would not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.

Mitigation Measures

No mitigation is required.

5.10.7 References

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5.11 Land Use and Planning

LAND USE PLANNING Would the project:	Potentially Significant Impact	Less Than Significant 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?	☐	☐	☒	☐

Significance criteria established by CEQA Guidelines, Appendix G.

5.11.1 Environmental Setting

Most of the Proposed Project is in undeveloped open space primarily managed by the BLM and NPS or within the jurisdiction of unincorporated San Bernardino County, California or Clark County, Nevada. See Figure 5.11-1. Small portions of the project area are under the jurisdiction of the Bureau of Reclamation (BOR) and the Department of Defense (DOD). In the counties, the Proposed Project crosses land with various land use designations, see Table 5.11-1, and zoning designations, see Table 5.11-2. The Proposed Project would not result in ground disturbance to all of these designations.

Table 5.11-1. Land Use Designations Crossed by the Proposed Project

Jurisdiction	Land Use Designation	Proposed Project Component and Distance Crossed (miles)
County of San Bernardino	Agricultural and Resource Management[1]	Eldorado-Lugo 500 kV Transmission Line – 53.2 miles Lugo-Mohave 500 kV Transmission Line – 150.3 miles
	Special Purpose (Oak Hills/Institutional [OH-IN])	Eldorado-Lugo 500 kV Transmission Line – 1 mile Lugo-Mohave 500 kV Transmission Line – 1 mile
	Residential and Rural Living[2]	Eldorado-Lugo 500 kV Transmission Line – 12.6 miles Lugo-Mohave 500 kV Transmission Line – 12.4 miles
City of Hesperia	Utilities Corridor	Eldorado-Lugo 500 kV Transmission Line – 2.3 miles Lugo-Mohave 500 kV Transmission Line – 2.3 miles
Clark County	Major Development Projects	Lugo-Mohave 500 kV Transmission Line – 1.5 miles Eldorado-Lugo 500 kV Transmission Line – 3.2. miles
	Open Lands	Lugo-Mohave 500 kV Transmission Line – 6.9 miles Eldorado-Lugo 500 kV Transmission Line – 48.6 miles
	Public Facility	Lugo-Mohave 500 kV Transmission Line – 0.4 miles Eldorado-Lugo 500 kV Transmission Line – 0.9 miles
	Residential Suburban	Lugo-Mohave 500 kV Transmission Line – 0.2 miles Eldorado-Lugo 500 kV Transmission Line – 0.1 miles
	Road ROW	Lugo-Mohave 500 kV Transmission Line – < 0.1 miles Eldorado-Lugo 500 kV Transmission Line – 0.1 miles
	Residential Agriculture	Eldorado-Lugo 500 kV Transmission Line – 0.4 miles
City of Boulder City	Open Lands (Multi-Species Conservation Easement)	Eldorado-Lugo 500 kV Transmission Line – 6.3 miles

1 - Includes: Apple Valley/Resource Conservation [AV/RC], Floodway [FW], Floodway-Agriculture Preserve [FW-AP], Lucerne Valley/Floodway [LV/FW], Lucerne Valley/Resource Conservation [LV/RC], Resource Conservation [RC], Lucerne Valley/Agriculture [LV/AG], and Lucerne Valley/Agriculture-40 Acre Minimum [LV/AG-40]

2 - Includes: Apple Valley/Rural Living-20 Acre Minimum [AV/RL-20], Apple Valley/Rural Living-5 Acre Minimum [AV/RL-5], Lucerne Valley/Rural Living [LV/RL], Lucerne Valley/Rural Living-5 Acre Minimum [LV/RL-5], Rural Living [RL], Rural Living-10 Acre Minimum-Agriculture Preserve [RL-10-AP], Rural Living-20 Acre Minimum [RL-20], Rural Living-5 Acre Minimum [RL-5]

Source: SCE, 2018

Table 5.11-2. Zoning Designations Crossed by the Proposed Project

Jurisdiction	Land Use Designations	Proposed Project Component and Distance Crossed (miles)
County of San Bernardino	Agricultural and Resource Management (AV/RC, FW, FW-AP, LV/FW, LV/RC, RC, LV/AG, and LV/AG-40)	Eldorado-Mohave 500 kV Transmission Line – 53.2 miles Lugo-Mohave 500 kV Transmission Line – 150.3 miles
	Special Purpose (OH-IN)	Eldorado-Mohave 500 kV Transmission Line – 1 mile Lugo-Mohave 500 kV Transmission Line – 1 mile
	Residential (AV/RL-20, AV/RL-5, LV/RL, LV/RL-5, RL, RL-10-AP, RL-20, RL-5)	Eldorado-Mohave 500 kV Transmission Line – 12.6 miles Lugo-Mohave 500 kV Transmission Line – 12.4 miles
City of Hesperia	Utilities Corridor	Eldorado-Mohave 500 kV Transmission Line – 2.3 miles Lugo-Mohave 500 kV Transmission Line – 2.3 miles
Clark County	Special Districts (General Highway Frontage District [H-2])	Eldorado-Mohave 500 kV Transmission Line – 0.4 miles
	Manufacturing Districts (Industrial District [M-2])	Eldorado-Mohave 500 kV Transmission Line – 1.8 miles Lugo-Mohave 500 kV Transmission Line – 1.5 miles
	Residential Districts (Rural Open Land District [R-U], Medium Density Residential District [R-2])	Eldorado-Mohave 500 kV Transmission Line – 50.7 miles Lugo-Mohave 500 kV Transmission Line – 8.1 miles
City of Boulder City	Government Open Space/Boulder City Conservation Easement (BCCE)	Lugo-Mohave 500 kV Transmission Line – 6.3 miles

Source: SCE, 2018.

Federal Land Use

Bureau of Land Management

The BLM oversees management of the National Landscape Conservation System, which contains federally recognized conservation lands, such as national monuments, wilderness areas, national scenic and historic trails, and national conservation lands. The BLM also designates Areas of Critical Environmental Concern (ACECs) as special management areas to protect significant resources. The BLM-managed land use areas within 1 mile of the Proposed Project include the following.

California Desert District. The California Desert Conservation Area (CDCA) was created by Congress in 1976 and is managed by the California Desert District of the BLM. The California Desert District encompasses approximately 11 million acres.

In the California Desert District four BLM Wilderness Areas are within 1 mile of the Proposed Project:

- Rodman Mountains Wilderness abuts the existing Eldorado-Lugo 500 kV Transmission Line for approximately 1.6 miles. Wilderness is located adjacent to and north of the existing Lugo-Mohave 500 kV Transmission Line;
- Kelso Dunes Wilderness located less than 1 mile south of the existing Eldorado-Lugo 500 kV Transmission Line and less than 1 mile north of the existing Lugo-Mohave 500 kV Transmission Line;
- Bristol Mountains Wilderness located adjacent to and south of the existing Lugo-Mohave 500 kV Transmission Line; and
- Dead Mountain Wilderness located adjacent to and south of the existing Lugo-Mohave 500 kV Transmission Line near the California-Nevada border.

Mojave Trails National Monument. The Mojave Trails National Monument is located between Joshua Tree National Park and the Mojave National Preserve along Route 66 in San Bernardino County. It is managed by the BLM and covers approximately 965,000 acres. Approximately 25.3 miles of the existing

Eldorado-Lugo 500 kV Transmission Line and approximately 28.3 miles of the existing Lugo-Mohave 500 kV Transmission Line span the Mojave Trails National Monument. The proposed Ludlow Series Capacitor would be in the Mojave Trails National Monument near its western boundary.

Areas of Critical Environmental Concern. The BLM manages numerous ACECs along the Proposed Project. Many of the ACECs crossed by the Proposed Project were revised in the Desert Renewable Energy Conservation Plan Land Use Amendment (DRECP LUPA) (SCE, 2018 and BLM, 2016)

- The Piute/Eldorado ACEC is in Nevada and covers 328,242 acres and contains an estimated 286,541 acres of designated desert tortoise critical habitat pursuant to the federal Endangered Species Act (ESA). Approximately 41.2 miles of the existing Eldorado-Mohave 500 kV Transmission Line are located within the Piute/Eldorado ACEC. Designated desert tortoise critical habitat is discussed further in Section 5.4, Biological Resources.
- The Pisgah ACEC is located east of Pisgah Substation and is crossed by an estimated 6.7 miles of the existing Lugo-Mohave 500 kV Transmission Line in San Bernardino County. This ACEC is managed to protect biological values including habitat quality, populations or sensitive species, and landscape connectivity and covers 46,500 acres.
- The Dead Mountains ACEC is located within Dead Mountains Wilderness in San Bernardino County. It was designated to provide protection of Native American values and covers 27,210 acres. Approximately 0.6 miles of the existing Lugo-Mohave 500 kV Transmission Line is located within the Dead Mountains ACEC.
- The Piute-Fenner ACEC is in San Bernardino County and is a critical portion of the Piute Valley Tortoise Management area and provides habitat linkage between the Mojave National Preserve and land managed by the BLM Las Vegas Field Office. It covers 155,710 acres. Approximately 15.3 miles of the existing Lugo-Mohave 500 kV Transmission Line are located within the Piute-Fenner ACEC.
- The Ord-Rodman ACEC is in San Bernardino County and provides high density desert tortoise habitat and critical tortoise habitat linkage. It covers 204,860 acres. Approximately 17 miles of the existing Lugo-Mohave 500 kV Transmission Line are located within the Ord-Rodman ACEC.
- The Juniper Flats ACEC is in San Bernardino County and is an extremely diverse and dense region for cultural resources, both prehistoric and historic. It covers 2,390 acres. Approximately 0.3 miles of the existing Lugo-Mohave 500 kV Transmission Line is located within the Juniper Flats ACEC.
- The Bristol Mountain ACEC is in San Bernardino County and is high value desert tortoise habitat and connectivity between the Ord-Rodman and Chemehuevi ACECs. The area is critically important for bighorn sheep, Mojave fringed-toed lizards, burrowing owl, and several bat species. It covers 214,190 acres. An estimated 4.95 miles of the existing Lugo-Mohave 500 kV Transmission Line is located within the Bristol Mountain ACEC.
- The Granite Mountain Wildlife Linkage ACEC is in San Bernardino County and provides critical links for wildlife populations to the north and south of the linkage area. It covers 39,290 acres. An estimated 6.3 miles of the Lugo-Mohave and Eldorado-Lugo 500 kV Transmission Lines are located within the Granite Mountain Wildlife Linkage ACEC.

Highland Range Crucial Bighorn Habitat. Highland Range Crucial Bighorn Habitat is located west and adjacent to the existing Eldorado-Mohave 500 kV Transmission Line and southwest of Boulder City and covers approximately 8,880 acres. Highland Range Crucial Bighorn Habitat area was set aside for the protection and propagation of desert bighorn sheep.

California Desert National Conservation Lands. The Proposed Project crosses California Desert National Conservation Lands identified in the DRECP LUPA to the CDCA Plan. The California Desert National Conservation Lands were identified based on having nationally significant ecological, cultural and scientific values as called for under Public Law 111-11. The California Desert National Conservation Lands in the DRECP LUPA emphasize habitat connectivity and cultural-botanical resource locations. The lands are managed using ground disturbance caps which limit the amount of ground-disturbance possible without mitigation.

National Park Service

The California Desert Protection Act established the Mojave National Preserve, which covers approximately 1.6 million acres. Approximately 49.3 miles of the existing Lugo-Mohave 500 kV Transmission Line are located within the Mojave National Preserve. Providence Mountains State Recreation Area, the University of California Natural Reserve System's Sweeney Granite Mountains Desert Research Center, and California State University's Desert Studies Center at Soda Springs are also within the preserve's boundaries. Additionally, approximately 700,000 acres of the Mojave National Preserve is designated wilderness, including the Mojave Wilderness.

Bureau of Reclamation

Approximately 0.6 miles of the existing Lugo-Mohave 500 kV Transmission Line is located west of the Colorado River and within land managed by the BOR. The Lower Colorado Region of the BOR manages water and related resources in southern Nevada, Southern California, most of Arizona, a small section of southwest Utah, and a small section of west-central New Mexico. No BOR facilities are located within 1 mile of the Proposed Project.

Department of Defense

Approximately 1.1 miles of the existing Lugo-Mohave 500 kV Transmission Line are located within land managed by the DOD and adjacent to Marine Corps Air Ground Combat Center (MCAGCC) Twentynine Palms. MCAGCC Twentynine Palms is the largest military training facility in the U.S. MCAGCC Twentynine Palms contains facilities and services for resident organizations, marines, sailors, and their families. It also has exclusive military use areas, as well as a shared use area that allows public access when training exercises are not being conducted.

Forest Service

The San Bernardino National Forest is in San Bernardino County, California, and it offers bicycling, camping, fishing, hiking, hunting, picnicking, and winter sports. There are eight designated wilderness areas in the San Bernardino National Forest. It is located approximately 0.8 miles south the Lugo-Mohave 500 kV Transmission Line.

State

California

California State Lands Commission. The existing Eldorado-Lugo 500 kV Transmission Line and the existing Lugo-Mohave 500 kV Transmission Line cross undeveloped small parcels of land managed by the CSLC, totaling approximately 5.3 miles. The CSLC was created to protect and manage natural and cultural resources and public access on certain public lands in California. The public lands under the jurisdiction of the CSLC are divided into two types: sovereign and proprietary lands. The Proposed Project crosses proprietary School Lands granted by the U.S. to California in 1853 to benefit public education (CSLC, 2015).

Nevada

Department of Conservation and Natural Resources. The existing Eldorado-Mohave 500 kV Transmission Line and the existing Lugo-Mohave 500 kV Transmission Line cross approximately 0.7 miles of Big Bend of the Colorado State Recreation Area, managed by Nevada State Parks. The lines are within existing ROW owned by SCE.

Local

The Proposed Project crosses several local jurisdictions. The land use designations and zoning for all of them are listed in Tables 5.11-1 and 5.11-2.

County of San Bernardino, California

The unincorporated area of San Bernardino County in the vicinity of the Proposed Project is largely managed by the BLM, NPS, and DOD. The project also crosses the community of Lucerne Valley.[3] The remaining area of San Bernardino County in the vicinity of the existing Eldorado-Lugo 500 kV Transmission Line and the existing Lugo-Mohave 500 kV Transmission Line has land uses that are mostly undeveloped and open lands, with some low-density residential including the Arrowhead Equestrian Estates and agricultural uses, infrastructure, and industrial (mining).

City of Hesperia, California

The City of Hesperia is bordered to the west by unincorporated areas of San Bernardino County, to the north by the City of Victorville, to the east by the Town of Apple Valley, and to the south by unincorporated areas of San Bernardino County and the San Bernardino National Forest. The City of Hesperia contains a mix of residential, agricultural, industrial, and commercial uses. Lugo Substation is located within the Oak Hills Community Plan in the western portion of the City of Hesperia's sphere of influence (Hesperia, 2017). The area surrounding the existing Lugo Substation to the north and east is mostly residential development. The existing Lugo-Mohave 500 kV Transmission Line runs through the City of Hesperia's sphere of influence and through the City of Hesperia, itself. The Proposed Project crosses mostly undeveloped lands, with some residential uses and public facilities.

Clark County, Nevada

The eastern portion of the Proposed Project is in southern Clark County in primarily undeveloped open lands in the Laughlin Planning Area. The existing Eldorado-Mohave 500 kV Transmission Line and the existing Lugo-Mohave 500 kV Transmission Line traverse Clark County in mostly BLM-managed land and the unincorporated communities of Searchlight and Laughlin. The Mohave Substation is identified as Major Development Project in the Laughlin Land Use Plan (Clark County, 2017) and is near existing residential, commercial, and public/institutional land uses.

City of Boulder City, Nevada

The City of Boulder City is surrounded by unincorporated Clark County and the City of Henderson to the northwest. The existing Eldorado-Mohave 500 kV Transmission Line and Eldorado Substation are in the southern half of the City of Boulder City in the Eldorado Valley area. The land uses near the Proposed Project are energy resources (mainly solar energy) and government open space/conservation easement.

[3] A Revised Draft Lucerne Valley Community Plan/Action Guide is being prepared to replace the 2007 Plan for the area. It has not been finalized at the time of this report. However, the Proposed Project crosses the proposed community boundary for the Lucerne Valley Community Plan/Action Guide.

5.11.2 Regulatory Background

State and Local

Land use is regulated at the local level, where land use planning also occurs, consistent with state guidance.

The CPUC has sole and exclusive jurisdiction over the siting and design of the Proposed Project components located in the State of California. Pursuant to CPUC G.O. 131-D, Section XIV.B, "Local jurisdictions acting pursuant to local authority are preempted from regulating electric power line projects, distribution lines, substations, or electric facilities constructed by public utilities subject to the CPUC's jurisdiction. However, in locating such projects, the public utilities shall consult with local agencies regarding land use matters." Consequently, public utilities are directed to consider local regulations and consult with local agencies, but the county and cities' regulations are not applicable as the county and cities do not have jurisdiction over the Proposed Project. For informational purposes, local regulations in California jurisdictions are provided in Appendix C. The Proposed Project is subject to local regulations in the State of Nevada.

Nevada Revised Statutes Section 704.865 provides that "A person, other than a local government, shall not commence to construct a utility facility in the State without first having obtained a permit therefor from the Commission. The replacement of an existing facility with a like facility, as determined by the Commission, does not constitute construction of a utility facility." The Public Utilities Commission of Nevada is the Lead Agency for compliance with the Nevada Utility Environmental Protection Act.

Southern Nevada Regional Planning Coalition. The Southern Nevada Strong Regional Plan is implemented by local jurisdictions and organizations. The purpose of the Southern Nevada Strong Regional Plan is to develop regional support for long-term economic success and stronger communities. The Aboveground Utility Plan is intended to be part of the Southern Nevada Strong Regional Plan, and includes policies requiring aboveground utility corridors to be consistent with local jurisdictions and BLM.

Clark County Comprehensive Plan and Municipal Code. The Clark County Comprehensive Plan is a policy document for the physical development of unincorporated Clark County. Title 30 – Unified Development Code of Clark County's Municipal Code implements the county's Comprehensive Plan. Key policies include:

- Utilities 3: Utility providers are to locate transmission lines and pipelines within Clark County's existing utility corridors when technically feasible
- Utilities 4: Support increasing capacity of existing utility corridors over establishing new ones
- Utilities 6: Encourage the development of transmission capability and interconnectivity for distributed energy, cogeneration and alternative energy sources, including regional interconnectivity and transmission capability
- Utilities 12: Use the Aboveground Utility Corridor Map for review of proposed Aboveground Utility Projects.

South Clark County Land Use Plan. The South Clark County Land Use Plan is the land use plan for the South Clark County planning and consists of goals, policies, and maps, and identifies development patterns. Key policies include:

- Policy 30.3: Encourage the upgrade and use of existing corridors whenever possible to minimize the overall number of corridors established within South Clark County communities.

Laughlin Land Use Plan. The Laughlin Land Use Plan is the land use plan for the Laughlin planning area and consists of goals, policies, and maps, and identifies development patterns. Key policies include:

- Policy 34.1: Encourage the installation of public and quasi-public infrastructure (e.g., electrical substations, water pumping stations, etc.) with enhanced designs which utilize low profile equipment, decorative block walls, drought-tolerant landscaping and features which integrate with adjacent development.
- Policy 34.2: Discourage the use of low voltage overhead electric distribution lines. The Unified Development Code (Title 30) mandates that electric distribution lines be installed underground.
- Policy 35.3: Encourage the upgrade and use of existing corridors whenever possible to minimize the overall number of corridors established within Laughlin.

Boulder City Master Plan and Municipal Code. The Land Use Element of the Boulder City Master Plan is intended guide the location and design of land uses within the City of Boulder City. Title 11: Zoning and Subdivisions of the City of Boulder City's municipal code implements the city's Master Plan. The Eldorado Substation and the existing Eldorado-Mohave 500 kV Transmission Line are surrounded by the Open Lands (Multi-Species Conservation Easement) land use designation; however, the future and existing land use map displays the Proposed Project alignment as a power line easement.

Clark County Desert Conservation Program: Multiple Species Habitat Conservation Plan. The Clark County Desert Conservation Program manages federal ESA compliance for Clark County and the City of Boulder City, among others. In doing so, the program implements the MSHCP and associated Section 10(a)(1)(B) incidental take permit to provide a streamlined process for federal ESA compliance by private landowners. The Boulder City Conservation Easement is a unit of the Clark County reserve system under the MSHCP managed by the Conservation Easement Management Plan. The Proposed Project crosses approximately 6.3 miles of land within the Boulder City Conservation Easement boundary.

Federal

Bureau of Land Management

Federal Land Policy and Management Act. The Federal Land Policy and Management Act (FLPMA) provides a regulatory framework for the management and use of BLM resources. An important aspect of the FLPMA is that it supports multiple uses on public lands. In addition, under the FLPMA, the BLM regulates rights-of-way (ROWs) for electrical power generation, transmission and distribution systems, systems for the transmission and reception of electronic signals and other means of communication, pipelines (other than oil and gas), railroads, highways, and other facilities or systems developed in the interest of the public. The FLPMA also designated the approximately 26-million-acre CDCA in Southern California, of which approximately 10.4 million acres are administered by the BLM. Lands in the CDCA are also managed by the NPS, DOD, and the USFS.

California Desert Conservation Area Plan. The CDCA Plan is a comprehensive, long-range plan for the management, use, development, and protection of lands within the CDCA, and it is required as part of the FLPMA and implemented by the BLM. The CDCA Plan contains an Energy Production and Utility Corridors Element, in which the BLM encourages applicants for utility ROWs to use designated corridors.

The Desert Renewable Energy Conservation Plan Land Use Plan Amendment (DRECP LUPA) is focused on 10.8 million acres of public lands in the desert regions of seven California counties – Imperial, Inyo, Kern, Los Angeles, Riverside, San Bernardino, and San Diego. It is a landscape-level plan that streamlines renewable energy development while conserving unique and valuable desert ecosystems and providing outdoor recreation opportunities. The BLM signed the Record of Decision approving its Land Use Plan

Amendment to the CDCA Plan on September 14, 2016. The BLM Plan Amendment covers the 10 million acres of BLM-managed lands in the DRECP plan area and supports the overall renewable energy and conservation goals of the DRECP. The DRECP designated multiple land use designations that include Areas of Critical Environmental Concern (ACECs) and National Conservation Lands.

Public Law 111-11, the Omnibus Public Lands Management Act of 2009, formally established the National Landscape Conservation System, which is made up of BLM lands with nationally significant ecological, cultural and scientific values, and is managed to conserve, protect and restore these values. Public Law 111-11 states that public land within the CDCA administered by the BLM for conservation purposes is a component of the NLCS. The BLM identified lands as part of the NLCS through the DRECP LUPA to the CDCA Plan.

California Historic Route 66: Needles to Barstow Corridor Management Plan. The California Historic Route 66: Needles to Barstow Corridor Management Plan (CMP) was developed to secure a nomination for the route as a National Scenic Byway. The plan identifies that high-voltage electric transmission line corridors (either the expansion of existing or the introduction of new corridors in designated areas) represent a significant level of change that may have significant negative impact on the Historic Route 66 context. It recommends ways to reduce visual contrast.

Las Vegas and Pahrump Field Offices Draft Resource Management Plan/Environmental Impact Statement (Proposed). The Las Vegas and Pahrump Field Offices Draft Resource Management Plan/ Environmental Impact Statement was released in the fall of 2014 as a revision to the 1998 Las Vegas Resource Management Plan, which provides management direction on resource issues for all public lands managed by the Las Vegas Field Office within Clark County. The public review and comment period closed on March 9, 2015. An additional Public Input Opportunity was held between December 2017 and March 2018.

National Park Service

California Desert Protection Act of 1994. The California Desert Protection Act of 1994 is a federal law that established Death Valley National Park, Joshua Tree National Park, and the Mojave National Preserve in California. Section 511 Utility Rights of Way states that Southern California Edison Company (SCE) activities within the ROW of the Mojave National Preserve are to remain valid. This includes upgrades to the existing electrical transmission line to increase capacity. In the existing Eldorado-Lugo 500 kV Transmission Line ROW and existing Lugo-Mohave 500 kV Transmission Line ROW, no additional land would be issued, granted, or permitted for such an upgrade unless an addition would reduce the impacts to resources in the Mojave National Preserve.

Mojave General Management Plan. The Mojave General Management Plan, the management strategy for the Mojave National Preserve, was developed as a requirement of the California Desert Protection Act of 1994 and is implemented by the NPS. The Mojave General Management Plan notes that some existing land uses such as electric transmission lines do not conform well with the preservation mission and management goals but are authorized pre-existing uses. The Plan identifies these resources to recognize their existence as non-conforming uses that dissect the park and at times may interfere with the visitor experience. The management philosophy towards these developments is to minimize their intrusion and manage towards their eventual elimination, either through technological improvements or acquisition. Many of these uses will likely remain intact throughout the life of this plan, but as opportunities arise to minimize or eliminate them, the park would work towards that end (NPS, 2002).

Clark County Conservation of Public Land and Natural Resources Act of 2002. The federal Clark County Conservation of Public Land and Natural Resources Act of 2002 establishes wilderness areas, promotes conservation, improves public land, and provides for high-quality development in Clark County, Nevada. It established Bridge Canyon Wilderness within the Lake Mead National Recreation Area as part of the National Wilderness Preservation System.

Bureau of Reclamation

The Bureau of Reclamation Manual Directives and Standards provide policies for BOR-managed lands~~; however, local offices may implement these standards at their discretion~~. Land Use Authorizations Directives and Standards provides procedures for issuing use authorization documents for use of BOR lands.

5.11.3 Applicant Proposed Measures

The Proposed Project does not include any APMs related to Land Use and Planning.

5.11.4 CEQA Significance Criteria

Appendix G of the CEQA Guidelines (14 CCR 15000 et seq.) provides guidance on assessing whether a project would have significant impacts on the environment. Consistent with Appendix G, the Proposed Project would have significant land use and planning impacts if it would:

a. *Physically divide and 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.*

5.11.5 Methodology

This analysis reviewed the existing land use designations along the Proposed Project alignment primarily at the location of ground disturbance. It then reviews whether the Proposed Project would permanently convert or temporarily impact land uses and land use designations. It also reviews whether the Propose Project would conform with the land use plans and regulations.

5.11.6 Project Impacts and Mitigation Measures

a. Would the project physically divide an established community?

Construction

LESS THAN SIGNIFICANT. The Proposed Project crosses unincorporated San Bernardino County, unincorporated Clark County, the City of Hesperia, the City of Boulder City, and the unincorporated communities of Laughlin and Searchlight. Each of these jurisdictions includes residential areas although the bulk of the land is undeveloped open space. Communities are not established on federal land managed by the BLM and NPS. Therefore, the Proposed Project would not divide any communities and there would be no impact with regard to dividing established communities on federal lands.

Construction would occur primarily on existing and to-be-acquired franchise areas and ROWs, and within existing access roads or new permanent access roads for the mid-line series capacitors. The nearest residential communities are located adjacent to the Lugo Substation, approximately 0.7 miles north of existing the Lugo-Mohave 500 kV Transmission Line in San Bernardino County and adjacent to the existing Lugo-Mohave 500 kV Transmission Line and Eldorado-Mohave 500 kV Transmission Line in

Clark County. These neighborhoods would not be physically divided by the Proposed Project because the Proposed Project would not cross any of the residential neighborhoods except within existing ROW and the construction activities would occur within existing or to-be-acquired franchise areas and ROWs. The impact would be less than significant.

Operation

NO IMPACT. O&M activities associated with the Proposed Project would be similar to those currently performed for the existing facilities, with additional O&M activities associated with the proposed mid-line series capacitors and fiber optic repeater facilities. Because O&M activities would be similar to current practices and no impact would result from the Proposed Project.

Mitigation Measures

No mitigation is required.

b. 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?

Construction

State and Local

LESS THAN SIGNIFICANT. In California, the CPUC's jurisdictions over electric power line projects and substations exempts the Proposed Project from local land use regulations under G.O. 131-D. However, the CPUC generally reviews local regulations for consistency. The Proposed Project is subject to local regulations in the State of Nevada.

Approximately 177.6 miles of the existing Lugo-Mohave 500 kV Transmission Line is in unincorporated areas of San Bernardino County within existing or to-be-acquired franchise areas and ROWs. The majority of the Proposed Project ROW is designated as Resource Management and is land managed by either the BLM or the NPS. On private land, the Proposed Project would be located within areas designated as Agricultural,[4] Special Purpose, and Residential. For each of the zones that the Proposed Project crosses, Section 85.02.050 of the County of San Bernardino Development Code states that pipelines, transmission lines, and control station uses are regulated and approved by the CPUC.

Local jurisdictions in California acting pursuant to local authority are preempted from regulating electric power line projects, distribution lines, substations, or electric facilities constructed by public utilities subject to the CPUC's jurisdiction. However, in locating such projects, the public utilities shall consult with local agencies regarding land use matters. Because the Proposed Project is in existing ROW, the local agencies are aware of the ROW and have incorporated it into their general plans and ordinances. Therefore, the Proposed Project would not conflict with relevant County of San Bernardino land use plans and goals.

Approximately 2.7 miles of the existing Lugo-Mohave 500 kV Transmission Line is in the City of Hesperia. The Proposed Project would be located within an area designated as Utilities Corridor and would not conflict with relevant City of Hesperia land use plans and goals.

[4] Section 5.2, Agricultural and Forestry Resources contains discussion on potential impacts associated with land uses and zoning designated as agricultural use.

Approximately 72.1 miles of the existing Eldorado-Mohave 500 kV Transmission Line and the existing Lugo-Mohave 500 kV Transmission Line is in unincorporated Clark County within an existing or to-be-acquired ROWs. The Proposed Project would be located within areas designated as Special Districts, Manufacturing Districts, and Residential Districts. The Special District (General Highway Frontage District) establishes a variety of residential, office, and commercial uses. The Manufacturing Districts zone is intended to permit a broad range of industrial development. The Rural Open Land District and Medium Density Residential District are both Residential Districts. The Rural Open Land District provides for very low-density residential use and other appropriate uses of the vast areas of rural land. The Medium Density Residential District provides for the development of compact single-family residential development and prohibits the development of incompatible uses that are detrimental to the residential environment.

Public utility structures (including transmission lines that are 34.5 kV or greater) are allowed within each of the designations crossed by the Proposed Project as a conditional use if the structures are located within an aboveground transmission line corridor designated in the Public Facilities and Services Element of the Clark County Comprehensive Plan. Electric substations or other public utility structures located in the Industrial District are permitted only if equipment is not visible from streets or residential development, is screened with enhanced walls and landscaping, and is located at least 200 feet from a residential development. The Proposed Project is located within an existing aboveground transmission line corridor. Additionally, Mohave Substation is existing and is not located within 200 feet of a residential development. While equipment is visible from Bruce Woodbury Drive and Edison Way, there is an existing security fence surrounding Mohave Substation and the Proposed Project would not have any changes to the general visual character of the area. The Proposed Project would not conflict with relevant Clark County land use plans and goals.

The Eldorado Substation and 6.5 miles of the existing Eldorado-Mohave 500 kV Transmission Line are in the City of Boulder City. The Proposed Project would be located within an area designated as Government Open Space/BCCE (Boulder City Conservation Easement). The Proposed Project includes the modification and upgrade of existing facilities within an existing BCCE ROW and along an existing transmission line corridor, and all use rights in these corridors are excluded from the BCCE. The Proposed Project would not conflict with relevant City of Boulder City land use plans and goals.

Bureau of Land Management

LESS THAN SIGNIFICANT. The Proposed Project would cross BLM managed lands having various land designations. The BLM land in California is managed under the CDCA Plan as amended by the DRECP LUPA. As such, it would be subject to the Conservation and Management Actions as determined by the BLM in its review of the project under the National Environmental Protection Act (NEPA). The DRECP LUPA recognizes valid existing rights such as existing transmission lines. The BLM will evaluate the applicability of valid existing rights on a case-by-case basis, and in situations where the BLM retains authority to require design features or specific actions, the BLM will apply DRECP LUPA decisions to the extent authorized by the relevant statutes and regulations. Because the BLM will require the Proposed Project to comply with the applicable management actions under the CDCA Plan, it does not conflict with the existing plans and policies.

The Ludlow Series Capacitor and other ground wire modification work would occur within the Mojave Trails National Monument and result in an estimated 2.9 acres of permanent disturbance and 40.5 acres of temporary disturbance.

The Ludlow and Newberry Series Capacitors and other ground wire modification work and pole work would occur within lands identified as National Conservation Lands and would result in an estimated almost 5.2 acres of permanent disturbance and 68.3 acres of temporary disturbance.

Both temporary and permanent impacts would occur on BLM land within ACECs. Direct ground disturbance impacts would occur in ACECs managed by the BLM including raising towers, ground wire peak modification, helicopter landing zones, temporary structure work areas, stringing sites, and temporary yards. The Ludlow and Newberry Series Capacitors are within the Pisgah ACEC. Impacts to ACECs are:

- 20.6 acres of temporary disturbance to Piute/Eldorado,
- 5.9 acres of permanent and 39.7 acres of temporary disturbance to Pisgah,
- 13.3 acres of temporary disturbance to Piute-Fenner,
- 15.8 acres of temporary disturbance to Ord-Rodman,
- 5.2 acres of temporary disturbance to Bristol Mountain, and
- 15.7 acres of temporary disturbance to Granite Mountain Wildlife Linkage.

Indirect impacts to land use include visual impacts, dust, and noise. The Lugo-Mohave 500 kV Transmission Line runs between numerous wilderness areas. While the project has been designed to avoid direct impacts to the wilderness areas, indirect impacts would occur.

As noted, the Proposed Project would result in direct and indirect impacts within several BLM land designations managed under the CDCA Plan as amended. The only permanent impact to BLM land is to 5.9 acres in the Pisgah area for the series capacitor sites which includes permanent disturbance within the ACEC, National Conservation Lands, and Mojave Trails National Monument, all of which overlap. The CDCA Plan as amended by the DRECP LUPA allows for such impacts when the project adheres to the appropriate Conservation and Management Actions as determined by the BLM. SCE's ROW grants for lands currently and formerly under BLM administration have expired. As part of the Proposed Project, the utility would renew the ROW Grant for lands under BLM jurisdiction. The Proposed Project would be required to comply with the CDCA Plan as amended and any other BLM stipulations. Complying with the plan and stipulations would ensure that there is no conflict with the CDCA Plan and the impact would be less than significant.

National Park Service

LESS THAN SIGNIFICANT. The Proposed Project would cross NPS managed land in the Mojave National Preserve and would result in 0.2 acres of permanent and 24.3 acres of temporary disturbance. The Mojave General Management Plan is the management strategy for the Preserve. The Plan notes that some existing land uses such as electric transmission lines do not conform well with the preservation mission and management goals but are authorized pre-existing uses. The Park's philosophy toward these developments is to minimize their intrusion and manage toward their elimination although the Plan recognizes that the uses will likely remain intact.

SCE's ROW grant for lands currently and formerly under BLM administration have expired. The utility would need to obtain a Special Use Permit from NPS on lands formerly under BLM jurisdiction but now administered by the NPS as the Mojave National Preserve. On the Mojave National Preserve, an NPS Special Use Permit would be needed for ROW and a separate Special Use Permit would be required for construction.

The two repeater sites located in the Mojave National Preserve would be within the ROW Permit for the Lugo-Mohave 500 kV Transmission Line and would be low profile facilities adjacent to existing tall LSTs. The transmission line is a permitted use in the Preserve. The sites, while visible, are part of the needed infrastructure for the transmission line. The NPS Mojave General Management Plan recognizes that many existing uses will remain intact through the life of the plan. As such, the sites would not conflict with the existing General Management Plan and the impacts would be less than significant.

Operation

NO IMPACT. O&M activities associated with the Proposed Project would be similar to those currently performed for the existing facilities, with additional O&M activities associated with the proposed mid-line series capacitors and fiber optic repeater facilities. Because O&M activities would be similar to current practices, the Proposed Project would not result land use impacts.

Mitigation Measures

No mitigation is required.

5.11.7 References

BLM (Bureau of Land Management). 2016. Desert Renewable Energy Conservation Plan Land Use Plan Amendment. Appendix B, Areas of Critical Environmental Concern – Special Unit Management Plans.

CSLC (California State Lands Commission). 2015. Land Types. http://www.slc.ca.gov/Info/Land_Class.html. Accessed January 2, 2019.

NPS (National Park Service). 2002. Mojave National Preserve: General Management Plan: Use of the Preserve. https://www.nps.gov/moja/learn/management/upload/MOJA_GMP71-88.pdf. December 20, 2018.

SCE (Southern California Edison). 2018. Eldorado-Lugo-Mohave Series Capacitor Project: Proponent's Environmental Assessment (PEA). Volumes 1 through 8. April.

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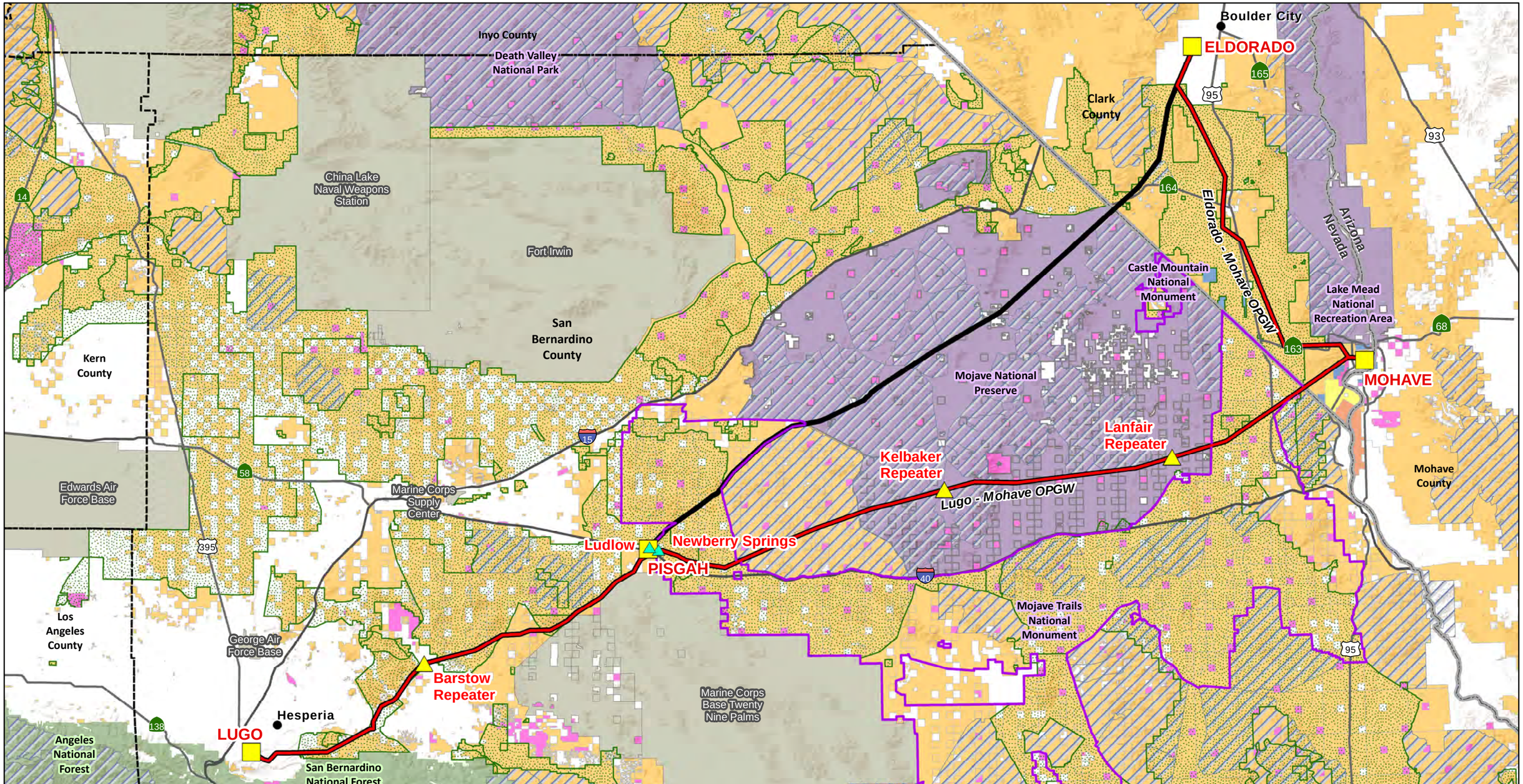

Figure 5.11-1

Primary Land Jurisdictions Along the Proposed Project

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5.12 Mineral Resources

MINERAL RESOURCES Would the project:	Potentially Significant Impact	Less Than Significant 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?	☐	☐	☒	☐

Significance criteria established by CEQA Guidelines, Appendix G.

5.12.1 Environmental Setting

According to the United States Geological Survey (USGS), a mineral resource is defined as a concentration of naturally occurring solid, liquid, or gaseous materials in or on the earth's crust in such a form and quantity, and of such a grade or quality, that it has reasonable prospects for economic extraction, either currently or in the future. Mineral resources include oil, natural gas, and metallic and non-metallic deposits.

The Proposed Project is in California and Nevada, within the Mojave Basin and Range. Federal lands constitute most of the land in the Mojave, including lands under the jurisdiction of the Bureau of Land Management (BLM), National Park Service (NPS), Bureau of Reclamation, and Department of Defense. The Proposed Project would modify three existing transmission lines that extend between Lugo Substation in San Bernardino County, California and Eldorado Substation in the City of Boulder City, Nevada, between Lugo Substation and Mohave Substation in southern Clark County, Nevada, and between Mohave Substation and Eldorado Substation. Portions of the Proposed Project would also cross the City of Hesperia, California, the unincorporated community of Lucerne Valley in California, as well as the unincorporated communities of Searchlight and Laughlin in Nevada.

There are 48 mineral sites identified as producers, past producers, or mineral prospects within 1 mile of the Proposed Project. These are primarily on BLM land but also occur on private and NPS land (SCE, 2018). Producers are defined by the USGS as mines that produce on demand or seasonally with variable durations of activity. Past producers are formerly operating mines that have closed and the equipment or structures may have been removed or abandoned. Mineral prospects are deposits that have gone beyond the occurrence stage but may or may not have undergone feasibility studies that would lead to a decision on whether to go into production. The mineral sites are listed in Table 5.12-1, Mineral Resource Producers, Past Producers, and Prospects within 1 Mile of the Proposed Project. Of these locations, the BLM identifies the Hector Clay Mine as a high priority operation and as locatable minerals (BLM, 2015).

The Department of Conservation's (DOC) Office of Mine Reclamation (OMR) provides oversight for local governments as they administer the California Surface Mining and Reclamation Act (SMARA) within their respective jurisdictions. Based on a review of existing mining operations from the DOC's OMR, no active mines were located within 1 mile of the Proposed Project (SCE, 2018). Active mines are defined as U.S. mineral and metal operations that are monitored by the National Minerals Information Center of the USGS, surveyed by the USGS, and considered to be currently active as of 2003.

The DOC Division of Oil, Gas, and Geothermal Resources (DOGGR) oversees the drilling, operation, maintenance, and plugging and abandonment of oil, natural gas, and geothermal wells in California, and tracks all known oil and gas wells in the state. Based on a review of data from the DOC DOGGR, there are no oil, natural gas, or geothermal wells located within 1 mile of the Proposed Project (DOGGR, 2018).

Mineral Resources Zones (MRZs), as classified by the California State Mining and Geology Board (SMGB), were established to designate lands that contain mineral deposits. A small portion of the Eldorado-Lugo 500 kV Transmission Line and Lugo-Mohave 500 kV Transmission Line are in areas classified as MRZ-2a and MRZ-3a. MRZ-2a areas are classified as areas that contain significant measured or indicated reserves. MRZ-3a areas are classified as areas likely to contain undiscovered mineral deposits similar to known deposits in the same producing district or region (i.e., hypothetical resources).

Areas classified as MRZ-2a are located south of the Pisgah Substation near the Hector Mine. Areas classified as MRZ-3a are located west of the Rodman Mountains; east of Ludlow; and west of the SR 95 just west of the California-Nevada border. Within the MRZ areas, the Eldorado-Lugo 500 kV Transmission Line and Lugo-Mohave 500 kV Transmission Line do not cross any areas formally designated by the SMGB for lands containing mineral resources of regional or Statewide economic significance that are needed to meet future demand.

Table 5.12-1. Mineral Resource Producers, Past Producers, and Prospects within 1 Mile of the Proposed Project

Mineral Prospect/ Past Mining Activity	Development Status	Commodity	Approx. Distance to Nearest Project Component	Relative Location and Nearest Proposed Project Component
California				
Argos Deposit	Past Producer	Strontium	0.1 miles	Lugo-Mohave 500 kV Transmission Line
Due Group Prospect	Prospect	Gold	0.1 miles	Lugo-Mohave 500 kV Transmission Line
Foshay Pass Barite	Occurrence	Barium-barite	0.1 miles	Lugo-Mohave 500 kV Transmission Line
Heather Pumice Prospect	Occurrence	Pumice	0.1 miles	Newberry Springs series capacitor
La Douceur	Prospect	Strontium	0.1 miles	Lugo-Mohave 500 kV Transmission Line
Mountain Flat	Prospect	Gold	0.1 miles	Lugo-Mohave 500 kV Transmission Line
Unnamed Strontianite Occurrence	Occurrence	Strontium	0.1 miles	Lugo-Mohave 500 kV Transmission Line
Bonanza King	Past Producer	Silver, lead, copper, gold	0.2 miles	Lugo-Mohave 500 kV Transmission Line
Dupont, Rowe and Buehler	Past Producer	Strontium	0.2 miles	Lugo-Mohave 500 kV Transmission Line
Hansen Barite Deposit	Past Producer	Barium-barite	0.2 miles	Lugo-Mohave 500 kV Transmission Line
Providence	Past Producer	Lead, silver, copper	0.2 miles	Lugo-Mohave 500 kV Transmission Line
Unnamed Pit	Past Producer	Stone, crushed/broken	0.2 miles	Lugo-Mohave 500 kV Transmission Line
Unnamed Strontianite Prospect	Occurrence	Strontium	0.2 miles	Lugo-Mohave 500 kV Transmission Line
Copper Chief	Past Producer	Copper, gold, silver	0.3 miles	Lugo-Mohave 500 kV Transmission Line
Crucero Group	Occurrence	Gold	0.3 miles	Lugo-Mohave 500 kV Transmission Line
Fort Cady Process Plant	Prospect	Boron-borates, gypsum-anhydrite	0.3 miles	Lugo-Mohave 500 kV Transmission Line

Table 5.12-1. Mineral Resource Producers, Past Producers, and Prospects within 1 Mile of the Proposed Project

Mineral Prospect/ Past Mining Activity	Development Status	Commodity	Approx. Distance to Nearest Project Component	Relative Location and Nearest Proposed Project Component
Fort Cady Solution Mine	Prospect	Boron-borates, gypsum-anhydrite	0.3 miles	Lugo-Mohave 500 kV Transmission Line
Goldstone Spring Adit	Prospect	Gold, silver, copper	0.3 miles	Lugo-Mohave 500 kV Transmission Line
Unnamed Barite Deposit	Occurrence	Barium-barite	0.3 miles	Lugo-Mohave 500 kV Transmission Line
Unnamed Prospect	Occurrence	Iron	0.3 miles	Lugo-Mohave 500 kV Transmission Line
East Burro Prospect	Occurrence	Iron	0.4 miles	Lugo-Mohave 500 kV Transmission Line
Dupont Strontianite Group	Occurrence	Strontianite, strontium	0.4 miles	Lugo-Mohave 500 kV Transmission Line
Kelso Dunes	Past Producer	Silica, gold, iron, titanium	0.4 miles	Lugo-Mohave 500 kV Transmission Line
Kit Fox	Prospect	Barium-barite	0.4 miles	Lugo-Mohave 500 kV Transmission Line
Mountain Flat	Past Producer	Gold, copper	0.4 miles	Lugo-Mohave 500 kV Transmission Line
Parker Mill Site	Producer	Silica, iron, feldspar	0.4 miles	Eldorado-Mohave 500 kV Transmission Line
Reinerth Prospect	Past Producer	Manganese	0.4 miles	Lugo-Mohave 500 kV Transmission Line
Sunrise Prospect	Prospect	Gold, copper	0.4 miles	Lugo-Mohave 500 kV Transmission Line
Unnamed Pit	Past Producer	Sand and gravel, construction	0.4 miles	Eldorado-Lugo 500 kV Transmission Line
Unnamed Prospect	Prospect	Copper	0.4 miles	Eldorado-Lugo 500 kV Transmission Line
Unnamed Shaft	Prospect	Silver	0.4 miles	Eldorado-Lugo 500 kV Transmission Line
Adams-Anna Ore	Prospect	Gold, silver	0.6 miles	Lugo-Mohave 500 kV Transmission Line
Blue Danube	Prospect	Gold, silver	0.6 miles	Lugo-Mohave 500 kV Transmission Line
Burro No. 31 Prospect	Prospect	Gold, copper	0.6 miles	Lugo-Mohave 500 kV Transmission Line
Iron Mountain-Bessemer-Lava Bed	Producer	Iron	0.6 miles	Eldorado-Lugo 500 kV Transmission Line
Red Hills	Past Producer	Gold	0.6 miles	Eldorado-Lugo 500 kV Transmission Line
Peterson Limestone Deposit	Past Producer	Limestone, general	0.7 miles	Lugo-Mohave 500 kV Transmission Line; Barstow fiber optic repeater
Silver Cliff	Occurrence	Silver, lead	0.7 miles	Eldorado-Lugo 500 kV Transmission Line
Silver Reef Mine	Prospect	Zinc, silver, lead	0.7 miles	Eldorado-Lugo 500 kV Transmission Line

Table 5.12-1. Mineral Resource Producers, Past Producers, and Prospects within 1 Mile of the Proposed Project

Mineral Prospect/ Past Mining Activity	Development Status	Commodity	Approx. Distance to Nearest Project Component	Relative Location and Nearest Proposed Project Component
Star Dust Group	Occurrence	Tungsten	0.7 miles	Lugo-Mohave 500 kV Transmission Line; Barstow fiber optic Repeater
Star Dust Group	Prospect	Tungsten	0.8 miles	Lugo-Mohave 500 kV Transmission Line; Barstow fiber optic repeater
Tip Top Prospect	Prospect	Copper, silver	0.7 miles	Lugo-Mohave 500 kV Transmission Line
Copper Strand Mine	Past Producer	Copper	0.8 miles	Eldorado-Lugo 500 kV Transmission Line
Newberry Hectorite Mine	Past Producer	Clay	0.8 miles	Eldorado-Lugo 500 kV Transmission Line
Pennsylvania	Prospect	Gold, silver, copper	0.8 miles	Eldorado-Mohave 500 kV Transmission Line
Unnamed Prospect	Prospect	Gold, copper, silver	0.8 miles	Eldorado-Lugo 500 kV Transmission Line
Vulcan Mine – Burro Prospect	Past Producer	Iron	0.8 miles	Lugo-Mohave 500 kV Transmission Line
Burro Nos. 54 and 55 Prospect	Prospect	Copper	0.9 miles	Lugo-Mohave 500 kV Transmission Line
Fort Cady Deposit	Prospect	Boron-borates, gypsum-anhydrite, strontium, halite, sodium	0.9 miles	Eldorado-Lugo 500 kV Transmission Line
Lee Yim	Producer	Psilomelane, manganese	0.9 miles	Lugo-Mohave 500 kV Transmission Line
Lee Yim Deposit	Past Producer	Silica, manganese, iron, calcium, barium-barite, aluminum, phosphorus-phosphates	0.9 miles	Lugo-Mohave 500 kV Transmission Line
Mt. Pisgah Volcanic Cinders	Past Producer	Pumice	0.9 miles	Lugo-Mohave 500 kV Transmission Line
Star Dust Group	Occurrence	Tungsten	0.9 miles	Lugo-Mohave 500 kV Transmission Line
Unnamed Strontium Occurrence	Occurrence	Strontium	0.9 miles	Lugo-Mohave 500 kV Transmission Line
Vulcan Mine Dolomite	Occurrence	Magnesite, dolomite	0.9 miles	Lugo-Mohave 500 kV Transmission Line
Center Prospect	Prospect	Gold, silver	1.0 miles	Lugo-Mohave 500 kV Transmission Line
Riley Mine	Past Producer	Gold	1.0 miles	Eldorado-Lugo 500 kV Transmission Line; Barstow fiber optic repeater
Unnamed Prospect	Prospect	Gold, silver, copper	1.0 miles	Lugo-Mohave 500 kV Transmission Line
Nevada				
Searchlight M&M	Producer	Gold	0.2 miles	Eldorado-Mohave 500 kV Transmission Line
Searchlight Parallel Mine	Occurrence	Silver, gold	0.3 miles	Eldorado-Mohave 500 kV Transmission Line
Golden Dawn's Mine	Occurrence	Gold	0.4 miles	Eldorado-Mohave 500 kV Transmission Line

Table 5.12-1. Mineral Resource Producers, Past Producers, and Prospects within 1 Mile of the Proposed Project

Mineral Prospect/ Past Mining Activity	Development Status	Commodity	Approx. Distance to Nearest Project Component	Relative Location and Nearest Proposed Project Component
Searchlight District	Producer	Vanadium, zinc, copper, lead	0.4 miles	Eldorado-Mohave 500 kV Transmission Line
Cyrus Noble	Past Producer	Silver, gold	0.5 miles	Eldorado-Mohave 500 kV Transmission Line
Oro Plata Mine	Occurrence	Silver	0.5 miles	Eldorado-Mohave 500 kV Transmission Line
Searchlight Parallel Mine	Past Producer	Gold, silver	0.5 miles	Eldorado-Mohave 500 kV Transmission Line
Continental Heap Leach	Producer	Silver, gold	0.6 miles	Eldorado-Mohave 500 kV Transmission Line
Coyote Mine and Mill	Unknown	Gold	0.6 miles	Eldorado-Mohave 500 kV Transmission Line
Cyrus Noble Mine	Past Producer	Silver, gold	0.6 miles	Eldorado-Mohave 500 kV Transmission Line
Search Light Insulation Prod. Mine	Past Producer	Perlite	0.6 miles	Eldorado-Mohave 500 kV Transmission Line
Blossom Mine	Past Producer	Gold, silver	0.7 miles	Eldorado-Mohave 500 kV Transmission Line
Blossom Mine	Past Producer	Gold, silver, lead, copper	0.7 miles	Eldorado-Mohave 500 kV Transmission Line
Pompeii Mine	Past Producer	Silver, gold	0.7 miles	Eldorado-Mohave 500 kV Transmission Line
Pompeii Mine	Past Producer	Gold, silver, zinc	0.7 miles	Eldorado-Mohave 500 kV Transmission Line
Santa Fe	Occurrence	Gold, silver	0.7 miles	Eldorado-Mohave 500 kV Transmission Line
Santa Fe Mine	Prospect	Gold, silver	0.7 miles	Eldorado-Mohave 500 kV Transmission Line
Searchlight M&M Mine	Past Producer	Gold, zinc, silver	0.7 miles	Eldorado-Mohave 500 kV Transmission Line
Southern Nevada Mine	Past Producer	Gold, copper, lead, silver	0.8 miles	Eldorado-Mohave 500 kV Transmission Line
Good Hope Mine	Past Producer	Gold, copper, lead, silver, zinc	0.9 miles	Eldorado-Mohave 500 kV Transmission Line
Quartette Mine	Past Producer	Gold, lead, molybdenum, silver, zinc, copper	0.9 miles	Eldorado-Mohave 500 kV Transmission Line
Southern Nevada Mine	Occurrence	Silver, gold	0.9 miles	Eldorado-Mohave 500 kV Transmission Line
Good Hope Mine	Past Producer	Cuprite, galena, hematite, wulfenite, gold, silver	1.0 miles	Eldorado-Mohave 500 kV Transmission Line
Red Bird Mine	Past Producer	Gold	1.0 miles	Eldorado-Mohave 500 kV Transmission Line

Source: SCE, 2018.

The Nevada Bureau of Mines and Geology (NBMG) is a research and public service unit of the University of Nevada and is responsible for the State geological survey. The NBMG conducts research and publishes reports on mineral resources, engineering geology, environmental geology, hydrogeology, and geologic

mapping. The NBMG collaborates with numerous state and federal agencies in conducting research and in providing geologic and resource information.

5.12.2 Regulatory Background

State and Local

California

Surface Mining and Reclamation Act of 1975. The California Geological Survey designates MRZs where access to important mineral resources may be threatened, according to the provisions of the SMARA of 1975. The SMARA requires that all jurisdictions incorporate mapped mineral resource designations — as approved by the SMGB — into their general plans. The SMGB and the DOC's OMR are jointly charged with ensuring proper administration of the SMARA's requirements. The SMGB promulgates regulations to clarify and interpret the SMARA's provisions, as well as to serve as a policy and appeals board. The OMR provides an ongoing technical assistance program for lead agencies and operators, maintains a database of mine locations and operational information Statewide, and is responsible for compliance-related matters.

Nevada

Nevada Administrative Code Chapters 445A.350 through 445A.447, and 519A.010 through 519A.415. Mining activities in Nevada are regulated by the Nevada Division of Environmental Protection Bureau of Mining Regulation and Reclamation (BMRR), in cooperation with other federal, State, and local agencies under regulations adopted in 1989 (Nevada Administrative Code Chapters 445A.350 through 445A.447, and 519A.010 through 519A.415). The BMRR has regulation, closure, and reclamation branches; and its mission is to ensure that mining operations do not degrade Nevada's waters and that land disturbed by mining operations is reclaimed in a manner to ensure productive post-mining use.

Local

The CPUC has sole and exclusive jurisdiction over the siting and design of the Proposed Project components located in the State of California. Pursuant to CPUC G.O. 131-D, Section XIV.B, "Local jurisdictions acting pursuant to local authority are preempted from regulating electric power line projects, distribution lines, substations, or electric facilities constructed by public utilities subject to the CPUC's jurisdiction. However, in locating such projects, the public utilities shall consult with local agencies regarding land use matters." Consequently, public utilities are directed to consider local regulations and consult with local agencies, but the county and cities' regulations are not applicable as the county and cities do not have jurisdiction over the Proposed Project. For informational purposes, local regulations in California jurisdictions are provided in Appendix C. The Proposed Project is subject to local regulations in the State of Nevada.

Clark County Comprehensive Plan. The Conservation Element of the Clark County Comprehensive Plan contains the following policy that is relevant to the Proposed Project:

- **Policy CON 2.2:** Encourage preservation of unique geologic and mineral formations for educational, scientific, recreational and aesthetic value

Federal

Bureau of Land Management

General Mining Law of 1872 (30 United States Code [USC] 21 et seq.). The General Mining Law, as amended, grants citizens (and those seeking citizenship) of the United States the right to enter public lands and reserve interests for the exploration and development of minerals, subject to this mining law. The law specifically includes minerals such as gold, silver, copper, lead, zinc, and uranium; nonmetallic minerals such as asbestos, barite, gypsum, and mica; and uncommon varieties of stone (43 Code of Federal Regulations [CFR] 3800). This law sets forth rules and procedures for the exploration, location, and patenting of lode, placer, and mill site mining claims. Claimants must file notice of the original claim with the BLM, as well as either an annual notice of the intention to hold, an affidavit of assessment work, or a similar notice.

Mineral Leasing Act of 1920 (30 USC 181 et seq.). The Mineral Leasing Act authorizes and governs the leasing of public lands to develop deposits of coal, oil, gas, and other hydrocarbons, sulfur, phosphate, potassium, and sodium. The BLM issues right-of-way (ROW) grants for oil and natural gas gathering, distribution pipelines, and related facilities, as well as oil and natural gas transmission pipelines and related facilities.

Materials Sales Act of 1947 (30 USC 601–604). The Materials Sales Act provides for materials disposal on public lands. The Secretary of the Department of the Interior (DOI) is authorized to develop and implement rules and regulations to dispose of mineral materials (including, but not limited to, common varieties of sand, stone, gravel, pumice, pumicite, cinders, and clay) on public lands in the United States. These materials can be disposed of upon adequate payment to the DOI. The Secretary of the Interior has the authority and discretion to permit any federal, state, or territorial agency, unit, or subdivision, including municipalities, or any other association or corporation not organized for profit, to take and remove, without charge, materials and resources for uses other than commercial or industrial purposes or resale (43 CFR 3600).

National Park Service

Mining in the Parks Act of 1976 (P.L. 94-429). The Mining in the Parks Act of 1976 (P.L. 94-429) prescribes that all activities resulting from the exercise of valid existing rights on patented and unpatented mining claims within any unit of the national park system shall be subject to regulations developed and administered by the National Park Service. The regulations governing mining on all patented and unpatented claims in park units are found at 36 CFR Part 9A, which requires operators to file a plan of operations with the National Park Service for all mineral related activities. Currently there are no active mining operations inside the Mojave National Preserve (NPS, 2002).

5.12.3 Applicant Proposed Measures

The Proposed Project does not include any APMs related to Mineral Resources.

5.12.4 CEQA Significance Criteria

Appendix G of the CEQA Guidelines (14 CCR 15000 et seq.) provides guidance on assessing whether a project would have significant impacts on the environment. Consistent with Appendix G, the Proposed Project would have significant mineral resource impacts if it would:

a. Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the State

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

5.12.5 Methodology

The analysis considers the proximity of the Proposed Project ground disturbance to the existing mineral resources and whether the ground disturbance would deter existing or future mining activities. It considers whether any ground disturbance near mineral resources would be temporary or permanent and whether the Proposed Project would block access to any mineral potential.

5.12.6 Project Impacts and Mitigation Measures

a. Would the project 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?

Construction

LESS THAN SIGNIFICANT. There are no active mining and/or mineral plant sites reported in the state databases within 1 mile of the Proposed Project in California or Nevada. There are 48 mineral resource producers, past producers, or prospects within 1 mile of the Proposed Project. The Proposed Project components closest to mineral resource producers, past producers, or prospects include the OPGW slicing location at Tower M42-T4 and OPGW modifications and splicing Tower M53-T1 on BLM land and Tower M118-T2 on NPS land. The OPGW modifications and splicing Tower M163-T4 would be located within an area designated as MRZ-3a and near the Mountain Flat past producer and prospect on BLM land. The Proposed Project would raise Tower M64-T2 and be located within an area designated as MRZ-2a near the Hector Mine on BLM and private land. This would result in an estimated 100 by 100 feet disturbance. While there would be minor ground disturbance caused by the Proposed Project at or near mineral resources, the disturbance would be temporary in nature and would not limit access to these locations. Therefore, the Proposed Project would not prevent current or future extraction of these mineral resources. There would be no loss of availability of regionally valuable resources and the impact would be less than significant.

Operation and Maintenance

NO IMPACT. Operation and Maintenance (O&M) activities associated with the Proposed Project would be similar to those currently performed by SCE for existing facilities. They include repairing conductors, washing or replacing insulators, repairing or replacing other hardware components, repairing or replacing poles and towers, tree trimming, brush and weed control, and access road maintenance, among other things. O&M practices would also include routine inspections and emergency repair within substations and ROWs, which would require the use of vehicles and equipment. SCE also inspects the transmission and subtransmission overhead facilities in a manner consistent with CPUC G.O. 165, which requires observation a minimum of once per year, but inspection typically occurs more frequently to ensure system reliability. Following construction of the Proposed Project, additional O&M activities would consist of monthly and annual inspections, as well as equipment testing and maintenance of emergency generators, ranging from once a year to once every five years. Because routine O&M activities would occur within existing or to-be-acquired franchise areas and ROWs and would not reduce the availability of known mineral resources, no impact would occur.

Mitigation Measures

No mitigation is required.

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?

Construction

LESS THAN SIGNIFICANT. The Proposed Project would require Tower M64-T2 to be raised. This tower is located within an area designated as MRZ-2a near the Hector Mine on BLM and private land. The San Bernardino General Plan Policy CO 7.2, Implement the state Mineral Resource Zone (MRZ) designations to establish a system that identifies mineral potential and economically viable reserves, would also recognize this area as a locally important mineral recovery site. As noted, this would result in an estimated 100 by 100 feet disturbance but the disturbance would be temporary in nature and would not limit access to this location. No other Proposed Project construction activities would occur on important mineral resource recovery sites delineated on local general plan, specific plan, or other land use plan. Therefore, the Proposed Project would not result in loss of availability of a locally important mineral resource recovery site and the impact would be less than significant.

Operation and Maintenance

NO IMPACT. As previously described, O&M activities associated with the Proposed Project would be similar to those currently performed for the existing facilities, with additional O&M activities associated with the proposed mid-line series capacitors and fiber optic repeater sites. As routine O&M activities would occur within existing and/or to be acquired franchise areas and ROWs, these activities would not reduce the availability of locally important mineral resource recovery sites. As a result, no impact would occur.

Mitigation Measures

No mitigation is required.

5.12.7 References

BLM (Bureau of Land Management). 2015. Desert Renewable Energy Conservation Plan Proposed Land Use Plan Amendment and Final Environmental Impact Statement. BLM/CA/PL-2016/03+1793+8321. Section III.15, Mineral Resources.

DOGGR (Department of Conservation, Division of Oil, Gas & Geothermal). 2018. Well Finder. https://maps.conservation.ca.gov/doggr/wellfinder/#close. Accessed November 28, 2018.

NPS (National Park Service). 2002. Mojave National Preserve General Management Plan: Use of the Preserve. https://www.nps.gov/moja/learn/management/upload/MOJA_GMP71-88.pdf. Accessed November 28, 2018.

SCE (Southern California Edison). 2018. Eldorado-Lugo-Mohave Series Capacitor Project: Proponent's Environmental Assessment (PEA). Volumes 1 through 8. April.

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5.13 Noise

NOISE Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Result in the generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☒	☐	☐
b. Result in the generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐
c. For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

Significance criteria established by CEQA Guidelines, Appendix G.

5.13.1 Environmental Setting

The project area includes primarily undeveloped land or low-density areas with open space, utility corridors, transportation corridors, and some isolated rural residences. Proposed Project activities would occur in California and Nevada, extending from Lugo Substation in San Bernardino County, California to Eldorado Substation in the City of Boulder City, Nevada and the Mohave Substation in Laughlin, Nevada, and between Mohave Substation and Eldorado Substation. Portions of the project area would also cross through the City of Hesperia, California, as well as the unincorporated areas of Lucerne Valley, California, and Searchlight and Laughlin in Nevada (SCE, 2018).

Fundamentals of Community Noise. Analysis of environmental noise and project impacts on areas that are sensitive to community noise relies on a measurement scale that simulates human perception of noise. The A-weighted scale of frequency sensitivity accounts for the sensitivity of the human ear, which is less sensitive to low frequencies, and correlates well with human perceptions of the annoying aspects of noise. The A-weighted decibel scale (dBA) is cited in most noise criteria. Decibels are logarithmic units that can be used to conveniently compare wide ranges of sound intensities.

Community noise levels can be highly variable from day to day as well as between day and night. For simplicity, sound levels are usually best represented by an equivalent level over a given time period (Leq) or by an average level occurring over a 24-hour day-night period (Ldn). The Leq, or equivalent sound level, is a single value (in dBA) for any desired duration, which includes all of the time-varying sound energy in the measurement period, usually one hour. The L50, is the median noise level that is exceeded fifty per cent of the time during any measuring interval. The Ldn, or day-night average sound level, is equal to the 24-hour A-weighted equivalent sound level with a 10-decibel penalty applied to nighttime sounds occurring between 10:00 p.m. and 7:00 a.m. Community Noise Equivalent Level (CNEL) is another metric that is the average equivalent A-weighted sound level during a 24-hour day, obtained after addition of five decibels to sound levels in the evening from 7:00 p.m. to 10:00 p.m. and after addition of 10 decibels to sound levels in the night from 10:00 p.m. to 7:00 a.m. To easily estimate the day-night level caused by any noise source emitting steadily and continuously over 24-hours, the Ldn is 6.4 dBA higher than the source's Leq. For example, if the expected continuous noise level from equipment is 50.0 dBA Leq for every hour, the day-night noise level would be 56.4 dBA Ldn.

Community noise levels are usually closely related to the intensity of human activity. Noise levels are generally considered low when below 45 dBA, moderate in the 45 to 60 dBA range, and high above 60 dBA. In wilderness areas, the Ldn noise levels can be below 35 dBA. In small towns or wooded and lightly used residential areas, the Ldn is more likely to be around 50 or 60 dBA. Levels around 75 dBA are more common in busy urban areas, and levels up to 85 dBA occur near major freeways and airports. Although people often accept the higher levels associated with very noisy urban residential and residential-commercial zones, they nevertheless are considered to be adverse to public health.

Surrounding land uses dictate what noise levels would be considered acceptable or unacceptable. Lower levels are expected in rural or suburban areas than what would be expected for commercial or industrial zones. Nighttime ambient levels in urban environments are about seven decibels lower than the corresponding daytime levels. In rural areas away from roads and other human activity, the day-to-night difference can be considerably less. Areas with full-time human occupation and residency are often considered incompatible with substantial nighttime noise because of the likelihood of disrupting sleep. Noise levels above 45 dBA at night can result in the onset of sleep interference. At 70 dBA, sleep interference effects become considerable (U.S. EPA, 1974).

Fundamentals of Vibration. Vibration is an oscillatory motion through a solid medium. Ground-borne vibration, in contrast to airborne noise, is not a common environmental problem, and it is uncommon for vibration caused by heavy vehicles, such as trucks and buses, to be perceptible even close to major roads. However, the Federal Transit Administration notes that "ground-borne vibration can be a serious concern for nearby neighbors of a transit system route or maintenance facility, causing buildings to shake and rumbling sounds to be heard" (FTA, 2006). Another common source of vibration is certain construction activities, such as pile-driving and the operation of heavy earthmoving equipment. The effects of energy transferred through the soils to building foundations can include perceptible movement of building floors or rumbling sounds. Most construction-related vibration would not be capable of structural damage, with the exception of an impact activity such as pile driving (not part of the Proposed Project). Annoyance from vibration often occurs when the vibration exceeds the threshold of perception by only a small margin. The vibration level that causes annoyance is well below the damage threshold for normal buildings. Receptors sensitive to vibration include certain structures (especially older masonry structures), people (especially residents, the elderly, and sick), and vibration-sensitive equipment.

Several different methods may be used to quantify vibration. The peak particle velocity (PPV) is defined as the maximum instantaneous peak of the vibration signal in inches per second. The PPV is most frequently used to describe vibration impacts to buildings. The root mean square (RMS) amplitude is most frequently used to describe the effect of vibration on the human body. The RMS amplitude is defined as the average of the squared amplitude of the signal. Decibel notation (VdB) is commonly used to measure RMS (relative to 10^{-6} inches per second) for the assessment of vibration that is perceptible and likely to cause annoyance. The decibel notation acts to compress the range of numbers required to describe vibration. Typically, ground-borne vibration generated by man-made activities attenuates rapidly with distance from the source of the vibration.

Typical Noise Environment. Baseline noise levels in the project area are typical of those for quiet rural lands. Typically, environmental noise levels vary from around 30 dBA for a quiet rural nighttime, when located away from traffic, up to about 60 dBA or higher for the daytime in urban or commercial areas with persistent traffic or other noise sources near the receptor (Caltrans, 2013).

Table 5.13-1 shows typical sound levels of various environmental noises sources.

Existing Noise Levels. Project-specific ambient noise levels were measured in April 2016 (Eilar, 2017) for this analysis. Table 5.13-2 summarizes the results of the noise measurements taken in the project area.

Table 5.13-1. Typical Sound Levels Measured in the Environment and Industry

Noise Source and Distance	A-Weighted Sound Level (dBA)	Subjective Impression
Civil defense siren (100 ft)	130	Pain threshold
Jet takeoff (200 ft)	120	
Rock music concert (50 ft)	110	
Pile driver (50 ft)	100	Very loud
Ambulance siren (100 ft)	90	
Diesel locomotive (25 ft)	85	Loud
Pneumatic drill (50 ft)	80	
Freeway (100 ft)	70	Moderately loud
Vacuum cleaner (10 ft)	60	
Light traffic (100 ft)	50	
Large transformer (200 ft)	40	Quiet
Soft whisper (5 ft)	30	Threshold of hearing

Each existing transmission line creates corona noise that sounds like crackling and humming due to ionization of the air near the conductor surface, and the resulting localized air-pressure changes create a notable noise source in the corridor. The noise from corona discharge and similar electrical phenomena associated with high-voltage power transmission is heard near an energized line or other high-voltage equipment as a crackling or hissing sound. This noise increases with higher voltages, irregularities on the conductor surface caused either by age or moisture, and wet ambient meteorological conditions, such as when high humidity, fog, or rain occur. Baseline noise levels in the vicinity of the existing 500 kV transmission lines are typically around 49 dBA L50, plus or minus two decibels, during rain at the edge of a typical right-of-way or 65 feet from the base of the tower. For 500 kV transmission lines operating at these levels continuously, the equivalent constant noise levels would be 55 dBA Ldn (Eilar, 2017).

Table 5.13-2. Existing Ambient Noise Levels

Monitoring Location	Jurisdiction	Minimum Measured 1-hour Leq (dBA)	Maximum Measured 1-hour Leq (dBA)
Lugo Substation	San Bernardino County	42.3	49.5
Arrowhead Lake Road	San Bernardino County	34.6	50.2
Deep Creek Road	San Bernardino County	32.7	50.7
Ocotillo Way	San Bernardino County	40.3	66.4
Barstow Road	San Bernardino County	44.4	62.7
Pisgah Substation (I-40 west of Ludlow)	San Bernardino County	49.0	63.7
U.S. Route 95 (west of Laughlin, Nevada)	Clark County	57.8	72.6

Source: Measurements taken in April 2016 (Eilar, 2017); presented in PEA Appendix K (SCE, 2018).

Noise-Sensitive Areas. Noise-sensitive receptors are areas where excessive noise may conflict with the intended use, examples include residential areas, schools, hospitals, day care centers, places of worship, campgrounds, and certain outdoor recreation areas. Wilderness areas and certain other outdoor recreation areas are "lands on which serenity and quiet are of extraordinary significance and serve an important public need, and where the preservation of those qualities is essential for the area to continue to serve its intended purpose" (23 CFR 772.11).

Noise sensitive receptors include several occupied residences approximately 300 to 500 feet from Proposed Project activities, and also recreational or wilderness areas that are adjacent to or spanned by the

existing transmission lines (SCE, 2018). Areas with residential land use designations are listed in Section 5.11, Land Use and Planning, Table 5.11-1.

The locations of sensitive land uses near Proposed Project components include:

- Low-density residential land uses throughout unincorporated San Bernardino County in the vicinity of the Eldorado-Lugo and Lugo-Mohave 500 kV Transmission Lines.
- Residential development north of Lugo Substation.
- Residential development west of Mohave Substation near Needles Highway in Laughlin, Nevada.
- Residential development in the northern portion of the City of Boulder City, Nevada.

5.13.2 Regulatory Background

State and Local

Regulating environmental noise generally is the responsibility of local governments. The U.S. EPA once published guidelines on recommended maximum noise levels to protect public health and welfare (U.S. EPA, 1974), and the State of California maintains recommendations for local jurisdictions in the General Plan Guidelines published by the Governor's Office of Planning and Research (OPR, 2017).

The CPUC has sole and exclusive jurisdiction over the siting and design of the Proposed Project components located in the State of California. Pursuant to CPUC G.O. 131-D, Section XIV.B, "Local jurisdictions acting pursuant to local authority are preempted from regulating electric power line projects, distribution lines, substations, or electric facilities constructed by public utilities subject to the CPUC's jurisdiction. However, in locating such projects, the public utilities shall consult with local agencies regarding land use matters." Consequently, public utilities are directed to consider local regulations and consult with local agencies, but the county and cities' regulations are not applicable as the county and cities do not have jurisdiction over the Proposed Project. However, because noise is regulated only at the local level, the CPUC considers local regulations when evaluating project impacts. The Proposed Project also is subject to local regulations in the State of Nevada.

The following summarizes the local requirements, because the environmental analysis in Section 5.13.6 (Environmental Impacts and Mitigation Measures) considers local requirements and applicable standards of other agencies when determining potential noise impacts under CEQA.

San Bernardino County General Plan, Noise Element

The County of San Bernardino 2007 General Plan, Noise Element, identified goals and policies to manage noise and identify when land uses would be compatible with ambient noise levels (San Bernardino, 2007). The following goals and policies may be relevant to the Proposed Project:

- ***Noise Element Goal N1.*** *The County will abate and avoid excessive noise exposures through noise mitigation measures incorporated into the design of new noise-generating and new noise-sensitive land uses, while protecting areas within the County where the present noise environment is within acceptable limits.*
- ***Noise Element Goal N1, Policy N1.3.*** *When industrial, commercial, or other land uses, including locally regulated noise sources, are proposed for areas containing noise sensitive land uses, noise levels generated by the proposed use will not exceed the performance standards within outdoor activity areas [i.e., 55 dBA Leq during daytime hours (7:00 a.m. to 10:00 p.m.) or 45 dBA Leq during nighttime hours*

(10:00 p.m. to 7:00 a.m.) for residences as in Development Code Chapter 83.01.080(c)]. If outdoor activity areas have not yet been determined, noise levels shall not exceed the performance standards listed in Chapter 83.01 of the Development Code at the boundary of areas planned or zoned for residential or other noise-sensitive land uses.

- ***Noise Element Goal N1, Policy N1.5.*** *Limit truck traffic in residential and commercial areas to designated truck routes; limit construction, delivery, and through-truck traffic to designated routes; and distribute maps of approved truck routes to County traffic officers.*
- ***Noise Element Goal N1, Policy N1.6.*** *Enforce the hourly noise-level performance standards for stationary and other locally regulated sources, such as industrial, recreational, and construction activities as well as mechanical and electrical equipment.*
- ***Noise Element Goal N2.*** *The County will strive to preserve and maintain the quiet environment of mountain, desert and other rural areas.*
- ***Noise Element Goal N2, Policy N2.1.*** *The County will require appropriate and feasible on-site noise attenuating measures that may include noise walls, enclosure of noise generating equipment, site planning to locate noise sources away from sensitive receptors, and other comparable features.*
- ***Noise Element Goal N2, Policy N2.2.*** *The County will continue to work aggressively with federal agencies, including the branches of the military, the U.S. Forest Service, BLM, and other agencies to identify and work cooperatively to reduce potential conflicts arising from noise generated on federal lands and facilities affecting nearby land uses in unincorporated County areas.*

San Bernardino County Development Code

The San Bernardino County Development Code includes general performance standards to promote compatibility with surrounding areas and land uses (Chapter 83.01) by protecting the health and safety of businesses, nearby residents, and workers and preventing damaging effects to surrounding properties, including those of noise (Chapter 83.01.080) and vibration (83.01.090).

Noise-sensitive land uses include residential uses, schools, hospitals, nursing homes, religious institutions, libraries, and similar uses (Development Code Chapter 83.01.080(b)). According to the stationary source noise standards [Chapter 83.01.080(c)], industrial facility related noise must not exceed 55 dBA Leq during daytime hours (7:00 a.m. to 10:00 p.m.) at the property line of any residential use receiving the noise. For a noise source that consists of a simple tone, such as a "hum," then the applicable standard is reduced by five dBA to 50 dBA Leq [Chapter 83.01.080(f)]. During nighttime hours (10:00 p.m. to 7:00 a.m.), stationary noise sources must not exceed 45 dBA Leq at the property line of a residential use. The standard is 60 dBA Ldn for exterior noise levels at residential uses adjacent to roadways and sources of traffic or mobile noise sources [Chapter 83.01.080(d)].

Vibration that is not due to construction sources must be confined, according to the vibration performance standard (Chapter 83.01.090), as follows: No ground vibration shall be allowed that can be felt without the aid of instruments at or beyond the lot line, nor shall any vibration be allowed which produces a particle velocity greater than or equal to 0.2 inches per second measured at or beyond the lot line.

Construction noise and vibration, including maintenance, repair or demolition, is exempt from 7:00 a.m. to 7:00 p.m. Monday through Saturday, except Federal holidays (Chapter 83.01.080(g) and 83.01.090(c)).

City of Hesperia

The City of Hesperia Development Code (Section 16.20.125) specifies noise limits based on the land use of the properties receiving noise. Properties zoned A-1 (Limited Agricultural), A-2 (General Agricultural), R-1 (Single-Family Residential), R-3 (Multi-Family Residential) and RR (Rural Residential) are protected by a maximum daytime noise standard of 60 dBA and nighttime standard of 55 dBA. Noise from temporary construction, repair, or demolition activities is exempt from the standards in the Hesperia noise ordinance provided that the activities occur between the hours of 7:00 a.m. and 7:00 p.m. on days except Sundays and federal holidays.

Clark County, Nevada

The Clark County Code of Ordinances (Section 30.68, Site Environmental Standards) identifies standards to protect adjacent properties against objectionable noise, and the ordinance limits the maximum permitted sound levels from continuous or regular sources of noise with standards for each octave band for sounds received by residential, business or industrial districts. The standards in the ordinance do not apply to aircraft noise or construction and/or demolition activity during daytime hours, where "daytime" is from 6:00 a.m. to 10:00 p.m., as defined by the Unified Development Code (Section 30.08).

Federal

Bureau of Land Management and National Park Service

There are no federal noise standards that directly regulate environmental noise caused by the types of sources associated with the Proposed Project. Federally sponsored highway projects, aviation, and transit are subject to noise analysis procedures and abatement requirements. Regulating environmental noise is generally the responsibility of local government. The U.S. EPA has published guidelines on recommended maximum noise levels to protect public health and welfare (U.S. EPA, 1974). With regard to noise exposure and workers, the federal Occupational Safety and Health Administration (OSHA) establishes regulations to safeguard the hearing of workers exposed to occupational noise or equipment noise (29 CFR Section 1910.95, Code of Federal Regulations), and these safeguards help to avoid excessive noise at construction sites.

5.13.3 Applicant Proposed Measures

The Proposed Project includes two APMs related to Noise.

APM NOI-01: Duration of Helicopter Use. Active helicopter operation at landing zones within 700 feet of occupied residences would be limited to 2 hours per day. Helicopter use may be extended if required to ensure that electrical service is maintained for customers or for safety reasons.

APM NOI-02: Helicopter Use in Residential Areas. Helicopters would be required to maintain a height of at least 500 feet when passing over residential areas, except at temporary construction areas or when actively assisting with conductor stringing. All helicopters would be required to maintain a lateral distance of at least 500 feet from all schools.

5.13.4 CEQA Significance Criteria

Appendix G of the CEQA Guidelines (14 CCR 15000 et seq.) provides guidance on assessing whether a project would have significant impacts on the environment. Consistent with Appendix G, the Proposed Project would have significant noise impacts if it would:

a. *Result in the generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies*

b. *Result in the generation of excessive groundborne vibration or groundborne noise levels*

c. *For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels*

5.13.5 Methodology

This analysis relies on previous studies and modeling of noise sources to quantify the temporary noise levels caused by the Proposed Project's construction activities and permanent sources of noise caused by the operation and maintenance of the Proposed Project. The modeled noise levels are compared with the standards established in the applicable local general plan or noise ordinance, and the increases in noise levels are also assessed against the existing ambient noise levels in the project vicinity. The procedure for modeling the outdoor noise environment and the standard approach for consideration of the attenuation of sound during outdoor propagation are described in detail in a Noise Technical Report prepared on behalf of the Applicant for the Proposed Project (Eilar, 2017).

The combined maximum (Lmax) and average hourly (Leq) noise levels for construction work sites are predicted assuming the overlapping or combined use of equipment such as a grader, dozer, and compactor along with trucks. The noise level estimates take into account a reference maximum noise level for each piece of equipment, the quantity of equipment, a usage factor percentage, the distance to receptor, and a ground effect factor. The results are the sum of noise levels that would be experienced by typical receptors at a certain distance, usually 50 feet. Calculations account for the reduction of noise with distance due to geometric divergence and determine the levels for receptors at other specific distances.

State and Local

Significance of noise impacts depends on whether the project would increase noise levels above the existing ambient levels by introducing new sources of noise. Given that environmental noise levels vary widely over time, a 3 dBA change is the minimum change in environmental noise that is perceptible and recognizable by the human ear. Permanent increases in day-night environmental noise levels of more than 5 dBA (Ldn or CNEL) are considered to be a potentially significant impact. Intermittent noise sources, such as those typical during construction, are temporary or periodic and normally cease after a short duration. Factors to be considered in determining the significance of an adverse impact caused by an intermittent source include: (1) the resulting noise level, (2) the duration and frequency of the noise, (3) the number of people affected, and (4) the land use designation of the affected receptor sites

Federal

Bureau of Land Management

The information provided above under State and Local applies to BLM-managed lands.

National Park Service

The analysis describes the consistency of Proposed Project activities and noise sources with the NPS policy for managing ambient noise conditions. As found in the NPS Soundscape Management Policy 4.9 (2006), it is NPS policy to:

- Preserve, to the greatest extent possible, the natural soundscapes of parks;
- Restore to the natural condition wherever possible those park soundscapes that have become degraded by unnatural sounds (noise); and
- Protect natural soundscapes from unacceptable impacts.

5.13.6 Project Impacts and Mitigation Measures

a. Would the project result in the generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

Construction

LESS THAN SIGNIFICANT WITH MITIGATION. Construction of the Proposed Project would create short-term construction noise levels that could impact existing residents near project work areas or yards. Depending on the timing and nature of construction, the resulting noise levels could cause a substantial temporary increase in ambient noise levels or be in excess of applicable agency standards.

The Proposed Project would require approximately 15 months of construction activities that include mobilizing construction equipment, crews, and materials, site preparation, installation of the series capacitors, substation modifications, OPGW, telecommunications, transmission tower and distribution modifications, and final cleanup. The construction activities would require use of vehicles and heavy-duty equipment capable of generating noise along the ROW, at the proposed staging and work areas, and along the roadways used to access these locations. The types of construction equipment used at work sites would include helicopters, trucks, backhoes, compactors, concrete mixers, dozers, drill rigs/augers, loaders, cranes, lifts, rock crushers, and other tools. On area roadways, increased traffic noise would be caused by vehicles transporting equipment and supplies to the sites, trucks hauling water or removing debris, and workers commuting to and from the activities.

Construction would temporarily increase the noise levels at various locations throughout the project area by creating both intermittent and steady noises. Intermittent noise would be caused by periodic, short-term use of equipment at sites. For example, the series capacitors and fiber optic repeaters would require site preparation involving grading and some ground surface improvements prior to installation of the new facilities. Some underground cable trenches and foundations would require ordinary excavation, trenching and backfilling techniques, and potentially a temporary concrete batch plant.

While most construction activities would intermittently increase noise as they move across the project area, fixed equipment such as a concrete batch plant, would remain at one location for much of the 15-month duration. Sites near staging areas (including helicopter base location and yards) would experience the most persistent noise.

The sources of highest noise levels would be the drill rigs or augers and helicopters. No impact hammers, pile drivers, explosives or blasting would be necessary for the Proposed Project; micropiles could be installed at some 500 kV LSTs to strengthen foundations, which could cause noise comparable with

trenching for underground project components. The maximum intermittent noise levels from construction work areas using a drill rig or auger would typically range up to 84 dBA Lmax at 50 feet. Higher noise levels of up to 90 dBA Lmax would be expected near work areas where multiple pieces of equipment are used. These would be the highest noise levels expected for development of the Proposed Project. Because sound fades over distance, these levels would diminish with increased distance between the source and the receptor. Table 5.13-3 summarizes the typical noise levels for individual pieces of construction equipment.

Construction would also cause noise away from project components, primarily from helicopters or trucks needed to bring materials to the sites and from the traffic of commuting workers. Haul trucks would make trips to bring equipment, water, and materials to the sites and remove waste. The noise levels associated with passing trucks and commuting worker vehicles would be approximately 71 to 76 dBA at 50 feet and would be concentrated along area highways and the access roads leading to individual work areas.

Table 5.13-3. Typical Noise Levels for Individual Construction Equipment

Equipment	Typical Lmax (dBA, at 50 ft)	Typical Leq (dBA, at 50 ft)
Drill rig, Auger	84	77
Rock drill, Crane	81	74
Backhoe	78	74
Concrete Batch Plant	83	75
Dozer, Front end loader	82-79	78
Excavator, Trenching	81-80	77
Compactor	83	76
Generator, Compressor	81-78	78
Forklift, Man lift	75	68
Puller, Tensioner	79	74
Dump truck, haul truck, concrete mixer truck, crane truck	76-79	73-76
Pickup truck, crew truck	75	62-71
Helicopter, Hughes 500C (for crews, equipment, and lifting)	Ground-level Lmax 89.8 dBA for hovering at 200 feet	

Source: FHWA, 2006; Eilar, 2017.
Lmax: Maximum noise level from Actual Measured in Roadway Construction Noise Model (RCNM).
Leq: Equivalent noise level for one hour incorporating the Acoustical Usage Factor.

Helicopters would be used primarily to support construction activities through the transportation of construction workers and delivery of equipment and materials between designated landing zones at work sites. This work will be completed using medium-size model helicopters. Typical light utility helicopter models have a five-person capacity, and the preliminary Helicopter Work Plan indicates that either a MD (Hughes) 530F or a Hughes 500E would be used. Up to four helicopters will be operated at any time during construction (SCE, 2018). Based on noise exposure curves for the Hughes 500C as typical of helicopters in this class, the ground-level peak noise would range up to about 89.8 dBA Lmax for continuous hovering at 200 feet elevation above the receptor (Eilar, 2017; MDHI, 2014; U.S. DOT, 1982). The receptors that would be exposed to the highest levels of helicopter noise would be a horizontal distance of 475 feet from the Arrowhead Lake helipad where up to 78.8 dBA Leq would occur over the course of a workday, based on a helicopter operating at the helipad 50 percent of the day (Eilar, 2017). Receptors near other sites of helicopter activity could experience between 71 and 75 dBA Leq over the course of a typical workday of helicopter activity (Eilar, 2017). To limit noise from helicopter activity near occupied residences, SCE would implement APMs NOI 01 and NOI 02 as part of the Proposed Project. Even with implementation of the APMs related to helicopter noise, the construction activities could lead to an increase in ambient noise levels that could be substantial. Accordingly, this analysis recommends mitigation in addition to the two APMs.

The Proposed Project and APMs do not include any limitations on the daily hours of construction. However, SCE would be expected to normally conduct most construction activity during daytime hours, with

the possibility of some construction activities occurring during nighttime hours, if required to facilitate outages. The stationary source noise standards in local ordinances could be exceeded by typical construction activities. For example, the standard in San Bernardino County Development Code, Chapter 83.01.080(c), of 55 dBA Leq during daytime hours could be exceeded by the maximum intermittent noise levels from construction work areas at up to 84 dBA Lmax or due to helicopter activity at 75 dBA Leq. With construction activities confined to daytime hours, the activities would be exempt from the standard in the local ordinances.

By limiting activities to daytime hours, the construction noise would comply with the noise standards of the San Bernardino County Development Code. Construction noise is exempt from 7:00 a.m. to 7:00 p.m. Monday through Saturday, except Federal holidays (County Development Code Chapter 83.01.080 and 83.01.090; Hesperia Development Code Section 16.20.125). For activity in Nevada, construction noise in Clark County is exempt between the hours of 6:00 a.m. and 10:00 p.m. The County general plan and local noise ordinances do not specify a maximum dBA limit for construction noise sources, as long as construction activities occur during the time periods indicated by the ordinance.

Construction noise would affect the receptors closest to project work areas and along access routes used by haul trucks and other construction traffic. The homes nearest the project site and other rural residences along the access routes would experience a temporary increase in noise above the conditions that exist without the project. The nearest occupied residences at 300 feet from a typical work area would experience noise levels up to 70 dBA Leq, and residences near the Arrowhead Lake helipad up would experience up to 79 dBA Leq at 475 feet away from the helicopter landing zone (Eilar, 2017). Construction would cause maximum intermittent noise levels ranging from 84 dBA to 90 dBA Lmax at 50 feet from a work area or due to typical helicopter activity at 75 dBA Leq. As a result, the ambient noise levels would temporarily increase by more than 5 dBA above the levels existing without the project.

Construction noise would occur in a setting of low ambient noise levels without the project. The temporary increase in noise caused by construction would vary day to day and would not present any permanent impact to the surrounding area. Although construction activity would be variable and limited in duration, use of construction equipment would result in a readily perceptible, but temporary, increase in daytime environmental noise.

This analysis recommends Mitigation Measure N-1 to ensure that construction noise would be confined to daytime hours and reduced through typical noise reduction methods. This analysis also recommends Mitigation Measure N-2 to notify residents in advance of the noise, which would facilitate reducing the potential annoyance of perceptible noise. Although readily perceptible in the setting of low ambient noise, the increase would not be considered substantial because the construction activity would not involve all equipment in simultaneous use at any single location closest to the nearest residences. Additionally, the number of receptors in the vicinity is limited, and the intermittent and variable nature of construction noise limits the potential for adverse effects such as annoyance to be experienced by offsite receptors. Sleep interference would be less likely with the recommended Mitigation Measure N-1 because nighttime construction would be avoided.

Given a perceptible increase in noise levels at times under the anticipated and worst-case conditions, mitigation would reduce the effects to ensure a less than significant impact. Implementation of Mitigation Measure N-1 would limit the daily hours of construction to avoid noise levels in excess of local standards and ordinances, and notification requirements under Mitigation Measure N-2 would help to reduce the annoyance caused by perceptible noise. The measures include precautionary methods to reduce the effects of noise caused by construction equipment, vehicles and traffic to levels that would not be substantial in the context of the project surroundings and existing noise levels. In addition, under

Mitigation Measure T-1 Prepare and implement a final helicopter use plan, limitations would be place on flights near noise-sensitive receptors. This impact would be less than significant with mitigation.

Operation and Maintenance

LESS THAN SIGNIFICANT. The Proposed Project would include stationary sources of noise in the form of the mid-line series capacitors, air conditioners, and emergency-use standby generators along the existing 500 kV transmission line corridors in San Bernardino County, at the capacitor and repeater sites. For these areas, corona noise that sounds like crackling and humming from the 500 kV transmission lines is the most notable existing noise source.

After construction, the noise levels resulting from the operation phase of the Proposed Project would be limited to noise from the modified transmission and subtransmission lines, modified capacitor banks at existing substation sites and the two new mid-line series capacitor sites, air conditioners at the three fiber optic repeater sites, and emergency-use standby generators. Other ongoing activities such as vegetation management activities, security patrols, and other routine O&M would cause noise at levels that would not change from the existing conditions.

Corona discharge associated with high-voltage power transmission is heard near an energized line as a crackling or hissing sound. The amount of corona produced by a power line is a function of several factors, including: line voltage; conductor diameter; conductor locations in relation to each other; condition of conductors and hard-ware; and local weather conditions including power line elevation above sea level. Corona and audible noise from the corona effect are a design concern for transmission lines at 230 kV and higher and generally not audible at lower voltages. Audible noise from the corona effect typically occurs around 50 dBA for a 500 kV line. Along the existing transmission ROW, corona noise is audible, especially during wet or rainy conditions. When compared with the existing high-voltage facilities, the Proposed Project would not change the baseline noise levels of roughly 55 dBA Ldn near the right-of-way edge (Eilar, 2017). Modifications under the Proposed Project would not alter the corona from the existing lines. For locations far from other stationary sources of noise associated with the Proposed Project (discussed below), the existing corona noise would be the only notable, permanent source of operational-phase noise from transmission lines.

The Proposed Project would modify or replace the existing capacitors banks at the Lugo, Mohave, and Eldorado Substations. The noise levels from this equipment would be similar to the corona noise from the transmission lines, and noise from the new capacitors would not change notably from the levels measured in the existing conditions (see Table 5.13-2).

The proposed mid-line series capacitor banks would also generate noise at their proposed locations. Noise generated at the sites of the proposed Newberry Springs Series Capacitor and Ludlow Series Capacitor would be similar to those measured at the Lugo Substation in the existing conditions (see Table 5.13-2). The permanent stationary noise sources would contribute to an increase in ambient noise levels by causing up to 53 dBA Leq at the boundaries of each mid-line series capacitor site (Eilar, 2017). Other locations of new noise sources include the air conditioners at the three fiber optic repeater sites and emergency-use standby generators, which would be inside equipment shelters. Noise from this equipment included among the Proposed Project components would be about 75 dBA at the source and about 51 dBA at the nearest edges of ROW. Noise from these sites would attenuate over a distance of about 150 feet to 43 dBA (Eilar, 2017), which would be comparable to daytime existing ambient levels measured at the Lugo Substation.

These stationary sources would not substantially change the surrounding day-night ambient noise levels which includes the existing corona noise at levels up to 55 dBA Ldn. Other locations farther from the sites of new noise sources would experience lower noise levels due to the greater distances from the sources. The existing ambient noise levels in the area would not experience a permanent increase of more than 5 dBA. As such, the noise from the Proposed Project stationary sources would not contribute substantially to day-night noise levels for any sensitive receptors near the project.

Noise caused by the occasional traffic due to O&M crews performing maintenance and security would not notably change with the Proposed Project. Noise from routine O&M would be created by traffic and mobile sources along the ROW and on area roadways. The Proposed Project would be operated by existing utility staff, causing occasional additional worker-vehicle trips that would not notably increase the average daily traffic noise on area roadways accessing the project components. Project operations, including inspection and maintenance activities, would normally involve only a small crew, and the O&M traffic would be sporadic so that it would result in a barely perceptible noise increase of less than 3 dBA over conditions that exist without the project.

The stationary sources of noise under the Proposed Project would be required to comply with the stationary source noise standards of the County Development Code [Chapter 83.01.080(c)], namely that the equipment must not exceed 55 dBA Leq during daytime hours (7:00 a.m. to 10:00 p.m.) or 45 dBA Leq during nighttime hours (10:00 p.m. to 7:00 a.m.) at the property boundary of a residential use receiving the noise.

The proposed noise sources would be well separated from residential uses. The mid-line series capacitors would be 8 miles away from the closest residential receptor, and at this distance the equipment noise has no potential to exceed the standards of the County Development Code. The fiber optic repeater sites would also be far from receptors or within the Mojave National Preserve. These sites would generate noise up to about 43 dBA for locations at least 150 feet from the sources. At these levels, the Proposed Project would not generate noise levels in excess of any applicable standards.

Accordingly, operations and maintenance would not 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, and this impact would be less than significant.

Mitigation Measures

N-1 **Limit construction noise levels.** SCE shall ensure that all construction activities occur within the following hours, during which construction noise would be exempt from local ordinances: in San Bernardino County and City of Hesperia, between 7:00 a.m. to 7:00 p.m. Monday through Saturday, except Federal holidays; in Clark County, Nevada, between 6:00 a.m. and 10:00 p.m. Monday through Saturday, except Federal holidays. Additionally, SCE shall implement the following construction noise reduction methods as precautionary measures, as identified in the Noise Technical Report (Appendix K to SCE's PEA (Eilar, 2017)):

- Turn off equipment when not in use.
- Limit the use of enunciators or public address systems, except for emergency notifications.
- Equipment used in construction should be maintained in proper operating condition, and all loads should be properly secured, to prevent rattling and banging.
- Schedule work to avoid simultaneous construction activities that both generate high noise levels.

- Use equipment with effective mufflers.
- Minimize the use of backup alarms.

N-2 **Provide advance notification of construction noise.** Sixty days prior to construction, SCE shall prepare and submit a public notice mailer format to the CPUC for approval. The details of notification may be modified in consultation with CPUC as warranted by the circumstances.

No less than 15 days prior to construction that would occur within 500 feet of residences, businesses, or other occupied structures, SCE shall distribute a public notice mailer. The notice shall state the type of construction activities that will be conducted, and the location and duration of construction. The notice shall identify and SCE shall provide a public liaison person before and during construction to respond to concerns of residents about construction noise. SCE shall also establish a toll-free telephone number for receiving questions or complaints during construction and develop procedures for responding to callers. SCE shall address all complaints within one week of when the complaint is filed, and shall provide to the CPUC, within 15 days of the end of each month, a monthly report with records of all complaints and responses. SCE shall mail the notice to all residents or property owners within 500 feet of the right-of-way or within 1,000 feet of helicopter fly yards and flight paths.

T-3 **Prepare and implement a final helicopter use plan.** (The full text of this measure is in Section 5.17, Transportation. A Helicopter Use Plan will reduce adverse noise impacts by defining flight paths and area restrictions.)

b. Would the project result in the generation of excessive groundborne vibration or groundborne noise levels?

Construction

LESS THAN SIGNIFICANT. Vibration from routine construction equipment and activities might be perceptible to people in the immediate vicinity of construction activities. Tamping of ground surfaces, the passing of heavy trucks on uneven surfaces, and drilling for the foundations of structures would each create perceptible vibration in the immediate vicinity of the activity. Other possible sources of substantial vibration, such as an impact activity like pile driving or use of explosives for rock blasting, are not a part of the Proposed Project.

The level of groundborne vibration that could reach sensitive receptors depends on the distance to the receptor, the equipment type that is creating vibration (e.g., the frequency being produced), and the soil conditions surrounding the construction site. Installing structures or conduit could cause vibration levels potentially resulting in temporary annoyance to people within 50 feet of construction equipment. Because the temporary use of routine construction equipment generating groundborne vibrations would be localized around project components, which would be more than 50 feet from occupied buildings, vibration would not be noticeable to receptors in the project area. No Proposed Project activity during construction, or equipment or facilities during operation, are likely to create substantial vibration over a wide area or likely to result in vibration levels great enough to create physical damage of nearby structures. Because Proposed Project activities and facilities would not expose people to excessive groundborne vibration, this impact would be less than significant.

Operation and Maintenance

NO IMPACT. Routine O&M would not create any groundborne vibration.

Mitigation Measures

No mitigation is required.

c. For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

Construction

NO IMPACT. The Proposed Project would include work along 500 kV transmission line corridors that are near two private airstrips, both of which appear to be inactive (SCE, 2018). The Dick Taylor Airstrip, south of Kelso, California, and Rabbit Ranch Airport, west of Lucerne Valley, are within 0.2 and 0.6 miles of the Proposed Project 500 kV transmission line corridors. Because the Proposed Project would not introduce new residents or workers to areas near any active airstrip or expose people to noise from any airstrip, no impact would occur.

The public-use, privately owned Hesperia Airport is 0.9 miles northwest of one proposed 500 kV transmission line–related work area, between Tower M4-T2 and Tower M4-T3 on the Lugo-Mohave 500 kV Transmission Line. This proposed work area would be in the airport Comprehensive Land Use Plan area and near the edge of the safety zone, one-mile from the runway, but not within any noise impact zone (San Bernardino County, 1991). Additional public airport facilities within 2 miles of the Proposed Project include Laughlin/Bullhead International Airport, Kidwell Airport, and Searchlight Airport. Aside from work near Hesperia Airport, no Proposed Project construction would be located in any airport land use plan area or within the noise impact zone of the Laughlin/Bullhead International Airport. Once construction is complete and operation begins, the Proposed Project would be unstaffed, and the project would not expose people to noise from these airports. Similarly, no excessive noise would result from project operations that could impact people residing or working near airports. As such, there would be no impact.

Operation and Maintenance

NO IMPACT. The project would not establish residences or places of employment within 2 miles of an airport. Routine O&M activities would not be affected by an airport.

Mitigation Measures

No mitigation is required.

5.13.7 References

Caltrans (California Department of Transportation). 2013. *Technical Noise Supplement, to the Traffic Noise Analysis Protocol*. September.

Eilar (Eilar Associates, Inc.). 2017. Acoustical & Environmental Consulting. Noise Technical Report, Eldorado-Lugo-Mohave Series Capacitor Project. Prepared for: Insignia Environmental. Available as Appendix K of the PEA (SCE, 2018). March 28.

FHWA (Federal Highway Administration). 2006. FHWA Roadway Construction Noise Model (RCNM) User's Guide (DOT-VNTSC-FHWA-05-01). January.

FTA (Federal Transit Administration). 2006. Transit Noise and Vibration Impact Assessment (FTA-VA-90-1003-06). May.

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U.S. DOT (U.S. Department of Transportation, Federal Aviation Administration). 1982. Helicopter Noise Exposure Curves for Use in Environmental Impact Assessment. Report No. FAA-EE-82-16.

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5.14 Population and Housing

POPULATION AND HOUSING Would the project:	Potentially Significant Impact	Less Than Significant 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?	☐	☐	☐	☒

Significance criteria established by CEQA Guidelines, Appendix G.

5.14.1 Environmental Setting

Population

The Proposed Project is located in San Bernardino County, California and Clark County, Nevada, within the Mojave Basin and Range (Mojave). Federal lands constitute a majority of the land area in the Mojave, including lands under the jurisdiction of the Bureau of Land Management, National Park Service, Bureau of Reclamation, and Department of Defense. The Proposed Project would modify three existing transmission lines between Lugo Substation in San Bernardino County, California and Eldorado Substation in the City of Boulder City, Nevada, between Lugo Substation and Mohave Substation in Clark County, Nevada, and between Mohave Substation and Eldorado Substation. Portions of the Proposed Project would also cross the City of Hesperia, California, the unincorporated community of Lucerne Valley in California, as well as the unincorporated communities of Searchlight and Laughlin in Nevada.

Table 5.14-1, Population, Housing, and Employment 2017, provides a summary of the existing population, housing, and employment conditions in the counties and communities crossed by the project alignment.

Table 5.14-1. Population, Housing, and Employment 2017

		Housing Units		Employment	
Location	Population	Total Units	Vacancy Rate	Total Employed[1]	Unemployment Rate
California					
San Bernardino County	2,174,938	1,210,138	5.8%	904,200	4.9%
City of Hesperia	94,829	29,601	7.6%	33,900	6.2%
Lucerne Valley	5,472	2,847	29.5%	1,787	21.7%
Nevada					
Clark County	2,112,436	877,617	14.6%	1,070,874	8.3%
City of Boulder City	15,648	6,403	15.8%	6,968	10.6%
Searchlight	310	386	49.0%	145	2.1%
Laughlin	7,758	5,543	29.6%	2,664	13.8%

1 - Accounts for population greater than 16 years of age and in Labor Force.
Source: CA DOF, 2018a; CA EDD, 2018; U.S. Census Bureau 2018a through 2018o.

Population estimates, future projections, and average annual growth rates for San Bernardino and Clark Counties are summarized in Table 5.14-2, Population Estimates, Projections, and Average Annual Growth Rates. The population growth in both San Bernardino County and Clark County is expected to increase

slowly during the next three decades, with both San Bernardino County and Clark County projected to have similar growth rates during the period between 2015 to 2020. During the period between 2015 and 2020, Clark County is projected to have a growth rate over 2.5 times that of San Bernardino County.

Table 5.14-2. Population Estimates, Projections, and Average Annual Growth Rates

	San Bernardino County, CA	Clark County, NV
Population, 2015	2,128,499	2,147,641
Projected Population, 2020	2,230,602	2,389,000
Average Annual Growth Rate, 2015-2020	0.96%	2.25%
Projected Population, 2025	2,352,322	2,530,000
Average Annual Growth Rate, 2020-2025	1.09%	1.18%
Projected Population, 2035	2,606,040	2,672,000
Average Annual Growth Rate, 2025-2035	1.08%	1.12%
Projected Population, 2045	2,829,159	2,766,000
Average Annual Growth Rate, 2035-2045	0.86%	0.70%

Source: CA DOF, 2018b; Center for Business and Economic Research University of Nevada, Las Vegas. 2018.

Housing

The current total and vacant housing estimates are presented in Table 5.14-1 for communities and counties crossed by the project alignment. The vacancy rate of the communities in Clark County crossed by the project is high compared to those in San Bernardino County, with about 16 to 49 percent of the total housing units vacant. Clark County has a vacancy rate about 2.5 times that of San Bernardino County (approximately 15 and 6 percent, respectively).

Temporary Housing

California

There are a variety of temporary housing options available, including hotels and resorts, lodges, campgrounds, and rental units within San Bernardino County (County of San Bernardino, 2014). The majority of temporary housing options in the vicinity of the Proposed Project in California are concentrated in the Cities of Barstow, Hesperia, and Victorville. According to the Barstow Chamber of Commerce (Barstow Area Chamber of Commerce, 2018) and the Hesperia Chamber of Commerce (2018), there are various temporary housing options available, including hotels, motels, and lodges in this part of San Bernardino County.

Nevada

The Clark County Business Resource Center reported that more than 150,000 hotel and motel rooms were available to visitors within Clark County (Clark County, 2015). The majority of these accommodations are found approximately 15 miles north within and near the City of Las Vegas. However, the Proposed Project area is remote, and there are no temporary housing facilities within 1 mile of the Proposed Project in Nevada. The majority of temporary housing options in the vicinity of the Proposed Project are concentrated in the Cities of Henderson, Las Vegas, and Boulder City, as well as the unincorporated community of Searchlight and Laughlin. According to the City of Henderson Department of Economic Development and Tourism (City of Henderson, 2018), the City of Henderson offers over 4,000 hotel rooms to accommodate its visitors. According to the Las Vegas Convention and Visitors Authority (LVCVA, 2018), the City of Las Vegas offers nearly 150,000 hotel rooms to accommodate its visitors.

5.14.2 Regulatory Background

State and Local

California and Nevada

There are no specific laws and regulations relating to unplanned population growth or displacement of people and housing at the state level. These issues are addressed by local plans and ordinances.

The CPUC has sole and exclusive jurisdiction over the siting and design of the Proposed Project components located in the State of California. Pursuant to CPUC G.O. 131-D, Section XIV.B, "Local jurisdictions acting pursuant to local authority are preempted from regulating electric power line projects, distribution lines, substations, or electric facilities constructed by public utilities subject to the CPUC's jurisdiction. However, in locating such projects, the public utilities shall consult with local agencies regarding land use matters." Consequently, public utilities are directed to consider local regulations and consult with local agencies, but the county and cities' regulations are not applicable as the county and cities do not have jurisdiction over the Proposed Project. For informational purposes, local regulations in California jurisdictions are provided in Appendix C. The Proposed Project is subject to local regulations in the State of Nevada.

Clark County Comprehensive Plan. The Housing Element of the Clark County Comprehensive Plan establishes policies to meet the diverse housing needs within Clark County (Clark County Department of Comprehensive Planning, 2015). The Housing Element does not contain any specific goals or policies that are relevant to the Proposed Project.

South Clark County Land Use Plan. The South Clark County Land Use Plan includes goals and policies for communities in South Clark County, Nevada, including the unincorporated community of Searchlight (Goodsprings & Sandy Valley Citizens Advisory Councils & Searchlight Town Advisory Board, 2012). The South County Land Use Plan does not contain any specific goals or policies that are relevant to the Proposed Project.

Laughlin Land Use Plan. The Laughlin Land Use Plan guides decisions by the Laughlin Town Advisory Board, Planning Commission, and Board of County Commissioners concerning growth and development (Clark County Planning Commission, 2017). The policies of the Land Use Element of the Clark County Comprehensive Plan are incorporated by reference in the Laughlin Land Use Plan and are the adopted policies of the Laughlin Land Use Plan. There are no specific goals or policies that are relevant to the Proposed Project.

City of Boulder City Master Plan. The Housing and Neighborhoods Element of the Boulder City Master Plan establishes policies that represent the community's values and vision regarding the neighborhood and housing choices (City of Boulder, 2015). The Housing and Neighborhoods Element does not contain any specific goals or policies that are relevant to the Proposed Project.

Federal

There are no federal regulations related to population and housing that are relevant to the Proposed Project.

5.14.3 Applicant Proposed Measures

The Proposed Project does not include any APMs related to Population and Housing.

5.14.4 CEQA Significance Criteria

Appendix G of the CEQA Guidelines (14 CCR 15000 et seq.) provides guidance on assessing whether a project would have significant impacts on the environment. Consistent with Appendix G, the Proposed Project would have significant population and housing impacts if it would:

a. *Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)*

b. *Displace substantial numbers of existing people or housing, necessitating the construction of* replacement housing elsewhere

5.14.5 Methodology

CEQA regulations state that economic or social factors of a project may be included in a CEQA document but shall not be treated as significant effects on the environment. However, economic or social effects of a project may be used to determine the significance of physical changes caused by a project. Additionally, economic, social, and housing factors should be considered by public agencies together with technological and environmental factors in deciding whether changes in a project are feasible to reduce or avoid the significant effects on the environment.

To determine whether the Proposed Project would induce population growth, the availability of the local workforce and population in the region was analyzed. It was assumed that most construction workers would be drawn from San Bernardino and Clark Counties. which are crossed by the Proposed Project and have a combined workforce of over 2 million. Nearby eastern Los Angeles County and western Riverside County also are within commute distance and could be sources of additional labor. It is anticipated that most of the project construction workforce would likely commute from their homes when project work is in the vicinity and would seek housing closer to the Proposed Project area (within an hour driving distance) or seek temporary housing (such as seasonal, recreational, or occasional use housing; long-term visitor areas; and hotel and motels) when project work is far from their home base, and return home on weekends.

5.14.6 Project Impacts and Mitigation Measures

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)?

Construction

LESS THAN SIGNIFICANT. During the 15-month construction period of the Proposed Project, SCE anticipates as many as 15 to 346 (or an average of 159) construction personnel would be working on the Proposed Project at any given time during peak construction periods. Crews would be dispersed throughout the project area. Most SCE construction crews or contractor crews would likely commute from their homes in San Bernardino County and Clark County to construction sites or would relocate to temporary housing when construction activity is remote from their homes. The populations of communities crossed by and near the project alignment may increase slightly during the construction phase due to the temporary relocation of crews, but the increase would be temporary and would not cause a permanent increase in population.

If the need for temporary accommodations arose, adequate lodging options are available in San Bernardino and Clark Counties, including hotels and resorts, lodges, and campgrounds. Because construction would be temporary and last approximately 15 months and because the workforce would be relatively small and would likely commute to work sites, construction of the Proposed Project would not result in a permanent increase in the populations in the vicinity of the project alignment. The Proposed Project would therefore not significantly induce substantial population growth in the project areas. Impacts would be less than significant.

Operation and Maintenance

NO IMPACT. Operation and Maintenance (O&M) activities associated with the Proposed Project would be similar to those currently performed by SCE for existing facilities. These activities generally include, among others, repairing conductors, washing or replacing insulators, repairing or replacing other hardware components, repairing or replacing poles and towers, vegetation trimming, brush and weed control, and access road maintenance. O&M practices would include routine inspections and emergency repair within substations and rights-of-way (ROWs), which would require the use of vehicles and equipment. SCE also inspects the transmission and subtransmission overhead facilities in a manner consistent with CPUC G.O. 165, which requires observation a minimum of once per year, but inspection typically occurs more frequently to ensure system reliability.

Following construction of the mid-line series capacitors (Newberry Springs Series Capacitor and Ludlow Series Capacitor), additional O&M activities would consist of monthly and annual inspections, as well as equipment testing, and maintenance of emergency generators, ranging from once a year to once every five years. Additional testing, inspections, and maintenance of the building, site, generator, and fuel tank would also be required at the new fiber optic repeater facilities every six months to once a year.

O&M of the Proposed Project facilities require no new full-time staffing; the facilities would be operated and maintained by staff based at Lugo and/or Eldorado Substations. As a result, the Proposed Project is not expected to cause a direct or indirect increase in population growth in the project areas and there would be no impact on population due to O&M activities. There would be no induced population growth impacts due to O&M activities.

Mitigation Measures

No mitigation is required.

b. Would the project displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?

Construction

NO IMPACT. The Proposed Project itself would not displace people or housing. The residential communities are located approximately north of the Lugo-Mohave 500 kV Transmission Line in Hesperia and in Lucerne Valley in San Bernardino County. A residential area is adjacent to the Lugo-Mohave 500 kV Transmission Line in Clark County. As illustrated in Table 5.14-1, Population, Housing, and Employment 2017, vacancy rates in the study areas are mostly high, ranging from about 8 to 30 percent in communities crossed by the Project in San Bernardino County and 16 to 49 percent in communities crossed by the Project in Clark County. San Bernardino County as a whole has approximately 70,188 vacant units and Clark County as a whole has approximately 128,132 vacant units. During construction, there are sufficient vacant housing units within the local communities to support the number of construction workers that may temporarily seek housing during this period.

Construction would temporarily increase the number of people in the vicinity of the Proposed Project; however, construction of the Proposed Project would not result in a permanent increase in the populations in the area and would not require displacement of any existing housing units. As a result, no persons or houses would be displaced and none would be built elsewhere. No impact would therefore occur as a result of construction of the Proposed Project.

Operation and Maintenance

NO IMPACT. As previously described under (a) above, O&M activities associated with the Proposed Project would be similar to those currently performed for the existing facilities, with additional O&M activities associated with the proposed mid-line series capacitors and fiber optic repeater facilities. O&M activities currently occur for the existing SCE facilities and would generally remain the same as a result of the Proposed Project. O&M of the Proposed Project facilities require no new full-time staffing; the facilities would be operated and maintained by staff based at Lugo and/or Eldorado Substations. As a result of O&M of project facilities, no existing housing would be displaced and none would be built elsewhere. There would be no impact from O&M of the Proposed Project.

Mitigation Measures

No mitigation is required.

5.14.7 References

Barstow Area Chamber of Commerce. 2018. Lodging in Barstow. Retrieved May 2, 2016, from http://www.barstowchamber.com/index.php?page=38. Accessed December 5, 2018.

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5.15 Public Services

PUBLIC SERVICES 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:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Fire protection?	☐	☐	☒	☐
b. Police protection?	☐	☐	☒	☐
c. Schools?	☐	☐	☒	☐
d. Parks?	☐	☐	☒	☐
e. Other public facilities?	☐	☐	☒	☐

Significance criteria established by CEQA Guidelines, Appendix G.

5.15.1 Environmental Setting

The Proposed Project is located in San Bernardino County, California and Clark County, Nevada, within the Mojave Basin and Range (Mojave). Federal lands constitute a majority of the land area in the Mojave, including lands under the jurisdiction of the Bureau of Land Management (BLM), National Park Service (NPS), Bureau of Reclamation (BOR), and Department of Defense (DoD). The Proposed Project would modify three existing transmission lines between Lugo Substation in San Bernardino County, California and Eldorado Substation in the City of Boulder City, Nevada, between Lugo Substation and Mohave Substation in Clark County, Nevada, and between Mohave Substation and Eldorado Substation. Portions of the Proposed Project would also cross the City of Hesperia, California, the unincorporated community of Lucerne Valley in California, as well as the unincorporated communities of Searchlight and Laughlin in Nevada.

Figure 5.15-1, Public Services within the Vicinity of the Proposed Project, shows the locations of the public service facilities discussed below that are in the vicinity of the Proposed Project alignment.

Fire Protection

Federal

The California Desert District of the BLM provides fire protection to the area covered in the California Desert Conservation Area and is comprised of two zones — the north zone and the south zone. The Proposed Project is located within the north zone. Additionally, dispatching services are consolidated and provided by the Federal Interagency Communications Center (FICC), established for the BLM California Desert District, Death Valley National Park, Joshua Tree National Park, Santa Rosa and San Jacinto Mountains National Monument, Mojave National Preserve, San Bernardino National Forest, and Southern California Agency Bureau of Indian Affairs (FICC, 2018). The FICC is located in the San Bernardino National Forest Supervisor's Office in the City of San Bernardino, approximately 18.5 miles south of the Lugo-Mohave 500 kV Transmission Line. The area served by the FICC covers approximately 30 million acres in five separate counties, reaching to the borders of Arizona, Nevada, and Mexico (FICC, 2018).

Hole in the Wall Interagency Fire Center, an interagency station staffed by firefighters from the BLM and NPS, is located approximately 8.6 miles north of the existing Lugo-Mohave 500 kV Transmission Line in the Mojave National Preserve. The goal of the Hole in the Wall Interagency Fire Center is fire suppression within the Needles Resource Area and Mojave National Preserve. The center also assists San Bernardino County with providing medical services in the Mojave Desert (BLM, 2013).

The BLM's Southern Nevada District Office provides fire protection for federally managed public land and maintains three fire stations. The stations are equipped with three Type 3 fire engines, two Type 6 fire engines, one interagency Type 6 fire engine, one interagency helicopter, one Type 2 initial attack hand crew, and one support water tender (BLM, 2015b). The BLM, NPS, U.S. Fish and Wildlife Service (USFWS), and U.S. Forest Service (USFS) fire suppression resources are dispatched from the Las Vegas Interagency Communication Center. The BLM's Southern Nevada District Office also coordinates with the DoD, Department of Energy, Bureau of Indian Affairs, BOR, Nevada Division of Forestry, Nye County, and Clark County on wildland fire suppression (BLM, 2015b).

Owing to the remote location of much of the Proposed Project, no BLM stations are located within 1 mile of the Proposed Project. The closest BLM station to the Proposed Project is the Red Rock Canyon Fire Station located off State Route 159 near Red Rock Campground, and approximately 31.4 miles northwest of Eldorado Substation. The primary response area for the Red Rock Canyon Fire Station is Red Rock Canyon National Conservation Area, Sloan Canyon National Conservation Area, the east side of Spring Mountains National Recreation Area, and Sandy Valley (BLM, 2015a).

California

The California Department of Forestry and Fire Protection (CAL FIRE) maintains fire stations in San Bernardino County. However, due to the remote location of the Proposed Project, no CAL FIRE stations are located within 1 mile of the Proposed Project. The closest CAL FIRE station to the Proposed Project is the Lucerne Valley Station in the San Bernardino Unit on Highway 247 in the community of Lucerne Valley, California (CAL FIRE, 2018). The Lucerne Valley Station is approximately 4.8 miles southeast of the existing Lugo-Mohave 500 kV Transmission Line.

Nevada

The Nevada Division of Forestry (Division) provides wildfire protection statewide in Nevada through the Wildland Fire Protection Program. The Division maintains an air operations program that includes access to Nevada National Guard helicopters, wildland fire engines, crews and equipment, and experienced wildland firefighting personnel and leadership. The Division also assists local government with response and recovery efforts for floods, earthquakes, and other natural disasters (Nevada Division of Forestry, 2018).

Due to the remote location of the Proposed Project, no Nevada Division of Forestry stations are located within 1 mile of the Proposed Project. The closest Nevada Division of Forestry station to the Proposed Project is the Las Vegas Office, which is located at 4747 Vegas Drive in the City of Las Vegas and approximately 28.8 miles northwest of Eldorado Substation.

Local

San Bernardino County. Fire protection services are collaboratively provided through various agencies in San Bernardino County. The San Bernardino County Fire Department (SBCFIRE) provides fire protection and life safety services to San Bernardino County. SBCFIRE's jurisdiction encompasses approximately 19,293 square miles, providing services to more than 2 million residents in 24 incorporated cities and all unincorporated areas of the county. SBCFIRE maintains 65 active fire stations and employs approximately

1,052 fire and 681 fire suppression personnel. There are six divisions of SBCFIRE — the West Valley, East Valley, Mountain, South Desert, High Desert, and North Desert Divisions (San Bernardino County Fire Department, 2018a). However, due to the remote location of the Proposed Project, no SBCFIRE stations are located within 1 mile of the Proposed Project. The closest SBCFIRE station to the Proposed Project is Hesperia Station 305 (San Bernardino County Fire Department, 2018b), located on Caliente Road in Hesperia, approximately 2.9 miles northwest of Lugo Substation.

Hesperia Station 305 is funded by both the County of San Bernardino and the City of Hesperia, and is managed by the City of Hesperia Fire Department (HFD). Hesperia Station 305 is staffed by four personnel and one Battalion Chief daily, and its equipment includes one paramedic fire engine, one paramedic ambulance, one water tender, one brush patrol vehicle, and two reserve engines (City of Hesperia, 2018a).

City of Hesperia. City of Hesperia Fire Department provides fire safety and emergency medical services to residents within the city limits. HFD maintains four stations (City of Hesperia, 2018a). Due to the remote location of the Proposed Project, no HFD stations are located within 1 mile of the Proposed Project. The closest HFD station to the Proposed Project is Hesperia Station 305, described above.

Clark County. The Clark County Fire Department (Clark County FD) provides emergency response services, including emergency medical services, fire and rescue, and special operations (e.g., aircraft rescue and fire investigation). The fire department serves over 900,000 Clark County residents over approximately 7,420 square miles (Clark County, 2018a; 2018b). The Clark County FD is comprised of approximately 697 full-time personnel at 30 fire stations, as well as approximately 170 volunteers who serve at 13 volunteer fire stations in the rural parts of the County (Clark County, 2018a).

Due to the remote location of the Proposed Project, no Clark County FD stations are located within 1 mile of the Proposed Project. The closest Clark County FD station to the Proposed Project is Station 75 (Searchlight Station), a volunteer station located on South Nevada Street approximately 1.4 miles east of the existing Eldorado-Mohave 500 kV Transmission Line (Clark County, 2018c). Each station is equipped with an engine, water tender, squad vehicle, and rescue vehicle (Clark County, 2018c).

City of Boulder City. Fire protection and emergency response in the City of Boulder City is provided by the Boulder City Fire Department (BCFD). The BCFD operates out of one station and houses 18 response personnel. There are three 6-person shifts, three front-line apparatus, and four reserve units (Boulder City, 2018a). The BCFD station is located on Elm Street in Boulder City, approximately 14.8 miles from Eldorado Substation.

Police Protection

Federal

Within the Mojave National Preserve, the NPS provides law enforcement services, including front-country and backcountry patrols, criminal investigations, case management, and wildlife enforcement (NPS, 2018).

The BLM has resource protection and law enforcement responsibilities for BLM-managed lands and resources. Approximately 200 law enforcement rangers and 70 special agents enforce laws affecting public land resources on a national level (BLM, 2018).

State

California

The California Highway Patrol (CHP) provides uniform traffic law enforcement throughout the State of California. The CHP is divided into eight divisions, and the Proposed Project is located within the Inland Division. The Inland Division contains three communications and dispatch centers and 11 offices. The closest CHP office to the Proposed Project is the Victorville Office, located on Amargosa Road in the City of Victorville, approximately 10 miles north of the existing Lugo-Mohave 500 kV Transmission Line. The CHP Victorville Office serves the communities of Apple Valley, Victorville, Hesperia, Phelan, Pinon Hills, Lucerne Valley, Wrightwood, Silver Lakes, Helendale, Ore Grande, Spring Valley Lake, Oak Hills and Adelanto and patrols portions of Interstate 15; State Routes 138, 2, 173 18, and 247; U.S. Route 395; and hundreds of miles of unincorporated county roadways within San Bernardino County (CHP, 2018).

Nevada

The Nevada Highway Patrol (NHP) provides law enforcement traffic services to the motoring public on Nevada highways. The NHP has northern and southern command substations. The closest NHP office to the Proposed Project is the Laughlin Substation (Nevada Highway Patrol, 2018), located on South Pointe Circle in the community of Laughlin, approximately 1.6 miles south of the existing Lugo-Mohave 500 kV Transmission Line and Mohave Substation.

Local

San Bernardino County. The San Bernardino County Sheriff's Department (SBCSD) provides law enforcement to over 2.1 million residents with 15 patrol stations and 3800 employees (San Bernardino County Sheriff's Department, 2018). The SBCSD headquarters are located on Third Street in San Bernardino. Due to the remote location of the Proposed Project, no patrol stations are located within 1 mile of the Proposed Project. The closest SBCSD patrol station is the Hesperia Police Station, which is discussed below.

City of Hesperia. The City of Hesperia contracts for police services with the SBCSD to maintain the Hesperia Police Department. The Hesperia Police Department is comprised of approximately 54 sworn law enforcement, and 18 non-sworn personnel (City of Hesperia, 2018b) The Hesperia Police Station is located on Smoke Tree Street, approximately 4.3 miles north of Lugo Substation.

Clark County. Clark County receives law enforcement services from eight departments within the vicinity of Clark County. The Las Vegas Metropolitan Police Department (LVMPD) serves the City of Las Vegas and unincorporated areas of Clark County. LVMPD has approximately 3,182 police officers and 1,310 civilian employees spread over five divisions (LVMPD, 2017). However, due to the remote location of the Proposed Project, no police stations are located within 1 mile of the Proposed Project. The closest police station to the Proposed Project is the Laughlin Substation, located on Civic Way in Laughlin, approximately 1.9 miles northeast of Mohave Substation.

City of Boulder. The Boulder City Police Department provides police protection throughout an approximately 210-square-mile patrol territory. The department consists of full-time patrol officers and specialized patrols broken into four shifts, with each patrol commanded by a patrol sergeant (Boulder City, 2018b). The Boulder City Police Department headquarters is located on Arizona Street in Boulder City, approximately 15.6 miles northeast of the Eldorado Substation.

Schools

San Bernardino County. Within San Bernardino County, the Proposed Project crosses the following school districts (San Bernardino County Superintendent of Schools, 2017):

- Silver Valley Unified School District
- Needles Unified School District
- Baker Valley Unified School District
- Apple Valley Unified School District
- Montebello Unified School District
- Lucerne Valley Unified School District
- Hesperia Unified School District

Due to the remote location of the Proposed Project, only one school within these districts is located within 1 mile of the Proposed Project. The Krystal School of Science, Math and Technology, a kindergarten through 6th grade school in the Hesperia Unified School District. It is located approximately 1 mile north of the existing Lugo-Mohave 500 kV Transmission Line.

Clark County. Within the State of Nevada, the Proposed Project crosses through the Clark County School District (CCSD). The CCSD is the fifth largest school district in the country, serving over 320,000 students from kindergarten through 12th grade in 358 schools across the County (Clark County School District, 2018a). Despite the large population throughout the rest of Clark County, the Proposed Project location is remote; only two CCSD schools are located within 1 mile of the Proposed Project (Clark County School District, 2018b). Both are in Laughlin. William Bennet Elementary School is located approximately 0.5 miles south of the Proposed Project on Needles Highway along the existing Lugo-Mohave 500 kV Transmission Line. Laughlin Junior/Senior High School is located approximately 0.8 miles north of the existing Eldorado-Mohave 500 kV Transmission Line.

Other Services

Hospitals

San Bernardino County. No hospitals are located within 1 mile of the Proposed Project in California. The closest hospital to the Proposed Project is the Desert Valley Hospital, on Bear Valley Road in Victorville, approximately 7.3 miles north of the existing Lugo-Mohave 500 kV Transmission Line. The Desert Valley Hospital is an acute care hospital with medical, surgical, and diagnostic services and with inpatient, outpatient, and day treatment (Desert Valley Hospital, 2018).

Clark County. No hospitals are located within 1 mile of the Proposed Project in Nevada. The closest hospital to the Proposed Project in Nevada is the Western Arizona Medical Center, which is located across the Colorado River on Silver Creek Road in Bullhead City, Arizona. The Western Arizona Medical Center is a general medical and surgical hospital with inpatient, outpatient, and emergency room facilities (Western Arizona Medical Center, 2018). It is located approximately 3.3 miles southeast of Mohave Substation. The Boulder City Hospital, a general medical and surgical hospital with inpatient, outpatient, and emergency room facilities (Boulder City Hospital, 2018). It is located on Adams Boulevard in Boulder City, approximately 14.7 miles northeast of Eldorado Substation.

Parks

In California and Nevada, there are 14 federally managed parks, recreational areas, and preserves within 1 mile of the Proposed Project and one State Park, and two local parks within 1 mile of the Proposed

Project. These areas are shown in Figure 5.15-1, Public Services within the Vicinity of the Proposed Project. Section 5.16, Recreation, provides more information on the parks and recreational facilities near the Proposed Project.

Libraries

San Bernardino County. No libraries are located within 1 mile of the Proposed Project. The closest library to the Proposed Project is the Hesperia Branch Library, on 7th Avenue in Hesperia, California (San Bernardino County, 2018), approximately 4.2 miles north of the existing Lugo-Mohave 500 kV Transmission Line.

Clark County. In Clark County, the public libraries within 1 mile of the Proposed Project include Laughlin Library and Searchlight Library, which are operated by the Las Vegas–Clark County Library District (Las Vegas–Clark County Library District, 2018a; 2018b). The Laughlin Library is located on South Needles Highway in the unincorporated community of Laughlin, approximately 0.5 miles south of the existing Lugo-Mohave 500 kV Transmission Line. The Searchlight Library is on Michael Wendell Way in the unincorporated community of Searchlight, approximately 2.1 miles east of the existing Eldorado-Mohave 500 kV Transmission Line.

5.15.2 Regulatory Background

State and Local

California

California Public Utilities Commission General Order 95, Section 35. Section 35 of CPUC G.O. 95 covers all aspects of design, construction, and Operation and Maintenance (O&M) of electrical power lines, as well as fire safety hazards.

California Code of Regulations, Title 14, Sections 1250 to 1258. Title 14, Sections 1250 to 1258 of the California Code of Regulations provide specific clearance standards to be maintained by utility companies between electric power lines and all vegetation.

California Public Resources Code Sections 4292 and 4293. California Public Resources Code (PRC) Section 4292 states:

> *"… any person that owns, controls, operates, or maintains any electrical transmission or distribution line shall, during such times and in such areas as are determined to be necessary by the director or the agency, has primary responsibility for fire protection of such areas, maintain around and adjacent to any pole or tower which supports a switch, fuse, transformer, lightning arrester, line junction, or dead end or corner pole, a firebreak which consists of a clearing of not less than 10 feet in each direction from the outer circumference of such a pole or tower."*

California PRC Section 4293 states:

> *"… any person that owns, controls, operates, or maintains any electrical transmission or distribution line upon any mountainous land, or in forest-covered land, or grass-covered land shall, during such times and in such areas as are determined to be necessary by the director or the agency which has primary responsibility for the fire protection of such area, maintain a clearance of the respective distances which are specified in this section in all directions between all vegetation and all conductors which are carrying electric current:*

(a) For any line which is operating at 2,400 or more volts, but less than 72,000 volts, 4 feet

(b) For any line which is operating at 72,000 or more volts, but less than 110,000 volts, 6 feet

(c) For any line which is operating at 110,000 or more volts, 10 feet

In every case, such distance shall be sufficiently great to furnish the required clearance at any position of the wire, or conductor when the adjacent air temperature is 120 degrees Fahrenheit, or less. Dead trees, old decadent or rotten trees, trees weakened by decay or disease and trees or portions thereof that are leaning toward the line which may contact the line from the side or may fall on the line shall be felled, cut, or trimmed so as to remove such hazard."

2010 Strategic Fire Plan for California. The 2010 Strategic Fire Plan for California was developed in coordination with the State Board of Forestry and Fire Protection and CAL FIRE to reduce and prevent the impacts of fire in California. Goal 6 of the Plan sets objectives to determine the level of suppression resources (staffing and equipment) needed to protect private and public state resources. Specific objectives include, but are not limited to, maintaining an initial attack policy which prioritizes life, property, and natural resources; determining suppression resources allocation criteria; analyzing appropriate staffing levels and equipment needs in relation to the current and future conditions; increasing the number of CAL FIRE crews for fighting wildfires and other emergency response activities; maintaining cooperative agreements with local, state, and federal partners; and implementing new technologies to improve firefighter safety, where available (State Board of Forestry and Fire Protection).

Nevada

Nevada Revised Statutes Section 704.865. Nevada Revised Statutes Section 704.865 provides that "A person, other than a local government, shall not commence to construct a utility facility in the State without first having obtained a permit therefor from the Commission. The replacement of an existing facility with a like facility, as determined by the Commission, does not constitute construction of a utility facility." The Public Utilities Commission of Nevada is the Lead Agency for compliance with the Nevada Utility Environmental Protection Act.

Local

The CPUC has sole and exclusive jurisdiction over the siting and design of the Proposed Project components located in the State of California. Pursuant to CPUC G.O. 131-D, Section XIV.B, "Local jurisdictions acting pursuant to local authority are preempted from regulating electric power line projects, distribution lines, substations, or electric facilities constructed by public utilities subject to the CPUC's jurisdiction. However, in locating such projects, the public utilities shall consult with local agencies regarding land use matters." Consequently, public utilities are directed to consider local regulations and consult with local agencies, but the county and cities' regulations are not applicable as the county and cities do not have jurisdiction over the Proposed Project. For informational purposes, local regulations in California jurisdictions are provided in Appendix C. The Proposed Project is subject to local regulations in the State of Nevada.

Clark County Comprehensive Plan. The Public Facilities and Services Element of the Clark County Comprehensive Plan contains goals and policies for schools. The Safety Element contains policies for fire and emergency services, as well as police protection. The following policies from the Safety Element are relevant to the Proposed Project (Clark County Department of Comprehensive Planning, 2015):

- ***Fire and Emergency Services Policy 1*:** Ensure that all developments provide adequate access for fire and other emergency vehicles and equipment (including fire hydrants)
- ***Fire and Emergency Services Policy 4*:** New development in Rural Areas must address additional water storage needs for the community prior to approval.
- ***Fire and Emergency Services Policy 6*:** Ensure that emergency services are provided in Wildland Interface Areas through mission sensitive reciprocal agreements with federal and state agencies.
- ***Police Protection Policy 3:*** Ensure that all developments provide adequate access to police and other emergency vehicles and equipment.

South Clark County Land Use Plan. The South Clark County Land Use Plan does not contain any specific goals or policies that are relevant to the Proposed Project.

Laughlin Land Use Plan. The Laughlin Land Use Plan guides decisions by the Laughlin Town Advisory Board, Planning Commission, and Board of County Commissioners concerning growth and development (Clark County Planning Commission, 2017). The policies of the Land Use Element of the Clark County Comprehensive Plan are incorporated by reference in the Laughlin Land Use Plan and are the adopted policies of the Laughlin Land Use Plan. Policies that are relevant to the Proposed Project are listed above under *Clark County Comprehensive Plan*.

Boulder City Master Plan. The Public Facilities chapter of the Boulder City Master Plan includes policies for fire and police protection (City of Boulder, 2015). However, the Public Facilities Element does not contain any specific goals or policies that are relevant to the Proposed Project.

Federal

There are no Federal or local regulations, plans, and standards for public services and utilities that apply to the Proposed Project.

5.15.3 Applicant Proposed Measures

The Proposed Project does not include any APMs related to Public Services.

5.15.4 CEQA Significance Criteria

Appendix G of the CEQA Guidelines (14 CCR 15000 et seq.) provides guidance on assessing whether a project would have significant impacts on the environment. Consistent with Appendix G, the Proposed Project would have significant public services impacts if it would:

> *Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:*
>
> *a. Fire protection*
> *b. Police protection*
> *c. Schools*
> *d. Parks*
> *e. Other public facilities.*

5.15.5 Methodology

Impacts to public services were evaluated with respect to potential adverse effects that implementation of the Proposed Project may have on local and regional public services and facilities. The methodology involves comparing actions included under the Proposed Project against the environmental setting presented in this section, with consideration to the significance criteria identified in Appendix G of the State CEQA Guidelines.

5.15.6 Project Impacts and Mitigation Measures

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:

a) Fire protection?

Construction

LESS THAN SIGNIFICANT. Construction of the Proposed Project would not directly interfere with fire protection services in the immediate project area nor would it require construction of new or altered facilities. While several emergency providers are located in the vicinity of the Proposed Project, none are located within 1 mile. As a result, the Proposed Project would not cause direct impacts to fire stations or to their access. Construction is not anticipated to affect response times due to road closures, because any road closures that may be necessary would be temporary, and alternative routes would be coordinated with emergency services prior to construction. Although temporary lane closures would be necessary during construction activities completed within public street ROWs, traffic controls would be implemented as required by local jurisdictions through the encroachment permit process and all lane closures would be conducted in accordance with applicable requirements.

Increases in long-term demand for fire protection services typically are associated with substantial increases in population. As discussed in Section 5.14, Population and Housing, during the 15-month construction period of the Proposed Project, SCE anticipates as many as 15 to 346 (or an average of 159) construction personnel would be working on the Proposed Project at any given time during peak construction periods. Construction crews would likely commute from the surrounding areas in San Bernardino County and Clark County or would otherwise temporarily relocate to the project areas during construction. The populations of communities crossed by and near the project alignment may increase slightly during the construction phase due to the temporary relocation of construction crews, but the increase would be temporary and would not cause a permanent increase in population and would not adversely affect service response rates or ratios.

Additionally, the Proposed Project would include emergency access and other safety features and plans for fire protection, and impacts would be less than significant. Overall, the project's impact to fire protection services in the project area would be minimal and would not significantly impact the abilities of the fire, police, and other service providers to maintain acceptable service ratios, response times, or other performance objectives.

Operation and Maintenance

LESS THAN SIGNIFICANT. Routine maintenance of access roads would be conducted on an as-needed basis. This would include maintaining vegetation-free access roads to facilitate facility access and for fire prevention. O&M for the Proposed Project includes regular vegetation clearing or trimming to minimize fire potential. Vehicles would use existing roads and access routes for operation activities, which would reduce the potential for vehicle undercarriage heat to ignite dry vegetation and start fires. Consistent with CPUC G.O. 95 and other applicable federal and State laws, SCE would maintain an area of cleared brush around equipment, minimizing the potential for fire. SCE also participates in the Red Flag Program, limiting certain work activities during Red Flag days, and complies with California PRC Sections 4292 and 4293 related to vegetation management in transmission line corridors. As a result, the risk of fire and the subsequent need for fire services would be minimized.

In addition, O&M activities would not require additional full-time personnel and would not cause a permanent increase in population that would cause an increase in the use of existing fire services or a need for new fire protection services. Overall, the Proposed Project area would continue to be adequately supported by the existing fire protection services during O&M of the Proposed Project since the operation of the Proposed Project would not induce growth in the project area and the fire risk from the Proposed Project would not create the need for new or physically altered fire protection facilities.

Mitigation Measures

No mitigation is required.

b) Police Protection?

Construction

LESS THAN SIGNIFICANT. The Proposed Project would not cause direct effects on police stations or their access since none are located within 1 mile of the Proposed Project route nor would it require construction of new or altered police facilities. Any road closures during construction would be temporary and traffic controls would be implemented as required by local jurisdictions through the encroachment permit process. The temporary increase in construction workers could increase demands on police services. Although the presence of up to 346 additional construction personnel would alter the current protection service ratio, because Project construction is not anticipated to permanently increase the local population and crews would be at dispersed work locations, no new or expanded law enforcement facilities or increased staff levels within the Project regional area would be required.

Construction of the Proposed Project would generate truck and employee traffic along haul routes and in the Project area, which could temporarily increase the potential for accidents in these areas or affect response times or other service performance over the approximate 15-month construction period. However, the additional volume of traffic associated with workers commuting to the sites during construction would be dispersed and temporary. Many workers would be ferried to distant work sites by helicopter. Once off of paved roads, crews and equipment would encounter little or no traffic. In addition, project construction is not expected to adversely affect the ability of highway patrol officers to police the highways. Overall, Project construction would not result in the need for new or physically altered police or sheriff protection facilities in order to maintain acceptable service ratios, response times, or other performance objectives. Impacts would be less than significant.

Operation and Maintenance

NO IMPACT. Once operational, the proposed Newberry Springs Series Capacitor and Ludlow Series Capacitor would include security cameras and perimeter fencing, which would minimize the potential need for the police assistance. As discussed above in (a), O&M activities would not require additional full-time personnel and would not cause a permanent increase in population that would cause an increase in the use of existing public services or a need for new police protection services.

Overall, the Proposed Project area would continue to be adequately supported by the existing police protection services during O&M of the Proposed Project. The operation of the Proposed Project would not induce growth in the project area and the Proposed Project would not create the need for new or physically altered police protection facilities.

Mitigation Measures

No mitigation is required.

c) Schools?

Construction

LESS THAN SIGNIFICANT. As discussed above, SCE anticipates from 15 to 346 construction personnel would be working at any given time, and many of these crew members would likely commute from within San Bernardino and Clark Counties. It is possible that during construction some of the construction workforce could temporarily relocate to the communities crossed by the Proposed Project. However, construction of the Proposed Project would not result in a permanent increase in the area's population and the temporary addition of construction workers to the Project area's population is not anticipated to increase school enrollment sufficiently to require new schools to be constructed or existing schools to be physically altered to allow for a Project-related increase in enrollment, where the physical alteration of the school could result in adverse environmental impacts. Impacts would therefore be less than significant.

Operation and Maintenance

NO IMPACT. As discussed previously, O&M activities would not require additional full-time personnel; therefore, O&M would not cause an increase in the use of existing public services, nor would they result in a need for new schools. As a result, there would be no impact to schools as a result of O&M of the Proposed Project.

Mitigation Measures

No mitigation is required.

d) Parks?

Construction

LESS THAN SIGNIFICANT. The required construction workforce for the Project would be hired principally from the available regional workforce. There would potentially be temporary in-migration that would increase the local population during construction; however, it would not warrant the need for new or expanded parks and recreational facilities within the project area. Although some workers may use recreational areas during project construction, increased use would be minimal and/or temporary and would not

contribute substantially to the physical deterioration of existing facilities. Less than significant impacts would occur. (Parks and other recreational facilities are discussed in detail in Section 4.15, Recreation.)

Operation and Maintenance

LESS THAN SIGNIFICANT. As discussed previously, O&M activities would not require additional full-time personnel. Although some workers may use recreational areas during project O&M, increased use would be minimal and/or temporary and would not contribute substantially to the physical deterioration of existing facilities. Less than significant impacts would occur.

Mitigation Measures

No mitigation is required.

e) Other Public Facilities?

Construction

Health Services. *LESS THAN SIGNIFICANT.* While a high number of construction employees would be located at various sites along the project corridor, local area emergency medical facilities are expected to adequately handle any worksite accidents requiring their attention. Project construction would therefore not require new or physically altered hospital facilities or personnel or result in the increase in emergency responder staff levels within the Project area; impacts would be less than significant.

Libraries. *LESS THAN SIGNIFICANT.* Consistent with the impacts previously discussed for other public service facilities, although Project construction would potentially temporarily increase the number of people in communities in the project vicinity, it would not increase the local populations permanently. New or expanded library facilities within the area are therefore not required and impacts would be less than significant.

Operation and Maintenance

LESS THAN SIGNIFICANT. O&M activities for the new project facilities would not require additional full-time personnel. Although some O&M employees may use local area emergency medical facilities or libraries during project O&M, increased use would be minimal and would not contribute substantially to the physical deterioration of existing facilities. Less than significant impacts would occur.

Mitigation Measures

No mitigation is required.

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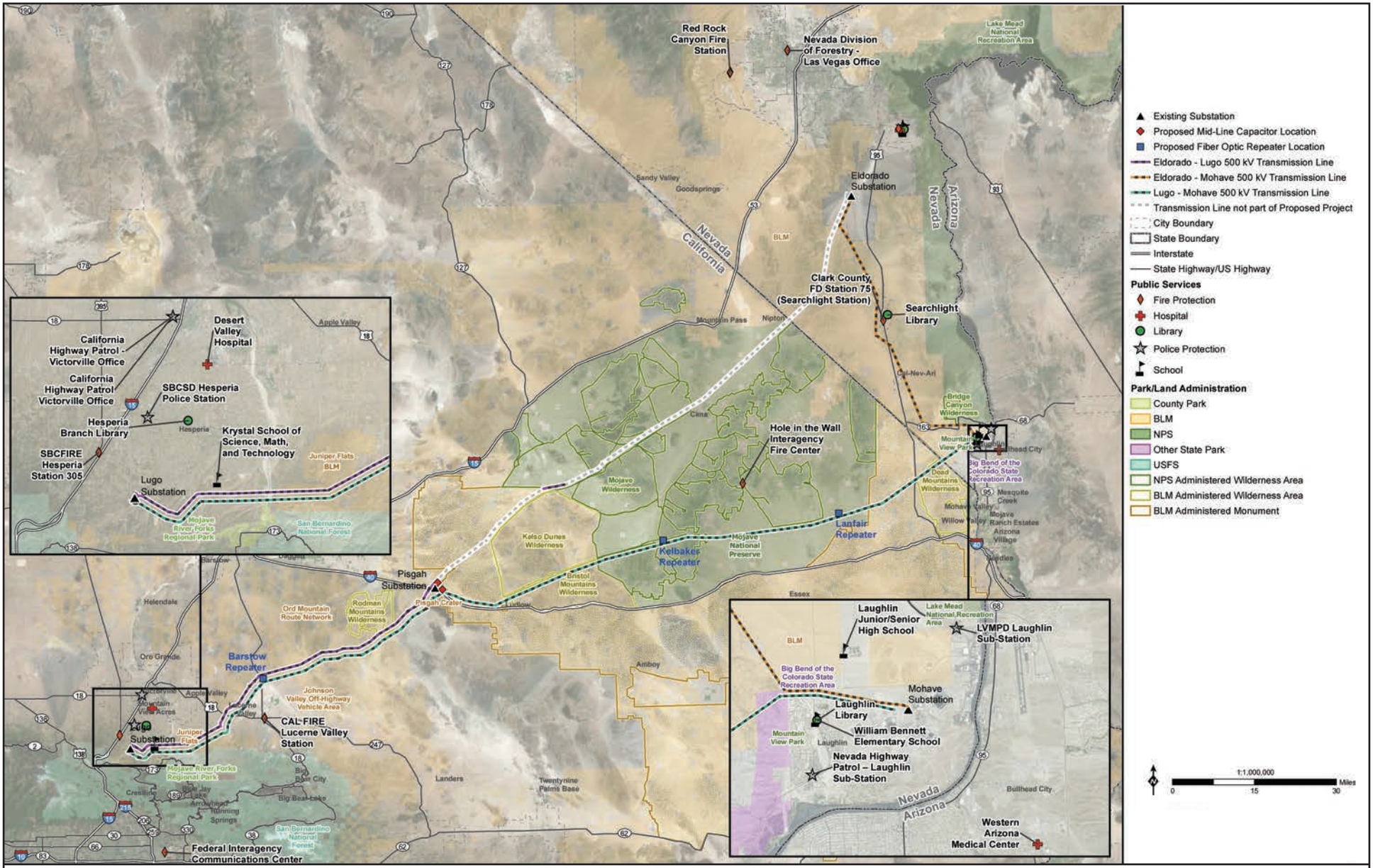

Source: SCE, 2018.

Figure 5.15-1
Public Services within the Vicinity of the Proposed Project

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5.16 Recreation

RECREATION	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
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?	☐	☐	☒	☐
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?	☐	☐	☐	☒

Significance criteria established by CEQA Guidelines, Appendix G.

5.16.1 Environmental Setting

Most of the Proposed Project routes cross undeveloped open space that is managed by either the BLM or NPS, or is within the jurisdiction of San Bernardino County and Clark County Nevada. Recreational resources in the project area include open areas, Special Recreation Management Areas (SRMA), Extensive Recreation Management Areas (ERMAs), and Off-highway Vehicle (OHV) Areas all managed by BLM; the Mojave National Preserve managed by the NPS; and several wilderness areas managed by the BLM and NPS. Table 5.16-1 lists the recreational areas that are either crossed or within 1 mile of the Proposed Project. Figures 5.16-1a through 5.16-1c illustrate the recreational areas.

Table 5.16-1. Recreational Areas within 1 Mile of the Proposed Project

Facility	Jurisdiction	Size (acres)	Amenities	Distance to Nearest Project Component (miles)	Nearest Proposed Project Component
California					
Crucero Valley ERMA	BLM	23,748	Campgrounds, hunting, backcountry touring, and open space	Spanned	Eldorado-Lugo 500 kV Transmission Line
Stoddard/Johnson SRMA	BLM	277,000	Subdivided into four Recreation Management Zones (Granite Mountain, Stoddard Valley, Johnson Valley OHV Area, and Ord Rodman). OHV areas, hiking, trails. Includes many organized recreational events	Spanned	Eldorado-Lugo 500 kV Transmission Line; Lugo-Mohave 500 kV Transmission Line
Juniper Flats	BLM	—	OHV area, open space, and hiking trails	Spanned	Eldorado-Lugo 500 kV Transmission Line; Lugo-Mohave 500 kV Transmission Line
Open Access BLM Land	BLM	—	Open space and hiking trails	Spanned	Eldorado-Lugo 500 kV Transmission Line; Lugo-Mohave 500 kV Transmission Line; Newberry Springs series capacitor
Open Access BLM Land	BLM	—	Open space and hiking trails	0.4	Barstow fiber optic repeater

Table 5.16-1. Recreational Areas within 1 Mile of the Proposed Project

Facility	Jurisdiction	Size (acres)	Amenities	Distance to Nearest Project Component (miles)	Nearest Proposed Project Component
Ord Mountain Route Network	BLM	—	OHV area and hiking trails	Spanned	Lugo-Mohave 500 kV Transmission Line
Mojave Trails National Monument	BLM	965,000	Hiking trails, campgrounds, picnic areas, fossil sites, historic sites, rock collecting, and four-wheel drive trails	Spanned/ Adjacent	Eldorado-Lugo 500 kV Transmission Line; Lugo-Mohave 500 kV Transmission Line/Ludlow series capacitor
Mojave National Preserve	NPS	1,600,000	Campgrounds, food service, stores, picnic areas, and hiking trails	Spanned	Lugo-Mohave 500 kV Transmission Line; Kelbaker fiber optic repeater
National Trails SRMA	BLM	417,129	Historic sites, campgrounds, and hiking trails	Spanned	Lugo-Mohave 500 kV Transmission Line
Rodman Mountains Wilderness	BLM	34,264	Open space and hiking trails	Spanned/ Adjacent	Eldorado-Lugo 500 kV Transmission Line; Lugo-Mohave 500 kV Transmission Line
Dead Mountains Wilderness	BLM	47,158	Open space and hiking trails	Adjacent	Lugo-Mohave 500 kV Transmission Line
Mojave Wilderness	NPS	695,200	Campgrounds, picnic areas, self-guided trails, and hiking trails	Adjacent	Lugo-Mohave 500 kV Transmission Line; Kelbaker fiber optic repeater
Kelso Dunes Wilderness	BLM	144,915	Open space, hiking trails, and roadside camping	<0.1	Eldorado-Lugo 500 kV Transmission Line and Lugo-Mohave 500 kV Transmission Line
Bristol Mountains Wilderness	BLM	71,389	Open space and hiking trails	0.1	Lugo-Mohave 500 kV Transmission Line
Mojave River Forks Regional Park	County of San Bernardino	2,393	Tent, recreational vehicle, and group camping areas, showers and restrooms, equestrian area, hiking trails, and horse trails	0.1	Lugo-Mohave 500 kV Transmission Line
Pacific Crest Trails SRMA	BLM	111,006	Hiking trails, equestrian trails, and campgrounds	0.3	Lugo-Mohave 500 kV Transmission Line
San Bernardino National Forest	U.S. Forest Service	679,380	Campgrounds, picnic areas, recreational shooting sites, hiking trails, and equestrian trails	0.8	Lugo-Mohave 500 kV Transmission Line
Pisgah Crater	BLM/Private	—	Rock collecting	1.0[1]	Lugo-Mohave 500 kV Transmission Line
Nevada					
Open Access BLM Land	BLM	—	Open space and hiking trails	Spanned/0.3	Eldorado-Lugo 500 kV Transmission Line; Lugo-Mohave 500 kV Transmission Line/Mohave Substation

Table 5.16-1. Recreational Areas within 1 Mile of the Proposed Project

Facility	Jurisdiction	Size (acres)	Amenities	Distance to Nearest Project Component (miles)	Nearest Proposed Project Component
Big Bend of the Colorado State Recreation Area	Nevada State Parks	1,966	Campgrounds, hiking trails boat launch, picnic areas, historic sites, swimming, and fishing	Spanned within the SCE ROW	Eldorado-Lugo 500 kV Transmission Line; Lugo-Mohave 500 kV Transmission Line
Lake Mead National Recreation Area	NPS	1,500,000	Picnic areas, marinas, boat launches, campgrounds, and stores	0.2	Eldorado-Mohave 500 kV Transmission Line
Bridge Canyon Wilderness	NPS	7,761	Open space and hiking trails	0.2	Eldorado-Mohave 500 kV Transmission Line
Mountain View Park	Clark County	20	Tennis courts, basketball courts, and hiking trails walking trail, horseshoe pits, volleyball courts, and picnic areas	0.2	Eldorado-Lugo 500 kV Transmission Line; Lugo-Mohave 500 kV Transmission Line
Old Spanish National Historic Trail	BLM and NPS	—	Historic sites, wayside exhibits, and markers	Spanned	Eldorado-Mohave 500 kV Transmission Line

1 - Boundary data was not available for Pisgah Crater; thus, the approximate distance to the nearest Proposed Project component is an approximation determined by aerial images.
Source: SCE, 2018. BLM, 2016.

Federal

Bureau of Land Management

California Desert Conservation Area. The California Desert Conservation Area (CDCA) was created by the U.S. Congress in 1976, and approximately 10.4 million acres of the 26-million-acre area is managed by the California Desert District of the BLM. The California Desert District of the BLM is the southernmost BLM district of California and there are field offices in the cities of Ridgecrest, Palm Springs, El Centro, Barstow, and Needles. Recreational activities in the CDCA include hiking, hunting, camping, land sailing, sightseeing, and the use of recreational OHVs. The existing Eldorado-Lugo 500 kV Transmission Line spans approximately 63.9 miles and the existing Lugo-Mohave 500 kV Transmission Line spans approximately 81.8 miles of BLM-managed land within the California Desert District.

SRMAS and ERMAs. Special Recreation Management Areas (SRMAs) are areas designated on BLM-administered lands that are recognized and managed for their recreation opportunities, unique value and importance. They are high-priority areas for outdoor recreation. Extensive Recreation Management Areas (ERMAs) are areas that require specific management consideration to address recreation use and demand. They are managed to support and sustain the principal recreation activities and associated qualities and conditions.

Wilderness Areas. Wilderness areas are designated to preserve and protect their undeveloped natural condition. They provide recreational opportunities that include hiking, backpacking, climbing, horse packing, bird watching, stargazing, and opportunities for solitude. The following four wilderness areas are within 1 mile of the Proposed Project and managed by the California Desert District of the BLM:

- Dead Mountain Wilderness located adjacent to and south of the existing Lugo-Mohave 500 kV Transmission Line

- Rodman Mountains Wilderness spanned by the existing Eldorado-Lugo 500 kV Transmission Line for approximately 1.6 miles and located adjacent to and north of the existing Lugo-Mohave 500 kV Transmission Line
- Kelso Dunes Wilderness located less than 1 mile north of the existing Eldorado-Lugo 500 kV Transmission Line and less than 1 mile north of the existing Lugo-Mohave 500 kV Transmission Line
- Bristol Mountains Wilderness located adjacent to and south of the existing Lugo-Mohave 500 kV Transmission Line

In 2014, approximately 1,785 people visited the Rodman Mountains Wilderness and approximately 15 people visited the Kelso Dunes Wilderness.[1] Visitor statistics for the Dead Mountains Wilderness and Bristol Mountains Wilderness were not available. (SCE, 2018)

Johnson Valley OHV Area. The Johnson Valley OHV Area is part of the Stoddard/Johnson SRMA and is located north of the unincorporated community of Johnson Valley. This OHV area offers opportunities for four-wheel-drive travel, hiking, rockhounding, and wildlife watching. Approximately 5.4 miles of the existing Eldorado-Lugo 500 kV Transmission Line and approximately 5.5 miles of the existing Lugo-Mohave 500 kV Transmission Line are located within the Johnson Valley OHV Area. In 2014, approximately 162,497 people visited the Johnson Valley OHV Area.[2] (SCE, 2018)

An approximately 53,000-acre section of the community of Johnson Valley — the Johnson Valley Shared Use Area — is managed by the BLM; however, the Marine Corps occupy the Shared Use Area for two 30-day periods annually. During these times, the Johnson Valley Shared Use Area is closed to the public and the adjacent Johnson Valley OHV Area remains open to the public. The Johnson Valley Shared Use Area is located approximately 4.2 miles from the existing Lugo-Mohave 500 kV Transmission Line.

Ord Mountain Route Network. The Ord Mountain Route Network is part of the Stoddard/Johnson SRMA located south of the City of Barstow and links the BLM-managed open areas of Stoddard Valley OHV Area to the north and Johnson Valley OHV Area to the south. This road network offers hunting, hiking, and four-wheel-drive travel. The nearest open route of the Ord Mountain Route Network is spanned by the existing Lugo-Mohave 500 kV Transmission Line.

Juniper Flats. Juniper Flats is a route network located in the northern foothills of the San Bernardino Mountains, north of San Bernardino National Forest and southeast of Victor Valley. Approximately 6.9 miles of the existing Eldorado-Lugo 500 kV Transmission Line and approximately 7 miles of the existing Lugo-Mohave 500 kV Transmission Line are located within Juniper Flats. Juniper Flats offers opportunities for vehicle touring, camping, hiking, horseback riding, and hunting.

Pisgah Crater. Pisgah Crater is located within the Pisgah Lava Field, south of Interstate (I-) 40, off of Route 66 in San Bernardino County. Pisgah Crater, located approximately 1 mile south of the existing Lugo-Mohave 500 kV Transmission Line, offers opportunities for rockhounding, wildlife viewing, and hiking.

Mojave Trails National Monument. The Mojave Trails National Monument is located between Joshua Tree National Park and the Mojave National Preserve along Route 66 in San Bernardino County. The Mojave Trails National Monument is managed by the BLM and covers approximately 965,000 acres.

[1] Visitation rates are not recorded for these wilderness areas, and these numbers are estimates based on an average of visits recorded in BLM-managed areas nearby.

[2] Visitation rates are not recorded for these wilderness areas, and these numbers are estimates based on an average of visits recorded in BLM-managed areas nearby.

Approximately 25.3 miles of the existing Eldorado-Lugo 500 kV Transmission Line and 28.3 miles of the existing Lugo-Mohave 500 kV Transmission Line span the Mojave Trails National Monument. The proposed Ludlow Series Capacitor would be located adjacent to the Mojave Trails National Monument. The Mojave Trails National Monument offers opportunities for camping, hiking, and hunting.

Old Spanish National Historic Trail. The Old Spanish National Historic Trail runs through New Mexico, Colorado, Arizona, Utah, Nevada and California. The BLM and the NPS administer the trail together to encourage preservation and public use. The Old Spanish National Historic Trail is crossed by the existing Eldorado-Mohave 500 kV Transmission Line between Tower M29-T2 and M29-T3 on land administered by the BLM. The Old Spanish National Historic Trail is not a constructed contiguous trail with a demarcated alignment, and there are very few officially designated hiking trails along the trail corridor. The trail has a variety of trail-related historic sites, wayside exhibits, and markers.

Mojave Trail/Mojave Road. The Mojave Trail/Mojave Road (Mojave Road) is an east-west route that enters the Mojave National Preserve near Piute Spring on the east side and on Soda Dry Lake near Zzyzx on the west side and routes extend southeast through Nevada to the Colorado River. The Mojave Road is a popular four-wheel drive road and it crosses the Lugo-Mohave 500 kV Transmission Line in Nevada on land administered by the BLM, east of the existing Tower M166-T1.

Open Space Areas. Most the BLM-managed lands along the Proposed Project alignment are open access lands in California and Nevada and include areas for four-wheel-drive travel, hiking, hunting, and dispersed camping.

National Park Service

Mojave National Preserve. The Mojave National Preserve is located east of the City of Barstow in Southern California, between I-15 and I-40. The Mojave National Preserve was established by the California Desert Protection Act and offers four-wheel-drive roads, backcountry camping, wildflower viewing, and hunting. The Mojave National Preserve covers approximately 1.6 million acres, and approximately 49.3 miles of the existing Lugo-Mohave 500 kV Transmission Line spans the Mojave National Preserve.

Providence Mountains State Recreation Area, the University of California Natural Reserve System's Sweeney Granite Mountains Desert Research Center, and California State University's Desert Studies Center at Soda Springs are within the preserve's boundaries. Approximately 700,000 acres of the Mojave National Preserve are designated as wilderness, including the Mojave Wilderness. In 2015, approximately 589,155 people visited the Mojave National Preserve.

The Mojave Wilderness is managed by the NPS and is located within the Mojave National Preserve. The Mojave Wilderness covers approximately 695,200 acres and is adjacent to the existing Lugo-Mohave 500 kV Transmission Line.

Lake Mead National Recreation Area. Lake Mead National Recreation Area is in Clark County, Nevada, and Mohave County, Arizona. Lake Mead National Recreation Area offers boating, fishing, hiking, photography, picnicking, and sightseeing. This recreation area is located approximately 0.2 miles north of the existing Eldorado-Mohave 500 kV Transmission Line. In 2015, approximately 7,298,465 people visited Lake Mead National Recreation Area.

Bridge Canyon Wilderness is managed by the NPS and is located in the Lake Mead National Recreation Area, northwest of the unincorporated community of Laughlin in Nevada. This wilderness area offers backpacking, camping, fishing, hunting, and equestrian activities. Bridge Canyon Wilderness is located approximately 0.2 miles north of the existing Eldorado-Mohave 500 kV Transmission Line.

U.S. Forest Service

San Bernardino National Forest. San Bernardino National Forest is in San Bernardino County, California. The national forest offers bicycling, camping, fishing, hiking, hunting, picnicking, and winter sports. There are eight designated wilderness areas in the San Bernardino National Forest. The San Bernardino National Forest is located approximately 0.8 miles south of the existing Lugo-Mohave 500 kV Transmission Line.

State

California

Kelso Peak and Old Dad Mountains Wildlife Area. The Kelso Peak and Old Dad Mountains Wildlife Area is approximately 102,400 acres of dunes playa (dry lake), lava beds, and mountains of lime and granite. It is cooperatively managed by BLM and the California Department of Fish and Wildlife (CDFW). It allows wildlife viewing and hunting (CDFW, 2018).

Nevada

Big Bend of the Colorado State Recreation Area. Big Bend of the Colorado State Recreation Area offers picnicking, boating, fishing, swimming, camping, hiking, and group facilities that are open to the public. Approximately 0.7 miles of the existing Eldorado-Mohave 500 kV Transmission Line and the existing Lugo-Mohave 500 kV Transmission Line span Big Bend of the Colorado State Recreation Area but within the SCE ROW. An average of approximately 75,000 people visit Big Bend of the Colorado State Recreation Area annually.

Local

Mojave River Forks Regional Park. Mojave River Forks Regional Park is located at 17891 State Route 173 near the City of Hesperia and offers camping, equestrian camping, hiking, and equestrian trails. Mojave River Forks Regional Park is located approximately 0.1 miles south of the existing Lugo-Mohave 500 kV Transmission Line.

Mountain View Park. Mountain View Park is managed by the Clark County Department of Parks and Recreation. The park offers tennis, basketball, and volleyball courts; a walking trail; and picnic areas. Mountain View Park is located approximately 0.2 miles south of the existing Eldorado-Mohave 500 kV Transmission Line and existing Lugo-Mohave 500 kV Transmission Line.

5.16.2 Regulatory Background

State and Local

State

There are no state recreation regulations in California or Nevada that are applicable to the Proposed Project.

Local

The CPUC has sole and exclusive jurisdiction over the siting and design of the Proposed Project components located in the State of California. Pursuant to CPUC G.O. 131-D, Section XIV.B, "Local jurisdictions acting pursuant to local authority are preempted from regulating electric power line projects, dis-

tribution lines, substations, or electric facilities constructed by public utilities subject to the CPUC's jurisdiction. However, in locating such projects, the public utilities shall consult with local agencies regarding land use matters." Consequently, public utilities are directed to consider local regulations and consult with local agencies, but the county and cities' regulations are not applicable as the county and cities do not have jurisdiction over the Proposed Project. No pertinent local regulations related to recreation were identified. The Proposed Project is subject to local regulations in the State of Nevada.

Clark County Comprehensive Plan. Clark County Comprehensive Plan contains the following policy, which is relevant to the Proposed Project and is addressed in Section 5.10, Land Use and Planning:

- ***Utilities 13:*** *Explore opportunities with utility providers to locate trails within existing and future utility corridors wherever possible.*

South Clark County Land Use Plan. The South Clark County Land Use Plan contains the following policy, which is relevant to the Proposed Project and addressed in Section 4.10, Land Use and Planning:

- ***Policy 30.2:*** *Promote the joint use of high voltage transmission line corridors and transportation systems that allow for the development of pedestrian, equestrian, and bicycle trails within existing and planned transmission line corridors. Incorporate strategies that take into consideration access for routine and emergency transmission line maintenance.*

Federal

Bureau of Land Management

The Wilderness Act of 1964. As codified by Title 16, Chapter 23 of the U.S. Code, the Wilderness Act of 1964 defines "wilderness" as an area where "the earth, and its community of life, are untrammeled by man and where man himself is a visitor who does not remain." This act also established the National Wilderness Preservation System that coordinates the wilderness activities of four federal agencies: the USFS, BLM, NPS, and U.S. Fish and Wildlife Service (USFWS). The National Wilderness Preservation System provides a system by which land is evaluated and can be added to the list of wilderness areas. With some exceptions (e.g., existing private rights), the Wilderness Act prohibits motorized equipment or mechanized transport in designated wilderness areas, timber harvest, or development.

Federal Land Policy and Management Act. The Federal Land Policy and Management Act (FLPMA) provides a regulatory framework for the management and use of BLM resources. An important aspect of the FLPMA is that it supports multiple uses on public lands. In addition, under the FLPMA, the BLM regulates rights-of-way (ROWs) for electrical power generation, transmission and distribution systems, systems for the transmission and reception of electronic signals and other means of communication, pipelines (other than oil and gas), railroads, highways, and other facilities or systems developed in the interest of the public. The FLPMA also designated the approximately 26-million-acre CDCA in Southern California, of which approximately 10.4 million acres are administered by the BLM. Lands in the CDCA are also managed by the NPS, DoD, and the USFS.[3]

California Desert Conservation Area Plan. The CDCA Plan is a comprehensive, long-range plan for the management, use, development, and protection of lands within the CDCA, and it is required as part of the FLPMA and implemented by the BLM. The CDCA Plan contains an Energy Production and Utility Corridors Element, in which the BLM encourages applicants for utility ROWs to use designated corridors.

[3] The Proposed Project is located 0.8 miles from San Bernardino National Forest and does not cross USFS land.

The Desert Renewable Energy Conservation Plan is focused on 10.8 million acres of public lands in the desert regions of seven California counties – Imperial, Inyo, Kern, Los Angeles, Riverside, San Bernardino, and San Diego. It is a landscape-level plan that streamlines renewable energy development while conserving unique and valuable desert ecosystems and providing outdoor recreation opportunities. The BLM signed the Record of Decision approving its Land Use Plan Amendment to the CDCA Plan on September 14, 2016. The BLM Plan Amendment covers the 10 million acres of BLM-managed lands in the DRECP plan area and supports the overall renewable energy and conservation goals of the DRECP. The DRECP designated two types of recreation designations: SRMAs and ERMAs. It designated multiple other land use designations that include recreational activities such as Areas of Critical Environmental Concern (ACECs).

National Park Service

California Desert Protection Act of 1994. The California Desert Protection Act of 1994 is a federal law that established Death Valley National Park, Joshua Tree National Park, and the Mojave National Preserve in California. Section 511 Utility Rights of Way states that Southern California Edison Company (SCE) activities within the ROW of the Mojave National Preserve are to remain valid. This includes upgrades to the existing electrical transmission line to increase capacity. In the existing Eldorado-Lugo 500 kV Transmission Line ROW and existing Lugo-Mohave 500 kV Transmission Line ROW, no additional land would be issued, granted, or permitted for such an upgrade unless an addition would reduce the impacts to resources in the Mojave National Preserve.

Mojave General Management Plan. The Mojave General Management Plan, the management strategy for the Mojave National Preserve, was developed as a requirement of the California Desert Protection Act of 1994 and is implemented by the NPS. The Mojave General Management Plan notes that some existing land uses such as electric transmission lines do not conform well with the preservation mission and management goals but are authorized pre-existing uses. The Plan identifies these resources to recognize their existence as non-conforming uses that dissect the park and at times may interfere with the visitor experience. The management philosophy towards these developments is to minimize their intrusion and manage towards their eventual elimination, either through technological improvements or acquisition. Many of these uses will likely remain intact throughout the life of this plan, but as opportunities arise to minimize or eliminate them, the park would work towards that end (NPS, 2002).

Clark County Conservation of Public Land and Natural Resources Act of 2002. The Clark County Conservation of Public Land and Natural Resources Act of 2002 is a federal act that establishes wilderness areas, promotes conservation, improves public land, and provides for high-quality development in Clark County, Nevada. It established Bridge Canyon Wilderness within the Lake Mead National Recreation Area as part of the National Wilderness Preservation System.

5.16.3 Applicant Proposed Measures

The Proposed Project does not include any APMs related to Recreation.

5.16.4 CEQA Significance Criteria

Appendix G of the CEQA Guidelines (14 CCR 15000 et seq.) provides guidance on assessing whether a project would have significant impacts on the environment. Consistent with Appendix G, the Proposed Project would have significant recreation impacts if it would:

a. Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated

b. Include recreational facilities or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment

5.16.5 Methodology

This analysis reviewed the existing recreational areas along the Proposed Project alignment primarily at the location of ground disturbance. It then reviews whether the Proposed Project would permanently convert or temporarily impact recreation such that it results in a substantial increase in use of a different recreational area. It also reviews whether the Proposed Project would conform with recreational plans and regulations.

5.16.6 Project Impacts and Mitigation Measures

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?

Construction

LESS THAN SIGNIFICANT. SCE anticipates 15 to 346 construction personnel would be working on the Proposed Project at any given time during the approximately 15 months of construction. Crew members would likely commute from residences in San Bernardino and Clark County, or nearby counties, and are not anticipated to permanently relocate to the area. The minor increase in daily worker population would be temporary and if some workers used recreation facilities, this would not lead to substantial physical deterioration of existing recreational facilities. In addition, as described in Section 4.13, Population and Housing, the Proposed Project would not induce population growth in the area either directly or indirectly. The Proposed Project would not promote new growth or development that would increase the use of existing recreational facilities and result in substantial physical deterioration.

Operation

NO IMPACT. O&M activities associated with the Proposed Project would be similar to those currently performed for the existing facilities, with additional O&M activities associated with the proposed mid-line series capacitors and fiber optic repeater facilities. These activities would be undertaken by existing staff. Because O&M activities would be similar to current practices they would not increase use of recreation facilities.

Mitigation Measures

No mitigation is required.

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?

Construction

NO IMPACT. The Proposed Project does not include or require the construction of recreational facilities. Impacts to existing facilities would be temporary and no additional recreational facilities would be required to accommodate users because of the Proposed Project. The Proposed Project would not promote new growth or development that would increase the use of existing recreational facilities. The

Proposed Project would not require the construction or expansion of recreational facilities and no impact would occur.

Operation

NO IMPACT. O&M activities associated with the Proposed Project would be similar to those currently performed for the existing facilities, with additional O&M activities associated with the proposed mid-line series capacitors and fiber optic repeater facilities. Because O&M activities would be similar to current practices and no impact would result from the Proposed Project.

Mitigation Measures

No mitigation is required.

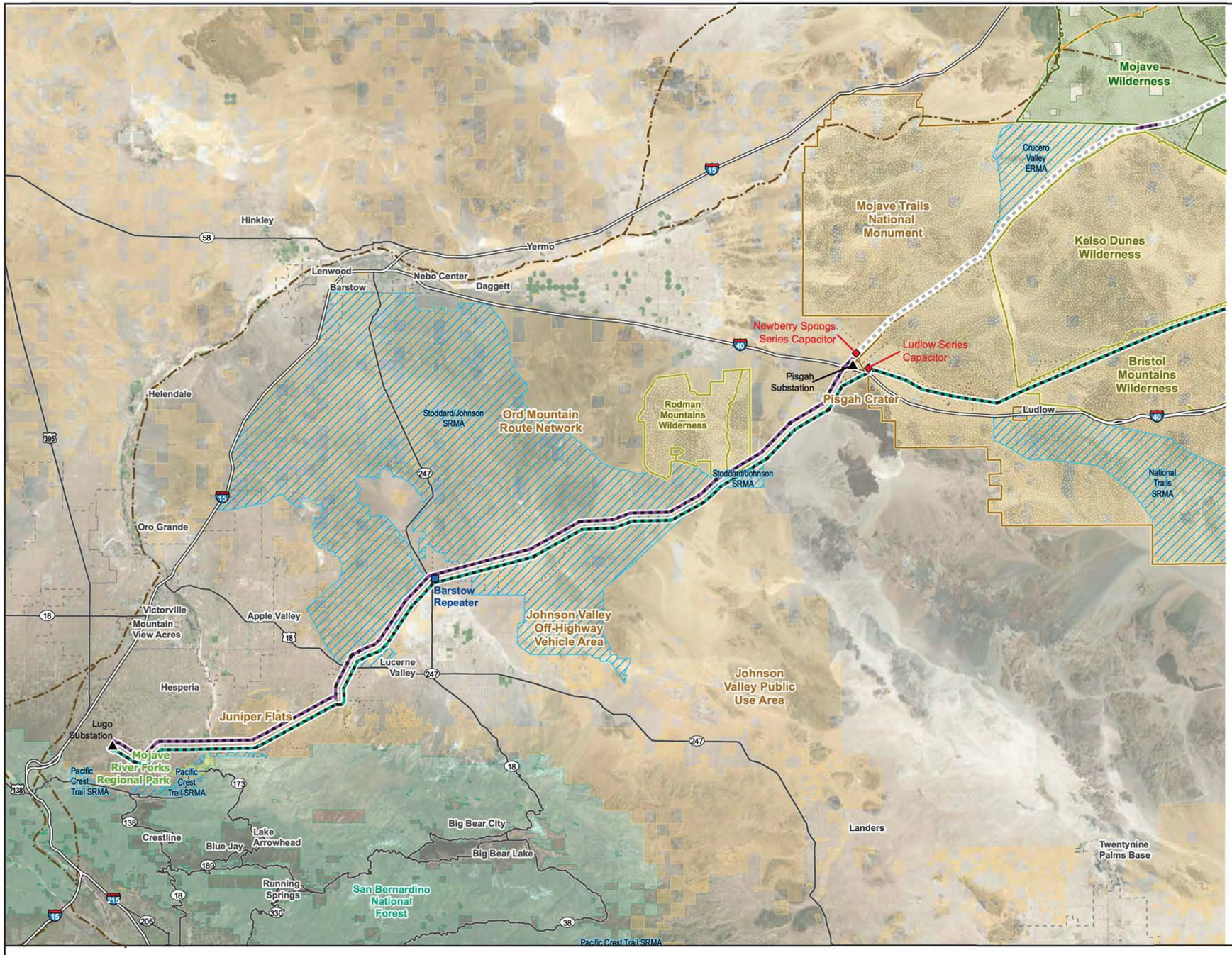
5.16.7 References

BLM (Bureau of Land Management). 2016. Desert Renewable Energy Conservation Plan Land Use Plan Amendment. Appendix C, Special Recreation Management Area and Extensive Recreation Management Area – Special Unit Management Plans.

CDFW (California Department of Fish and Wildlife). 2018. Kelso Peak and Old Dad Mountains Wildlife Area. https://www.wildlife.ca.gov/Lands/Places-to-Visit/Kelso-Peak-Old-Dad-Mountains-WA. December 20, 2018.

NPS (National Park Service). 2002. Mojave National Preserve: General Management Plan: Use of the Preserve. https://www.nps.gov/moja/learn/management/upload/MOJA_GMP71-88.pdf. December 20, 2018.

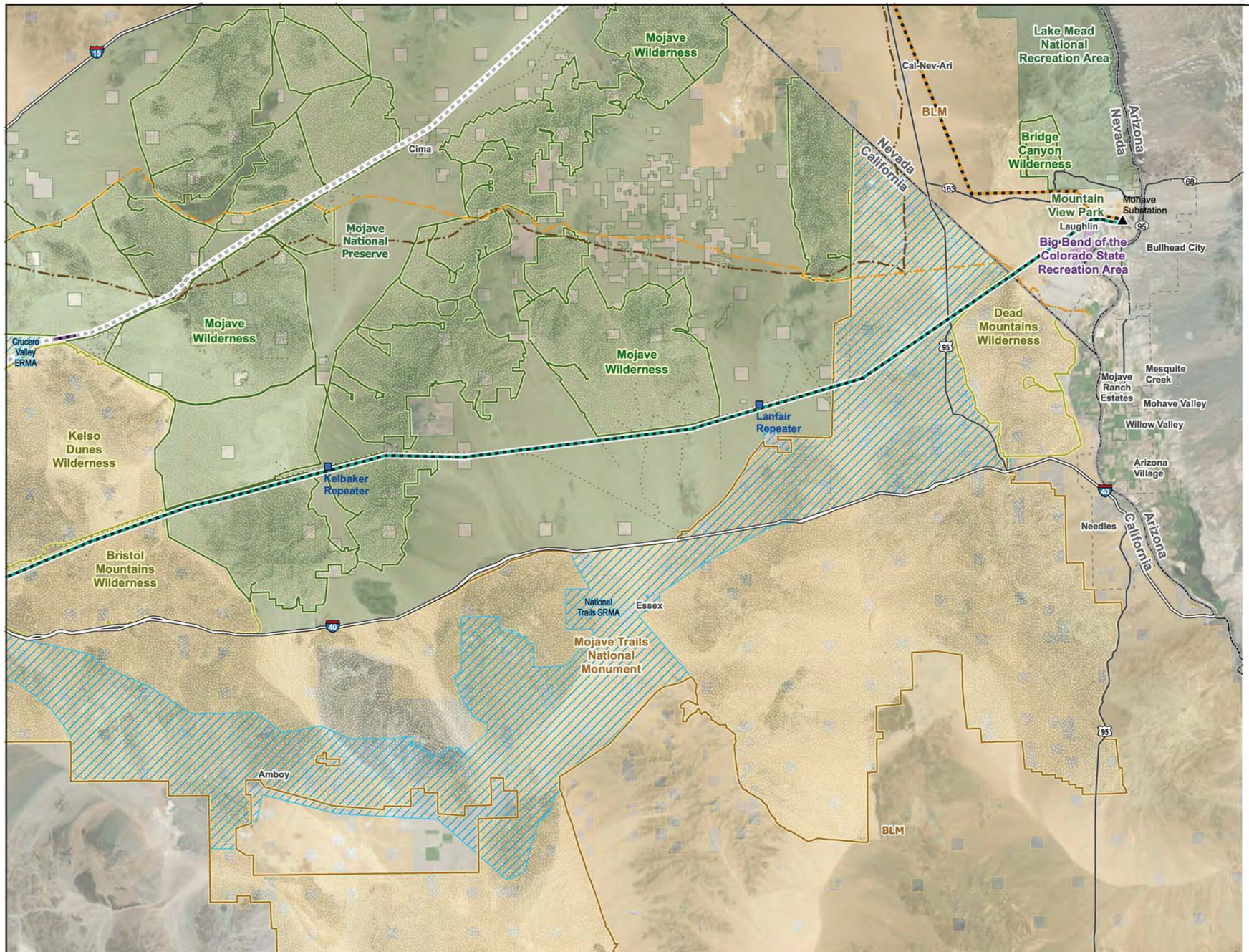
SCE (Southern California Edison). 2018. Eldorado-Lugo-Mohave Series Capacitor Project: Proponent's Environmental Assessment (PEA). Volumes 1 through 8. April.



Source: SCE, 2018.

Figure 5.16-1

Recreational Facilities Within 1 Mile of the Proposed Project Map 1 of 3



- Existing Substation
- Proposed Mid-Line Capacitor Location
- Proposed Fiber Optic Repeater Location
- Eldorado - Lugo 500 kV Transmission Line
- Eldorado - Mohave 500 kV Transmission Line
- Lugo - Mohave 500 kV Transmission Line
- Transmission Line not part of Proposed Project
- Old Spanish Trail
- Mojave Road/Trail
- Trail/Track
- City Boundary
- State Boundary
- Interstate
- State Highway/US Highway

Park/Land Administration

- County Park
- Bureau of Land Management (BLM)
- National Park Service (NPS)
- Other State Park
- United States Forest Service
- NPS Administered Wilderness
- BLM Administered Wilderness
- BLM Administered Monument
- Special Recreation Management Area

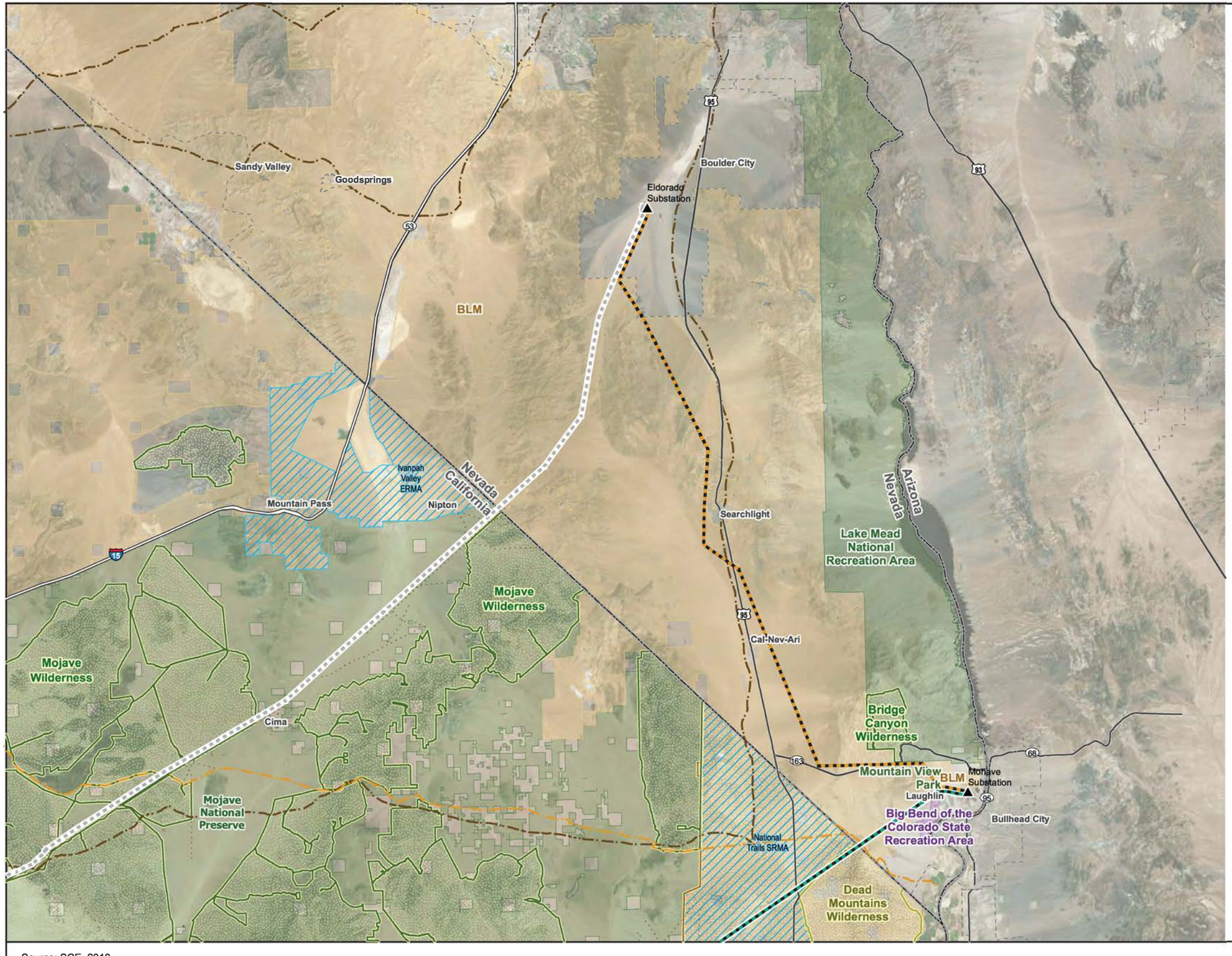
Source: SCE, 2018.

N

0 7 14 Miles

Figure 5.16-1

Recreational Facilities Within 1 Mile of the Proposed Project Map 2 of 3



- Existing Substation
- Proposed Mid-Line Capacitor Location
- Proposed Fiber Optic Repeater Location
- Eldorado - Lugo 500 kV Transmission Line
- Eldorado - Mohave 500 kV Transmission Line
- Lugo - Mohave 500 kV Transmission Line
- Transmission Line not part of Proposed Project
- Old Spanish Trail
- Mojave Road/Trail
- Trail/Track
- City Boundary
- State Boundary
- Interstate
- State Highway/US Highway

Park/Land Administration

- County Park
- Bureau of Land Management (BLM)
- National Park Service (NPS)
- Other State Park
- United States Forest Service
- NPS Administered Wilderness
- BLM Administered Wilderness
- BLM Administered Monument
- Special Recreation Management Area

Source: SCE, 2018.

N

0 7 14 Miles

Figure 5.16-1

Recreational Facilities Within 1 Mile of the Proposed Project Map 3 of 3

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5.17 Transportation

TRANSPORTATION Would the project:	Potentially Significant Impact	Less Than Significant 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. Would the project 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?	☐	☐	☒	☐
e. Require helicopter use that would have potential impacts on public safety and create nuisance conditions?	☐	☒	☐	☐

Significance criteria a. through d. established by CEQA Guidelines, Appendix G. Criterion e. is added to address helicopter use.

5.17.1 Environmental Setting

The Proposed Project is located in California and Nevada, within the Mojave Basin and Range (Mojave). Federal lands constitute a majority of the land area in the Mojave, including lands under the jurisdiction of the Bureau of Land Management (BLM), National Park Service (NPS), Bureau of Reclamation (BOR), and Department of Defense (DoD). The Proposed Project would modify three existing transmission lines that extend northeast from Lugo Substation (located in San Bernardino County, California) to Eldorado Substation (located in the City of Boulder City, Nevada) and Mohave Substation (located in Clark County, Nevada), and from Mohave Substation northwest to Eldorado Substation. Portions of the Proposed Project would also cross the City of Hesperia, California, the unincorporated community of Lucerne Valley in California, as well as the unincorporated communities of Searchlight and Laughlin in Nevada.

Existing Roadway Network

The *Highway Capacity Manual* (HCM) (Transportation Research Board, 2000) provides methodologies to assess potential impacts to traffic flow. A Level of Service (LOS) scale is used to indicate the quality of traffic flow on roadway segments and at intersections. LOS is an indicator of operating conditions on a roadway or at an intersection and is defined in categories ranging from A to F. LOS A represents the best traffic flow conditions with very low delay, and LOS F represents poor conditions. LOS A indicates free-flowing traffic, and LOS F indicates substantial congestion with long delays at intersections.

LOS for signalized intersections is based upon the average time (seconds) that vehicles approaching an intersection are delayed. There is a specific delay and level of service associated with each approach and an overall average delay for all movements. The overall LOS for the intersection is based upon the over-all average delay.

Unsignalized intersection LOS is also based upon the control delay, but delay is assessed only for those traffic movements that are stopped or must yield to through traffic. Some movements, including cross traffic on the minor street or left turns onto the major street, can be subject to long delays; however, through traffic and right turns from the major street would not experience any delays at stopped intersections. When delay for cross traffic is severe (LOS F), the intersection should be evaluated further for possible improvement with traffic signals. In some cases, this analysis determines that the delay is being

experienced by a very low number of vehicles, and traffic signals are not warranted. In other cases, when the number of stopped vehicles is substantial, and traffic signals may be justified as a mitigation measure, additional analysis is required to determine the need and justification for the installation of a traffic signal.

Table 5.17-1 shows the relationship between LOS and the performance measures for signalized and unsignalized intersections and lists the Highway Capacity Manual delay criteria for signalized intersections.

Table 5.17-1. Intersection Level of Service Definitions

Level of Service	Signalized Intersection Control Delay (seconds/vehicle)	Unsignalized Intersection Control Delay (seconds/vehicle)
A	0 – 10	0 – 10
B	10.1 – 20	10.1 – 15
C	20.1 – 35	15.1 – 25
D	35.1 – 55	25.1 – 35
E	55.1 – 80	35.1 – 50
F	80.1 or more	50.1 or more

Source: Transportation Research Board (2000)

A list of roadways that may be used for construction vehicle travel associated with the project are presented in Table 5.17-2, Roadway Network in the Vicinity of the Proposed Project. Table 5.17-2 also includes the classification, number of lanes, traffic volume data, average annual daily traffic (AADT), and Level of Service (LOS) information (where available) for these roadways. In addition, the results of the Eldorado-Lugo-Mohave Traffic Study conducted by Fehr and Peers were incorporated into Table 5.17-2.

Table 5.17-2. Roadway Network in the Vicinity of the Proposed Project

Roadway	Nearest Cross Street	Roadway Location	Classification	Approximate Number of Lanes[1]	Existing Traffic Volume (ADT)	Roadway Capacity (AADT)	Existing LOS
Lugo Substation							
Fuente Avenue	Whitehaven Street	Spanned	Local	Two	12	400	A
Escondido Avenue	Ranchero Road	Adjacent	Local	Two	LOS analyzed in Traffic Study*	LOS analyzed in Traffic Study*	A*
Eldorado-Lugo and Lugo-Mohave 500 kilovolt (kV) Transmission Lines[2]							
Summit Valley Road	Telephone Canyon Road	Spanned	Minor Arterial	Two	—	—	—
Los Flores Road	Summit Valley Road	Spanned	Minor Arterial	Unpaved road, no lanes	—	—	—
Arrowhead Lake Road	State Route (SR-) 173	Spanned	Local	Two	810	6,300	A
Bowen Ranch Road	South Valley View Road	Spanned	Local	Unpaved road, no lanes	196	400	A

Table 5.17-2. Roadway Network in the Vicinity of the Proposed Project

Roadway	Nearest Cross Street	Roadway Location	Classification	Approximate Number of Lanes[1]	Existing Traffic Volume (ADT)	Roadway Capacity (AADT)	Existing LOS
SR-18	Bear Valley Cutoff	Spanned	Minor Arterial	Two	9,500	14,000	B
High Road	SR-18	Spanned	Local	Unpaved road, no lanes	713	1,100	B
Exeter Street	West Cove Road	Spanned	Local	Unpaved road, no lanes	153	400	A
Banta Road	Chuckawalla Road	Spanned	Local	Unpaved road, no lanes	20	400	—
SR-247/Barstow Road	Haynes Road	Spanned	Minor Arterial	Two	—	—	—
Meridian Road	Powerline Road	Spanned	Local	Two	74	400	A
Huff Road	North Northside Road	Spanned	Local	Unpaved road, no lanes	44	400	A
Camp Rock Road	Troy Road	Spanned	Local	Unpaved road, no lanes	13	400	A
Kelbaker Road	Kelso Dunes Road	Spanned	Major Collector	Two	—	—	—
Essex Road	North Black Canyon Road	Spanned	Major Collector	Two	25	400	A
Black Canyon Road	Essex Road	Spanned	Minor Collector	Two	—	—	—
Lanfair Road	North Goffs Road	Spanned	Major Collector	Two	35	400	A
U.S. Highway (US-) 95	Goffs Road	Spanned	Other Principal Arterial	Two	2,700	8,500	A
Santa Rosa Road	East Willow Wells Avenue	Adjacent	Local	Unpaved road, no lanes	28	400	A
Pisgah Substation, Newberry Springs Series Capacitor, and Ludlow Series Capacitor							
I-40	Pisgah Crater Road	Spanned	Principal Arterial	Four	—	—	—
Pisgah Crater Road	National Trails Highway	Spanned	Local	Two	11	400	A
National Trails Highway	Pisgah Crater Road	Adjacent	Major Collector	Two	—	—	—
Hector Road*	Interstate (I-) 40 East Ramps	Approximately 3.9 miles west of Pisgah Substation	Local	Two	LOS analyzed in Traffic Study*	LOS analyzed in Traffic Study*	A
Hector Road*	I-40 West Ramps	Approximately 3.9 miles west of Pisgah Substation	Local	Two	LOS analyzed in Traffic Study*	LOS analyzed in Traffic Study*	A

Table 5.17-2. Roadway Network in the Vicinity of the Proposed Project

Roadway	Nearest Cross Street	Roadway Location	Classification	Approximate Number of Lanes[1]	Existing Traffic Volume (ADT)	Roadway Capacity (AADT)	Existing LOS
Mohave Substation							
Edison Way*	Bruce Woodbury Drive	Adjacent	Local	Two	LOS analyzed in Traffic Study*	LOS analyzed in Traffic Study*	A*
Eldorado-Mohave 500 kV Transmission Line							
Needles Highway	Bruce Woodbury Drive	Spanned	Interstate/State Highway	Two to Four	1,700	34,000	A
Nevada SR-163/ Laughlin Highway	Christmas Tree Pass Road	Spanned	Minor Arterial	Four	—	—	—
Christmas Tree Pass Road	US-95	Spanned	Local	Unpaved road, no lanes	—	—	—
Loran Station Road	US-95	Spanned	Local	Unpaved road, no lanes	—	—	—
US-95	Old Airport Road	Spanned	Other Principal Arterials	Four	—	—	—
SR-163/Nipton Road	Gas Pipeline Road	Spanned	Major Collector	Two	550	2,600	—
Eldorado Substation (and LADWP's McCullough Substation)							
US-95*	Eldorado Valley Road	Spanned	Interstate	Four	LOS analyzed in Traffic Study*	LOS analyzed in Traffic Study*	A

Sources: Caltrans (2014), Clark County (2014), County of San Bernardino Transportation Department (2014), Fehr and Peers (2016), Google (2016), NDOT (2015a, 2015b), OpenStreetMap (2016), SBCTA (2016; 2018a; and 2018b), U.S. DOT (2013).
Notes: "—" = information not available; "N/A" = not applicable; "ADT" = Average Daily Trip
* The LOS for roadways serving Eldorado, Lugo, Mohave, and Pisgah Substations were evaluated in the Traffic Study conducted by Fehr and Peers using methods from Chapters 18 and 19 of the Transportation Research Board's 2010 Highway Capacity Manual. These methods use various intersection characteristics (e.g., traffic volumes, lane geometry, and signal phasing) to estimate the average control delay experienced by motorists traveling through an intersection. The LOS analysis is described in Appendix L: Traffic Study.
1 - This column specifies the total number of lanes traveling in both directions.
2 - Not all roads are spanned by the Eldorado-Lugo 500 kV Transmission Line, which separates from the Lugo-Mohave 500 kV Transmission Line southwest of Pisgah Substation.

A traffic study was prepared by Fehr and Peers to evaluate traffic conditions at major intersections identified as being particularly susceptible to construction-related traffic impacts. The location and LOS associated with each intersection are identified in Table 5.17-2, Roadway Network in the Vicinity of the Proposed Project. As described in the Congestion Management Program (CMP) for San Bernardino County (SANBAG, 2016), the peak-hour LOS performance standard in the Valley and Mountain Regions within the county is LOS D for all major arterials. The intersections evaluated within San Bernardino County are located within the Desert Region, which is required by the CMP to maintain LOS C at all times. Principal arterials within San Bernardino County are required to operate at LOS E.

The Clark County Comprehensive Plan (2015) establishes LOS D as the performance standard for non-residential streets and LOS C as the performance standard for residential streets in buildout conditions. As described in the Traffic Study, the intersections evaluated currently operate within applicable LOS

standards. The existing LOS and LOS during Proposed Project construction at these intersections are presented in Table 5.17-3, Level of Service at Traffic Study Intersections during Proposed Project construction.

Table 5.17-3. Level of Service at Traffic Study Intersections during Proposed Project Construction

Intersection	LOS Standards[1]	Existing LOS without Proposed Project Construction	Existing LOS with Proposed Project Construction
Lugo Substation Intersection			
Escondido Avenue and Ranchero Road	C	B	B
Proposed Mid-Line Series Capacitors Intersections			
Hector Road and I-40 West Ramps	C	A	A-B
Hector Road and I-40 East Ramps	C	A	A
Mohave Substation			
Edison Way and Bruce Woodbury Drive	C	A	A-C
Eldorado Substation (and LADWP McCullough Substation)			
US-95 and Eldorado Valley Road	D	A-B	A-C

1: The LOS standards presented in the table were established by San Bernardino County and Clark County.

Highways

As shown in Figure 5.17-1, Roadway Network in the Vicinity of the Proposed Project, regional access to the Proposed Project and would be provided by I-40, I-15, SR-18, SR-173, SR-247, SR-163, and US-95. I-15 runs northeast-southwest approximately 2.7 miles northwest of Lugo Substation and would provide access to the substation and associated Proposed Project components. Construction vehicles and equipment would likely access Lugo Substation from I-15 at the Ranchero Road off-ramp and turn right on Escondido Avenue. I-15 typically provides four lanes of travel north and south of the Ranchero Road exit. Proposed Project components between Lugo Substation and Pisgah Substation would likely be accessed using a network of local roads connected to SR-18 and SR-247.

Regional access to Pisgah Substation, the Newberry Springs Series Capacitor, and the Ludlow Series Capacitor would be provided from the National Trails Highway (Historic Route 66) accessed from I-40 which runs east-west and crosses the Proposed Project approximately 0.3 miles south of Pisgah Substation. Vehicles would likely exit I-40 at the Hector Road exit and travel east on National Trails Highway to Pisgah Crater Road. The portions of I-40 in the vicinity of Pisgah Substation and the two mid-line series capacitor sites typically provide two lanes of east-west travel. Regional access between Pisgah Substation and the series capacitor sites and Mohave Substation in Nevada would likely be provided by a network of local roads connected to I-40 and US-95.

Regional access to Mohave Substation, Eldorado Substation, and McCullough Substation would be provided primarily by US-95 and SR-163, which travel north-south and east-west, respectively. From I-40, Mohave Substation would likely be accessed by exiting at the River Road Cutoff and traveling north on Needles Highway/River Road. Construction vehicles using SR-163 would access Mohave Substation by traveling south on Needles Highway until reaching Bruce Woodbury Drive, which travels eastward toward Mohave Substation. Regional access to Eldorado Substation and nearby McCullough Substation would be provided by turning west on Eldorado Valley Drive from US-95. Proposed Project components between Mohave Substation and Eldorado Substation would be accessed using US-95, which generally parallels the Eldorado-Mohave

Arterial Roads

The majority of the roadways spanned by the Eldorado-Lugo, Eldorado-Mohave, and Lugo-Mohave 500 kV Transmission Lines consist of local unpaved roadways. The local roadways spanned by the Proposed Project are provided in Table 5.17-2, Roadway Network in the Vicinity of the Proposed Project.

Lugo Substation

In the vicinity of Lugo Substation, Whitehaven Street, Belmont Road, Prairie Trail, and Lookout Trail are the local public roads that travel east-west. Foley Road, Escondido Avenue, and Fuente Avenue travel north-south. Escondido Avenue and Fuente Avenue would provide access to Lugo Substation.

Newberry Springs and Ludlow Series Capacitors

In the vicinity of the Newberry Springs and Ludlow Series Capacitors, Pisgah Road, Pisgah Crater Road, and several unnamed access roads travel northwest-southeast. Pisgah Road and Power Lane travel northeast-southwest. Power Lane and Pisgah Road would likely be used to access Newberry Springs Capacitor; Pisgah Crater Road would be used to access Ludlow Series Capacitor.

Mohave Substation

Within the vicinity of Mohave Substation, Bruce Woodbury Drive and West Casino Drive are the local public roads that travel east-west. Needles Highway, South Casino Drive, Thomas Edison Drive, and Edison Way travel north-south. Access to Mohave Substation is provided by an unpaved road, which is accessed by turning south from Bruce Woodbury Drive.

Eldorado Substation

Within the vicinity of Eldorado Substation, Eldorado Valley Drive is the primary local, private street that travels east-west. McCullough Pass and several unnamed access roads travel north-south. Access to Eldorado Substation would be provided by Eldorado Valley Drive or McCullough Pass.

McCullough Substation

LADWP's McCullough Substation is approximately 800 feet northwest of SCE's Eldorado Substation and would be accessed by an unnamed access road off McCullough Pass.

Truck Routes

Caltrans-designated truck routes include I-40, I-15, and US-95 (Caltrans, 2018). Trucks accessing Lugo Substation would use I-15 in conjunction with a network of local roads. Truck access to Pisgah Substation, the proposed Newberry Springs and Ludlow Series capacitor sites would be provided by I-40. Trucks would likely use US-95, SR-163, and US-68 to access Mohave Substation. Major roadways that would be used to access Eldorado Substation and McCullough Substation include I-515 and US-95. Truck routes to and from the Barstow Fiber Optic Repeater would use SR-247/Barstow Road, SR-18, and/or I-15. Trucks accessing the Kelbaker and Lanfair Fiber Optic Repeaters would use I-40 and US-95. The previously described truck routes would also provide access to the discrepancy work areas, as well as the pulling and tensioning locations.

Mass Transit

Public transit in the vicinity of the Proposed Project is provided by Area Transport, Morongo Basin Transit Authority, Mountain Area Regional Transit Authority, Needles Area Transit, Omnitrans, Valley

Transportation Services, Victor Valley Transit Authority (VVTA), and Foothill Transit Authority (SBTCA, 2018c). With the exception of the Foothill Transit Authority, SANBAG provides financial support to these operators. The primary public transit operator in the vicinity of the Proposed Project is the VVTA, which provides bus service to the cities of Adelanto, Hesperia, and Victorville; the Town of Apple Valley; and other areas within San Bernardino County. The existing transmission lines do not span any bus routes operated by the VVTA (VVTA, 2018).

Public mass transit services in Clark County are provided by the Regional Transportation Commission (RTC). The RTC is responsible for planning and implementing transit systems designed to transport large numbers of residents and tourists. According to the Nevada DOT (2018), the Southern Nevada Transit Coalition (SNTC) is the main public transit provider in the vicinity of the Proposed Project in Clark County. The SNTC operates bus routes 777 and 888 in the vicinity of the existing Eldorado-Mohave 500 kV Transmission Line and Mohave Substation. Bus 777 operates 24 hours a day, seven days a week, and crosses the Proposed Project on Needles Highway, east of Mohave Substation. Route 777 travels north on Needles Highway and follows Bruce Woodbury Drive in an easterly direction until reaching Thomas Edison Drive. Route 888 operates seven days a week between 5:44 a.m. and 12:31 a.m. and uses the same roadways as Route 777 in the opposite direction (SNTC, 2018).

Rail

Commuter rail service in San Bernardino County is provided by Metrolink and Amtrak. Metrolink is operated by the Southern California Regional Rail Authority, which operates three lines throughout the Los Angeles metropolitan area that provide direct service to San Bernardino County. These three lines consist of the San Bernardino Line, the Riverside Line, and the Inland Empire Orange County Line (County of San Bernardino, 2007). The nearest Metrolink station is the San Bernardino Downtown Station, which is located approximately 17 miles south of the existing Lugo-Mohave 500 kV Transmission Line (Metrolink, 2018).

Amtrak operates three trains that travel through San Bernardino County: the Southwest Chief, Sunset Limited, and Texas Eagle. The Southwest Chief is a daily train travels between Los Angeles and Chicago and stops in four San Bernardino County cities: Victorville, Barstow, and Needles. The Sunset Limited and Texas Eagle trains stop in the San Bernardino County cities of Pomona, Ontario, and Palm Springs (County of San Bernardino, 2007). The nearest Amtrak stations to the Proposed Project include the Victorville and Needles stations (Amtrak, 2018). The Victorville and Needles Amtrak stations are located approximately 12 miles north and 21.5 miles south of the Proposed Project, respectively.

The BNSF Railway is spanned by the existing Lugo-Mohave 500 kV Transmission Line twice. The discrepancy work area between Mile 96 and Mile 97 on the existing Eldorado-Lugo 500 kV Transmission Line would span the Union Pacific Railroad (Union Pacific, 2018).

Bicycle

Based on a review of San Bernardino County Transportation Authority (SBTCA) data (2018a), no existing bikeways are located in the immediate vicinity of the Proposed Project within California. The Proposed Project spans a planned Class III bikeway along a segment of National Trails Highway south of Pisgah Substation. According to the San Bernardino County Non-Motorized Transportation Plan (SBTCA, 2018a), a Class III bikeway is a generic term for any road, street, path, or way that in some manner is specifically designated for bicycle travel regardless of whether such facilities are designated for the exclusive use of bicycles or are to be shared with other transportation modes.

The next closest planned bikeway to the Proposed Project is a Class III bikeway located along Summit Valley Road, northeast of the existing Lugo-Mohave 500 kV Transmission Line. One planned Class II bikeway is located approximately 0.2 miles northeast of the Lugo-Mohave 500 kV Transmission Line on Arrowhead Lake Road, and an additional Class II bikeway is proposed south of the Lugo-Mohave 500 kV Transmission Line on Walkins Road. According to the San Bernardino County Non-Motorized Transportation Plan (SBTCA, 2018a), a Class II bikeway is a portion of roadway that has been designated by striping, signaling, and pavement markings for the preferential or exclusive use of bicyclists.

According to the Regional Transportation Commission of Southern Nevada (2018), no additional existing or planned bikeways are located in the immediate vicinity of Proposed Project components located in Clark County. No bicycle, pedestrian, or transit facilities have been designated on local roads immediately adjacent to Pisgah, Eldorado, Lugo, Mohave, and McCullough Substations.

Air Transportation

The nearest public airport to the project alignment is Hesperia Airport, which is located approximately 0.9 miles northwest of the existing Lugo-Mohave 500 kV Transmission Line. Hesperia Airport is a privately owned public use airport that has been operating since 1980 (AirNav, 2018). The Hesperia Airport runway is approximately 3,950 feet long, and the Proposed Project is not located within any safety zones specified in the Comprehensive Land Use Plan for Hesperia Airport (San Bernardino County Airport Land Use Commission, 1991).

Four additional airports were identified within 2 miles of the Proposed Project. These facilities include the Ludlow Airport, Laughlin/Bullhead International Airport, Kidwell Airport, and Searchlight Airport. There are no available airport land use compatibility plans for these airports and no safety zones are specified.

5.17.2 Regulatory Background

State and Local

California

State CEQA Guidelines, Section 15064.3, Determining the Significance of Transportation Impacts. In response to Senate Bill 743 (Steinberg, 2013), this provision states that "vehicle miles traveled" (VMT) is the most appropriate measure of transportation impacts in the CEQA process. For transportation impacts under CEQA, VMT refers to the amount and distance of automobile travel attributable to a project. Other relevant considerations may include the effects of the project on transit and non-motorized travel. Except for roadway capacity projects, a project's effect on automobile delay would not constitute a significant environmental impact under CEQA. For instances where existing models or methods are not available to estimate the VMT for the particular project being considered, a lead agency may analyze the project's VMT qualitatively. Such a qualitative analysis would evaluate factors such as the availability of transit, proximity to other destinations, etc. For many projects, a qualitative analysis of construction traffic may be appropriate [14 CCR 15064.3(b)(3)].

California Streets and Highways Code. The use of California State highways for purposes other than normal transportation may require written notification or an encroachment permit from Caltrans. Caltrans has jurisdiction over the State's highway system and is responsible for protecting the public and infrastructure. Section 660 of the California Streets and Highways Code allows Caltrans to issue encroachment permits authorizing activities related to the placement of encroachments within, under, or over

State highway rights-of-way (ROWs). Caltrans reviews all requests from utility companies that plan to conduct activities within State highway ROWs. Caltrans's encroachment permits may include conditions or restrictions on the timeframe for construction activities performed within or above roadways that are under Caltrans's jurisdiction.

The California Streets and Highways Code also includes regulations for the care and protection of State and county highways and requires permits for any load that exceeds Caltrans's weight, length, or width standards for public roadways. Sections 700 through 711 provide provisions that are specific to utility providers. Additionally, the California Streets and Highways Code outlines directions for cooperation with local agencies, guidelines for permits, and general provisions relating to State highways and Caltrans's jurisdiction.

California Joint Utility Traffic Control Manual. The California Joint Utility Traffic Control Manual (CJUTCM) provides guidelines for ensuring that the needs of all road users (e.g., motorists, bicyclists, and pedestrians) are met through the establishment of a temporary traffic control zone during highway construction, utility work, and maintenance operations. For any Proposed Project construction activities within a local public ROW, the use of a traffic control service and any lane closures would be conducted in accordance with applicable laws and permit conditions. These traffic control measures would be consistent with those published in the CJUTCM.

California Vehicle Code (CVC). The CVC includes regulations pertaining to licensing, size, weight, and load of vehicles operated on highways, safe operation of vehicles, and the transportation of hazardous materials.

Nevada

Nevada Revised Statutes Section 704.865. Nevada Revised Statutes Section 704.865 provides that "A person, other than a local government, shall not commence to construct a utility facility in the State without first having obtained a permit therefor from the Commission. The replacement of an existing facility with a like facility, as determined by the Commission, does not constitute construction of a utility facility." The Public Utilities Commission of Nevada is the Lead Agency for compliance with the Nevada Utility Environmental Protection Act.

Nevada Administrative Code. Nevada Administrative Code Chapter 408, Section 427 requires that non-transportation facilities along highway ROWs be authorized by the NDOT. Permission is granted via an occupancy permit. If the highway crosses private property, the property owner must also give consent.

Chapter 408, Section 4398 specifies design guidelines for aerial electrical or communications lines that traverse State ROWs. Aerial electrical lines must not be lower than 22 feet above the ground, and poles must not be located closer than 2 feet to the curb of the road. Guy wires for such facilities may not be attached to trees and must conform to requirements defined in the National Electrical Safety Code, unless the district engineer overrides these requirements. In addition, aerial crossings of the wire over the road must be as close to 90 degrees as possible.

Local

The CPUC has sole and exclusive jurisdiction over the siting and design of the Proposed Project components located in the State of California. Pursuant to CPUC G.O. 131-D, Section XIV.B, "Local jurisdictions acting pursuant to local authority are preempted from regulating electric power line projects, distribution lines, substations, or electric facilities constructed by public utilities subject to the CPUC's jurisdiction. However, in locating such projects, the public utilities shall consult with local agencies regarding

land use matters." Consequently, public utilities are directed to consider local regulations and consult with local agencies, but the county and cities' regulations are not applicable as the county and cities do not have jurisdiction over the Proposed Project. For informational purposes, local regulations in California jurisdictions are provided in Appendix C. The Proposed Project is subject to local regulations in the State of Nevada.

Clark County Comprehensive Plan. The Transportation Element of the Clark County Comprehensive Plan contains goals and policies regarding airport and overall transportation. The following policy from the Transportation Element are relevant to the Proposed Project (Clark County Department of Comprehensive Planning, 2015):

- ***Designing the Transportation System Policy 2.*** *Level of Service (LOS) "D" should be the design objective for non-residential local, collector and arterial streets. LOS "C" should be the design objective for residential local, collector and arterial streets. The design year to be used by all developers should be the buildout year of the development's final phase.*

South Clark County Land Use Plan. The South Clark County Land Use Plan Transportation Element was created to address the surface transportation issues and needs within each of the land use planning areas (Goodsprings & Sandy Valley Citizens Advisory Councils & Searchlight Town Advisory Board, 2012). The Transportation Element does not contain any specific goals or policies that are relevant to the Proposed Project.

Laughlin Land Use Plan. The Laughlin Land Use Plan guides decisions by the Laughlin Town Advisory Board, Planning Commission, and Board of County Commissioners concerning growth and development (Clark County Planning Commission, 2017). The policies of the Land Use Element of the Clark County Comprehensive Plan are incorporated by reference in the Laughlin Land Use Plan and are the adopted policies of the Laughlin Land Use Plan. See above under "Clark County Comprehensive Plan" for policies that are relevant to the Proposed Project.

City of Boulder City Master Plan. The Transportation Element of the Boulder City Master Plan establishes policies with the goal of maintaining mobility, efficiency, and safety in the City (City of Boulder, 2015). The Transportation Element does not contain any specific goals or policies that are relevant to the Proposed Project.

Federal

In addition to the federal regulations described below, federal authorizations would be required on land under the jurisdiction of the BLM, NPS, BOR, and DoD. These authorizations may include transportation-related stipulations.

Code of Federal Regulations, Title 14, Part 77. Title 14, Part 77, Section 13(2)(i) of the Code of Federal Regulations (CFR) requires an applicant to notify the Federal Aviation Administration (FAA) of the construction of structures within 20,000 feet of the nearest point of the nearest runway of an airport with at least one runway longer than 3,200 feet. Title 14, Section 77.17 of the CFR requires an applicant to submit a Notice of Proposed Construction or Alteration (FAA Form No. 7460-1) to the FAA for construction of structures greater than 200 feet or for construction within 20,000 feet of the nearest runway of an airport with at least one runway longer than 3,200 feet. Title 14, Sections 77.21, 77.23, and 77.25 of the CFR outline the criteria used by the FAA to determine whether an obstruction would create an air navigation conflict.

Code of Federal Regulations, Title 49, Subtitle B. This regulation includes procedures and regulations pertaining to interstate and intrastate transport (including hazardous materials program procedures) and provides safety measures for motor carriers and motor vehicles that operate on public highways.

Hazardous Materials Transportation Act of 1974. The Hazardous Materials Transportation Act of 1974 directs the U.S. DOT to establish criteria and regulations regarding safe storage and transportation of hazardous materials.

5.17.3 Applicant Proposed Measures

The Proposed Project does not include any APMs related to address transportation impacts. However, SCE has identified that for construction activities within public street ROWs, the use of a traffic control service and all lane closures would be consistent with the measures published in the California Joint Utility Traffic Control Manual.

5.17.4 CEQA Significance Criteria

Appendix G of the CEQA Guidelines (14 CCR 15000 et seq.) provides guidance on assessing whether a project would have significant impacts on the environment. For purposes of evaluating the environmental impact of the Proposed Project, the CPUC has added a criterion for helicopter use. Consistent with Appendix G, the Proposed Project would have significant transportation impacts if it would:

a. *Conflict with a program plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities*
b. *Would the project 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*
e. *Require helicopter use that would have potential impacts on public safety and create nuisance conditions*

5.17.5 Methodology

This assessment of transportation-related impacts is based on evaluations and technical analyses designed to compare the existing conditions (pre-project), construction of the project, and cumulative impacts. Operation of the project would not generate a substantial or significant number of trips above those already generated by existing land uses in the project area. However, the construction phase of the project would include trips generated by construction workers and supplies delivered by trucks to the project area. Where roadways are crossed by the project during removal of existing OHGW and installation of new OPGW, short temporary road closures may be required to ensure motorist safety. The timing and location of closures would be coordinated with the agency having authority over a road, local police, or the state highway patrol. Local, as appropriate. This analysis considers the effects of transportation of the project in the context of Caltrans, Nevada Department of Transportation, San Bernardino County, and Clark County requirements. Caltrans is the agency responsible for permitting and regulation of the use of state-administered roadways within California, the Nevada Department of Transportation is the agency responsible for permitting and regulating the use of state-administered roadways within

Nevada, and the counties are responsible for regulating the use of roadways within their jurisdictional boundaries.

This analysis addresses the potential impacts to the surrounding transportation systems and roadways that may result from project construction, operation, and maintenance. Consistent with State CEQA Guidelines, Section 15064.3, Determining the Significance of Transportation Impacts, the project's effect on automobile delay, measured by a change in Level of Service, would not constitute a significant environmental impact under CEQA. This analysis provides information on traffic delays within the local transportation systems based on the local jurisdiction significance criteria for study intersections and roadways, as defined in the Traffic Study prepared for this project (SCE, 2018; PEA Appendix L, prepared by Fehr and Peers, February 15, 2017). A qualitative discussion of the project's impact on Vehicle Miles Traveled (VMT) is for construction because operation of this project would have no impact on VMT.

5.17.6 Project Impacts and Mitigation Measures

a. Would the project conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?

Construction

LESS THAN SIGNIFICANT IMPACT WITH MITIGATION. The Proposed Project would require trenching in roadways near Mohave Substation and stringing of OPGW across roadways. In Nevada, the Proposed Project is located in the vicinity of SNTC bus routes 777 and 888. Bus routes 777 and 888 share the same roadways and cross the Proposed Project on Needles Highway and Bruce Woodbury Drive, in the vicinity of Mohave Substation. During construction of the Proposed Project, temporary lane closures could result in delays of service for these bus routes. In addition, the Proposed Project would span several unpaved roads, unnamed trails, and service roads that may be used by cyclists and pedestrians. Therefore, temporary construction activities may intermittently reduce, disrupt, or temporarily restrict access to portions of pedestrian sidewalks, unnamed trails, bike lanes, service roads, bus stops/shelters, and pedestrian facilities during construction of the Proposed Project.

Mitigation Measure T-1 requires the preparation of a Construction Traffic Control Plan to be reviewed and approved by Caltrans and CPUC. This Plan would provide provisions for ensuring detours or safe movement of vehicles, pedestrians, and bicycles through all locations affected by work in, near, or across roadways where vehicle, bicycle, or pedestrian movement could be adversely affected or safe passage put at risk. With the incorporation of this mitigation, impacts from project construction activities to transit, roadway, bicycle and pedestrian facilities would be less than significant.

In addition, the Proposed Project would span the BNSF Railway tracks in two locations along the existing Lugo-Mohave 500 kV Transmission Line. The discrepancy work area between Mile 96 and Mile 97 on the existing Eldorado-Lugo 500 kV Transmission Line would span the Union Pacific Railroad. However, SCE would obtain the required pipeline/wire line crossing permits from the BNSF Railway and Union Pacific Railroad prior to the initiation of construction activities in the vicinity of railroad facilities. Moreover, construction would generally occur within existing utility corridors and would not involve any activities that conflict with transportation ordinances, policies, plans, or programs. Overall, with mitigation, the project would not conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities.

Operation and Maintenance

LESS THAN SIGNIFICANT IMPACT. As previously described, O&M activities associated with the Proposed Project would be similar to those currently performed for existing facilities, with additional O&M activities associated with the proposed mid-line series capacitors and fiber optic repeater facilities. If any lane or road closures that may affect sidewalks or bikeways are necessary to maintain new and existing facilities, SCE would use appropriate traffic controls and signage to ensure safety of public transit users, bicycles, and pedestrian facilities. Therefore, O&M associated with the Proposed Project would not conflict with any local or regional policies, plans, or programs supporting alternative transportation (e.g., public transit, bicycle, or pedestrian facilities), and this impact would be less than significant.

Mitigation Measures

T-1 **Prepare and implement a Construction Traffic Control Plan.** Prior to the start of construction, SCE shall submit a Construction Traffic Control Plan for review and approval by state and local agencies responsible for public roads that would be directly affected by the construction activities and/or would require permits and approvals. The Construction Traffic Control Plan shall include, but not be limited to:

- The locations and use of flaggers, warning signs, barricades, delineators, cones, arrow boards, etc., according to standard guidelines outlined in the Manual on Uniform Traffic Control Devices, the Standard Specifications for Public Works Construction, and/or the California Joint Utility Traffic Control Manual.
- The locations of all road or traffic lane segments that would need to be temporarily closed or disrupted due to construction activities.
- The locations where guard poles, netting, or similar means to protect transportation facilities for any construction work requiring the crossing of a local street, highway, or rail line are proposed.
- The use of continuous traffic breaks operated by the Highway Patrol on state highways (if necessary).
- Plans to coordinate in advance with emergency service providers to avoid restricting the movements of emergency vehicles. Police departments and fire departments shall be notified in advance by SCE of the proposed locations, nature, timing, and duration of any roadway disruptions, and shall be advised of any access restrictions that could impact their effectiveness. At locations where roads will be blocked, provisions shall be ready at all times to accommodate emergency vehicles, such as immediately stopping work for emergency vehicle passage, providing short detours, and developing alternate routes in conjunction with the public agencies.

b. Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?

Construction

LESS-THAN-SIGNIFICANT IMPACT. CEQA Guidelines section 15064.3(b) concerns vehicle miles travelled as the measure of transportation impacts. Currently, use of the provisions of section 15064.3(b) is at the discretion of the CEQA lead agency, but become mandatory statewide beginning July 1, 2020. Construction of the Proposed Project would occur over approximately 15 months and Proposed Project–related traffic would be limited to worker commutes and the transport of supplies and equipment to and from construction areas and material supply sources. Once the project is completed, the vehicle trips associ-

ated with construction would end. The total number of vehicle trips is estimated to be between 18 and 518 daily, or an average of 238 trips daily, depending on the phase of construction and the activities within that phase (SCE, 2018). Construction personnel would commute to the staging yards and work sites at the beginning of the day and leave at the end of the day, and few people would travel to and from work areas throughout the middle of the day.

Personal vehicles and construction truck trips would need to access many geographically disparate destinations to reach the Proposed Project components. Between 15 to 346 (or an average of 159) construction personnel would be working at various Proposed Project components on any given day. This would result in an average of approximately 159 personal vehicle trips per day to and from the Proposed Project (SCE, 2018). Some portion of these would assemble at designated yards for transportation to work sites either by construction trucks or helicopters. Although a maximum of 518 vehicle trips could occur during peak days of construction, crews would be spread out and assigned to several different Proposed Project components on any given day. The maximum number of construction personnel deployed at any single project component would be 154 workers needed for modification of the existing 500 kV transmission lines. In addition, a maximum of approximately 81 truck trips could be generated per day for the purposes of equipment and material hauling, as well as providing water to sites, etc., for modification of the existing 500 kV transmission lines (SCE, 2018).

Due to the linear nature of the existing transmission lines, the addition of worker vehicle and truck trips along the transmission lines is not anticipated to disrupt the performance of the traffic circulation system. Work crews would generally leave their personal vehicles at designated locations (e.g., park-and-ride facilities, material staging yards, and substations) and would proceed to work areas in crew trucks. Adequate parking areas are available throughout the Proposed Project vicinity at the existing substations, at staging yards, as well as at areas along the ROWs. In addition, approximately 40 additional parking spaces would be provided at the laydown areas adjacent to the proposed mid-line series capacitors located northeast of Pisgah Substation, which is accessible from I-40. By gathering at designated locations and traveling to work sites in crew trucks, the workers would reduce overall vehicle miles traveled by minimizing the lengths of trips traveled in single-occupant personal vehicles.

Vehicle miles traveled by personal vehicle trips and truck trips during construction would vary widely in their origins and destinations and would be periodic and temporary. Some crews would be transported to work sites by helicopter from central assembly points at project yards. Additional vehicle trips made by construction crews would be dispersed over a largely undeveloped region. The short-term nature and relatively minor of number vehicle miles traveled as a result of construction of the Proposed Project would not result in a significant transportation impact under State CEQA Guidelines section 15064.3 (b), and this impact would be less than significant.

Operation and Maintenance

LESS THAN SIGNIFICANT IMPACT. As previously described, O&M activities associated with the Proposed Project would be similar to those currently performed for the existing facilities, with additional O&M activities associated with the proposed mid-line series capacitors and fiber optic repeater facilities. O&M associated with the mid-line series capacitor sites and fiber optic repeater sites would result in a minor increase in vehicle trips when compared to existing O&M activities. However, O&M of these facilities would be conducted intermittently and would consist primarily of monthly and annual inspections and equipment testing. Based on the limited frequency and duration of these activities, O&M of the mid-line series capacitor sites and fiber optic repeater sites would generate a negligible number of new vehicle trips with no notable growth in VMT. Because O&M of the new facilities would require no new full-time staffing, VMT would not increase substantially; the facilities would be operated and maintained by staff

based at Lugo and/or Eldorado Substations. The transportation impact under State CEQA Guidelines section 15064.3 (b) would be less than significant.

c. Would the project substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

Construction

LESS-THAN-SIGNIFICANT IMPACT WITH MITIGATION. Construction of the Proposed Project would not necessitate any permanent modifications to existing public roadways and would not increase hazards due to a geometric design feature. As previously discussed, temporary road closures may be necessary during construction of the Proposed Project. As shown in Figure 5.17-1, Roadway Network in the Vicinity of the Proposed Project, and in Table 5.17-2, Roadway Network in the Vicinity of the Proposed Project, the Proposed Project is situated primarily within an undeveloped desert landscape with minimal volumes of traffic reported on roadways in the project vicinity. During construction, all truck drivers would adhere to California Vehicle Code regulations pertaining to licensing, size, weight, and load of vehicles operated on highways and local roads; safe operation of vehicles; and the transport of any hazardous materials. Traffic on public freeways and roads would be of the same vehicle types (passenger vehicles and heavy trucks) that occur and are allowed under existing conditions.

Temporary road closures and encroachment into public road ROWs could increase hazards if appropriate safety measures are not in place (e.g., proper signage, orange cones, and flaggers). However, with Mitigation Measure T-1, Prepare and implement a Construction Traffic Control Plan, SCE would coordinate with local agencies and/or Caltrans, and would employ traffic control measures that would reduce any impacts from project-related vehicle use. Therefore, potential hazards resulting from road closures would be minimized. The Proposed Project would not change the geometric design features of any roadway.

Construction activities would be compatible with the intended use of the existing transportation facilities, but the movement of heavy trucks and equipment on roadways providing access to project work areas could damage road surfaces, shoulders, curbs, sidewalks, signs, and light standards. To minimize the potential impact of hazards related to inadvertent damage, Mitigation Measure T-2 (Repair roadways and transportation facilities damaged by construction activities) would ensure any damage or deterioration attributed to the project would be repaired. The impact of hazards introduced by transportation facility damage demonstrable to the project would be less than significant with mitigation.

Operation and Maintenance

LESS THAN SIGNIFICANT IMPACT. O&M activities associated with the Proposed Project would be similar to those currently performed for the existing facilities, with additional O&M activities associated with the proposed mid-line series capacitors and fiber optic repeater facilities. If any lane or road closures are necessary to maintain new and existing facilities, SCE would continue to employ traffic control measures to reduce the risk of hazards during O&M. Therefore, O&M of the Proposed Project would not significantly increase hazards caused by a design feature or incompatible use, and there would be a less than significant impact.

Mitigation Measures

T-2 **Repair roadways and transportation facilities damaged by construction activities.** If roadways, sidewalks, medians, curbs, shoulders, or other such transportation features are damaged by project construction activities, as determined by Caltrans or other public agency

responsible for the transportation feature, such damage shall be repaired and restored to the pre-project condition by SCE. Prior to construction, SCE shall establish the pre-construction conditions of the roads within 500 feet in each direction of project access points (where heavy vehicles will leave public roads to reach unpaved access roads, yards, or other project sites) and confer with state and local agencies regarding roads in the agency's jurisdiction to be crossed by the project components. Establishment of existing conditions may include dated photographic or video documentation.

At the end of major construction, SCE shall coordinate with each affected jurisdiction to confirm what repairs are required. Any damage demonstrable to the project is to be repaired to the pre-construction condition within 60 days from the end of all construction, or on a schedule mutually agreed to by SCE and the affected jurisdiction. If multiple projects or users access the same transportation features, SCE will pay its fair share of the required repairs. SCE shall provide CPUC and affected jurisdictions (as applicable) proof when any necessary repairs have been completed.

d. Would the project result in inadequate emergency access?

Construction

LESS THAN SIGNIFICANT IMPACT. As previously discussed, temporary lane closures may be necessary during construction activities to ensure the safety of the public and workers within public areas and roadways. In addition, some roads may be temporarily limited to one-way traffic, which would require the implementation of one-way traffic controls. However, SCE would obtain the required encroachment permits from the State and local agencies, which would include coordination with local emergency service providers, and would implement traffic control measures. As there are no fire or police stations or medical facilities with the immediate Proposed Project vicinity, the Proposed Project would not have direct impacts to access to emergency facilities. Because emergency access along roadways in the Proposed Project vicinity would be maintained, any potential impacts during construction would be less than significant.

Operation and Maintenance

LESS THAN SIGNIFICANT IMPACT. As previously described, O&M activities associated with the Proposed Project would be similar to those currently performed for the existing facilities, with additional O&M activities associated with the proposed mid-line series capacitors and fiber optic repeater facilities. In locations where O&M activities span a road or require lane closures, SCE would implement appropriate traffic controls and coordinate with local emergency service providers to avoid impacts to emergency access routes. Therefore, O&M of the Proposed Project would not significantly affect emergency access in the area.

e. Would the project require helicopter use that would have potential impacts on public safety and create nuisance conditions?

Construction

LESS THAN SIGNIFICANT WITH MITIGATION. SCE has identified that helicopters would be used primarily to support construction activities associated with OPGW installation. They also may be used in areas where access is limited (e.g., no suitable access road, limited construction area for on-site structure assembly, and/or there are environmental constraints to accessing the Proposed Project area with standard construction vehicles and equipment) or where system outage constraints are a factor.

Helicopter activities may include transportation of construction workers and delivery of equipment and materials to work sites, installation of hardware and marker balls (if applicable), and OPGW stringing operations. Helicopter operations, including refueling, and related support areas typically occur at staging yards, storage and maintenance sites, and ground locations (landing zones) in close proximity to OPGW pulling, tensioning, and splice sites, and/or within previously disturbed areas near construction sites.

Helicopters have the potential to pose a risk to the public if exterior loads are lost in flight. They also can be a nuisance if disruptive noise levels are caused by operating in the vicinity of buildings occupied by sensitive receptors, including residences, schools, day care centers, nursing homes, and hospitals (see Section 5.13, Noise). Helicopters can also create excessive dust when operating near the ground (see Section 5.3, Air Quality). A portion of the project passes near designated wilderness, where helicopter use could detract from the solitude of the wilderness experience.

The Proposed Project would follow an operating plan for helicopter use that should specify the protocols and methods to protect public safety and minimize nuisances, as described in Project Description, Section 4.7.1.4, Helicopter Access. This analysis recommends Mitigation Measure T-3, Prepare and implement a final helicopter use plan, to clearly establish the steps taken to avoid substantially increasing hazards and to ensure that helicopter operations minimize nuisance conditions. This impact would be less than significant with mitigation.

Operation and Maintenance

LESS THAN SIGNIFICANT. During operations, helicopters would be used for periodic line inspections and for insulator cleaning. The installation of OPGW to replace OHGW would not increase the use of helicopters during operations above that which currently occurs. The impact would be less than significant.

Mitigation Measures

T-3 **Prepare and implement a final helicopter use plan.** SCE and its contractor shall prepare and obtain approval of a Final Helicopter Use Plan 30 days prior to using helicopters to transport personnel, materials, or equipment for the deconstruction of existing project facilities or construction of new or replacement project facilities. The plan shall identify the specific locations requiring deconstruction or construction work using helicopters. The Final Helicopter Use Plan shall draw upon protocols and methods used on previous transmission line projects and shall be submitted to CPUC and BLM for approval.

The Federal Aviation Agency (FAA) has jurisdiction over U.S. airspace, aircraft, aircraft operations, airports, and pilots. To the extent that they do not conflict with any FAA requirements, the following shall apply to helicopter use and be incorporated in the Final Helicopter Use Plan.

- All aircraft and pilots shall be in full compliance with applicable FAA requirements and standards.
- On the day before a flight, helicopter flight information shall be provided by email to CPUC/BLM monitors regarding the specific sites to be used for helicopter retrieval of materials, equipment, or personnel and the destination of the materials, equipment, or personnel being transported. Information provided in the email shall include pilot name, contact number, aircraft type, aircraft registration number, aircraft color, work/flight area, anticipated beginning and completion times, and scope of work.

- The specific locations requiring deconstruction or construction work using helicopters shall be identified.
- Temporary staging of materials outside of approved yards or on access or spur roads shall not occur without prior approval of CPUC or BLM, as appropriate.
- The yards to and from which helicopters would fly (fly yards) shall be identified and shall be of sufficient size to ensure safe operations, given the other activities occurring at the yards and the vicinity.
- Fly yards shall be no closer than a horizontal distance of 475 feet from occupied residences to avoid unacceptable nuisances.
- Site-specific steps taken to avoid nuisances and ensure safe refueling shall be identified for each fly yard.
- Flight paths that minimize flights in wilderness areas and near schools, hospitals, nursing homes, and other sensitive group receptors shall be identified and followed.
- Except in an emergency, helicopters shall land or hover near the ground only in areas previously approved for landing, and all dust control and biological and cultural resource protection requirements shall apply.
- External loads will be secured by appropriate rigging, including boxing, netting, choking, and cabling, or other suitable means. Only qualified riggers shall prepare and attach external loads to helicopters, and rigging shall be appropriate to the nature of the load, including the use of devices as necessary to prevent materials being lost in flight. Where appropriate to reduce load in-flight spinning and movement, drag chutes will be attached to loads. The need for drag chutes will be determined by the pilot and rigging personnel, where appropriate. At locations where rigging is to occur, a sufficient supply of appropriate rigging and containment materials in good repair shall be on hand at all times.
- All aircraft are to be configured with weight sensors such that, when preparing to haul external loads, the pilot is able to determine the weight of the load being lifted.
- Yards or landing zones shall have a designated qualified individual managing the movement of aircraft in and out of the yard or landing zone when flight activity is high.
- Appropriate protocols for communication among pilots and between pilots and the ground shall be developed and implemented.
- A GPS-based data system shall be installed in each aircraft
  - The system shall identify for the pilot all project-approved project flight paths and those areas where overflights are restricted (such as seasonally restricted bird nesting areas and sensitive residential or institutional areas) and shall be updated as often as any flight restrictions are implemented or lifted.
  - The system shall automatically record and preserve flight data sufficient to identify the aircraft's flight path, including altitude above ground. The system shall be capable of providing the information required with regard to flight path and aircraft identifier, and provide a location "ping" no less frequently the once every 3 seconds. These data shall be collected daily and maintained by SCE or its contractor for a period of no less than six months and made available to CPUC or BLM upon request.

The Helicopter Use Plan shall be submitted to CPUC and BLM for review and approval at least 30 days prior to the use of helicopters on the project. Once the Helicopter Use Plan is made final, a copy shall be provided as a courtesy to each jurisdiction through which the Project passes.

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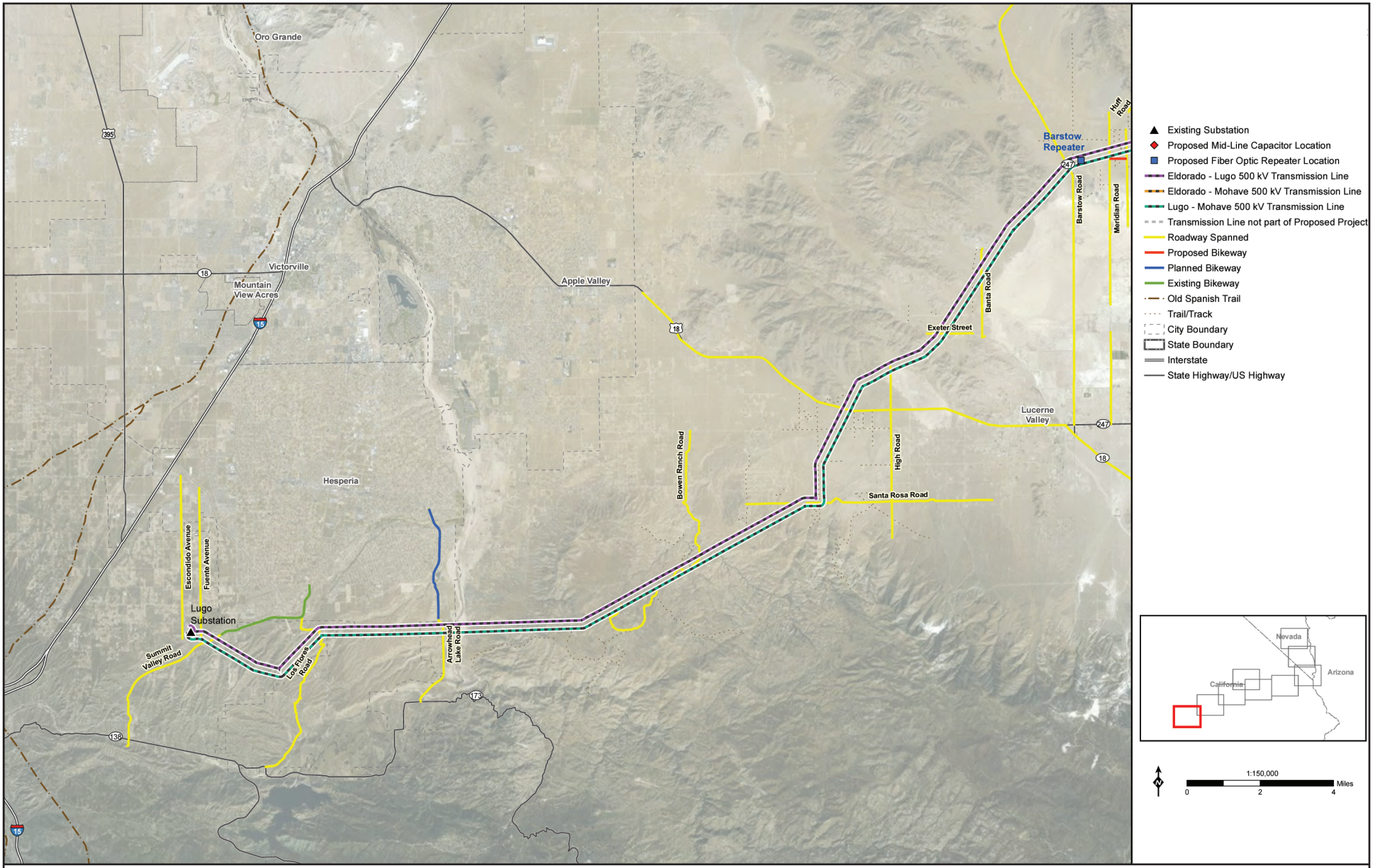


Source: SCE, 2018.

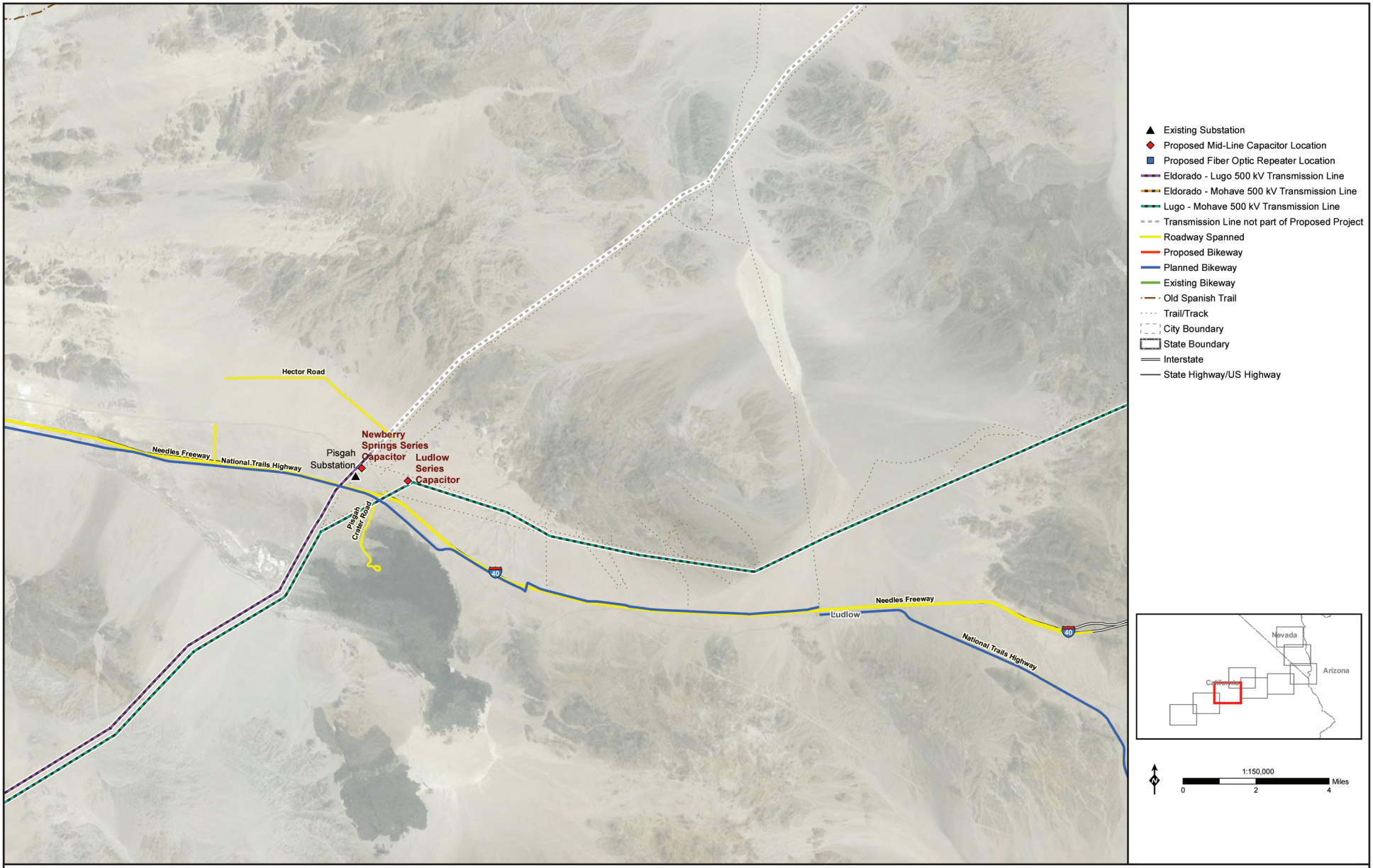
Figure 5.17-1.

Roadway Network in the Vicinity of the Proposed Project
Map 1 of 9

Source: SCE, 2018.

Figure 5.17-1.

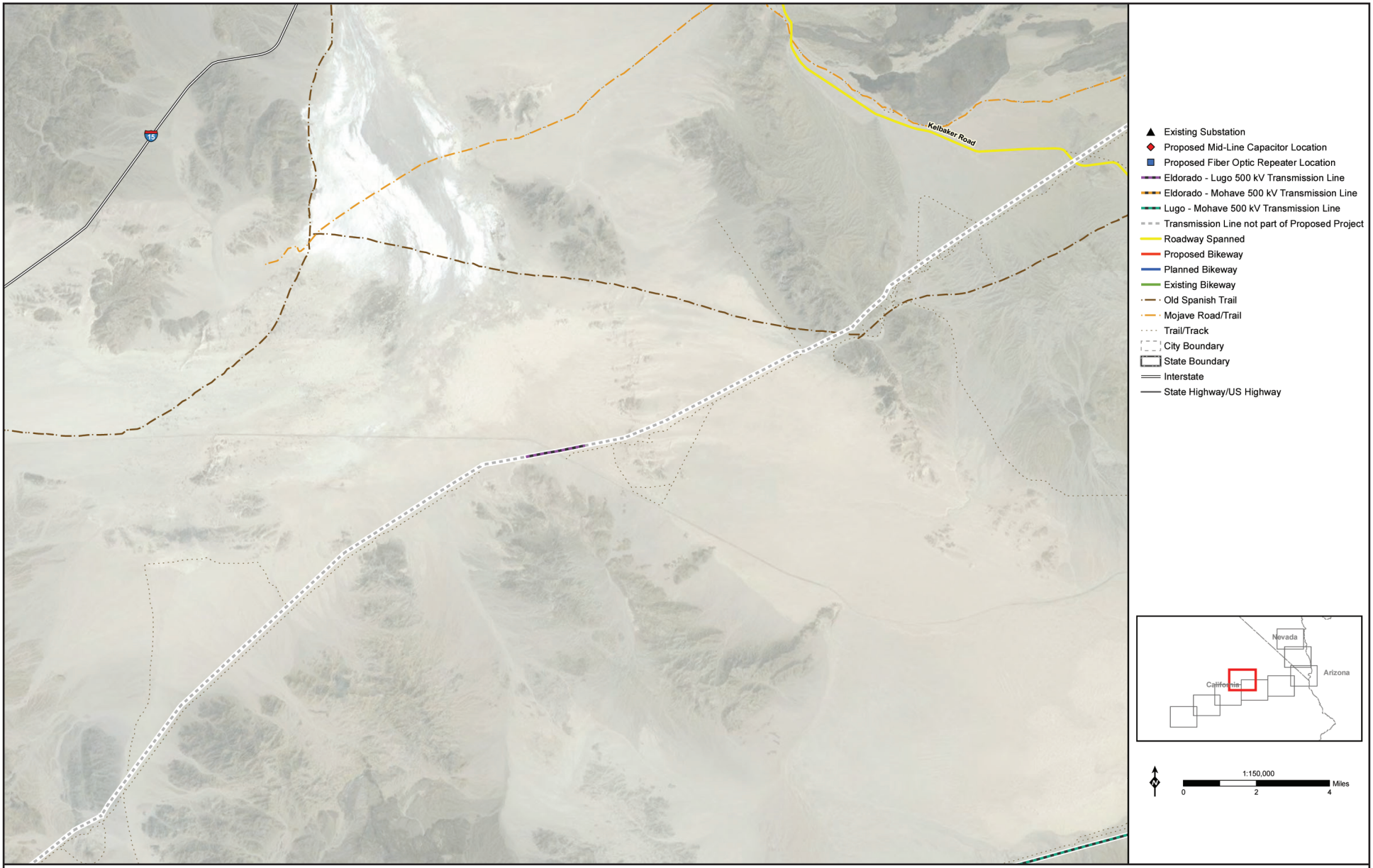
Roadway Network in the Vicinity of the Proposed Project
Map 2 of 9



Source: SCE, 2018.

Figure 5.17-1.

Roadway Network in the Vicinity of the Proposed Project
Map 3 of 9



Source: SCE, 2018.

Figure 5.17-1.

Roadway Network in the Vicinity of the Proposed Project
Map 4 of 9

Source: SCE, 2018.

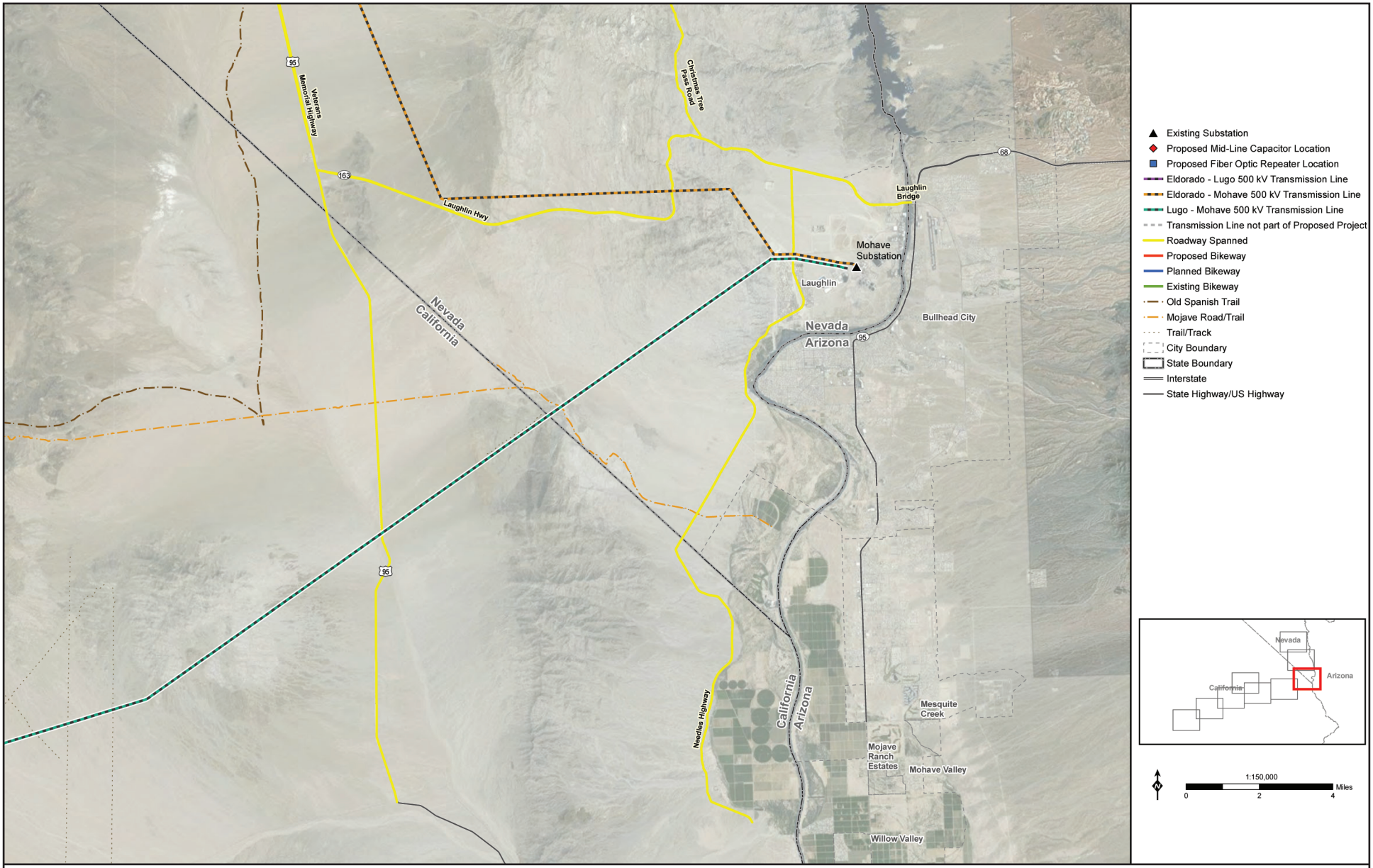
Figure 5.17-1.

Roadway Network in the Vicinity of the Proposed Project
Map 5 of 9

Source: SCE, 2018.

Figure 5.17-1.

Roadway Network in the Vicinity of the Proposed Project
Map 6 of 9



Source: SCE, 2018.

Figure 5.17-1.

Roadway Network in the Vicinity of the Proposed Project
Map 7 of 9

Source: SCE, 2018.

Figure 5.17-1.

Roadway Network in the Vicinity of the Proposed Project
Map 8 of 9

Source: SCE, 2018.

Figure 5.17-1.

Roadway Network in the Vicinity of the Proposed Project
Map 9 of 9

5.18 Tribal Cultural Resources

TRIBAL CULTURAL RESOURCES	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
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	☐	☒	☐	☐
(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 shall consider the significance of the resource to a California Native American tribe.	☐	☒	☐	☐

Significance criteria established by CEQA Guidelines, Appendix G.

5.18.1 Environmental Setting

Tribal cultural resources (TCRs) are a class of resources under state law; they are described in more detail below under Regulatory Background. TCRs include sites, features, places, cultural landscapes, and sacred places or objects that have cultural value or significance to a tribe. To qualify as a TCR, the resource must either: (1) be listed on, or be eligible for listing on, the California Register of Historical Resources (CRHR) or other local historic register; or (2) constitute a resource that the lead agency, at its discretion and supported by substantial evidence, determines should be treated as a TCR (PRC § 21074(a)(2)). Native American tribes that are traditionally and culturally affiliated with a geographic area can provide expert knowledge of TCRs to lead agencies.

Background Research

Several present-day Native American groups occupy and regularly travel through the Mojave Desert of California and Nevada, as did their ancestors. Native American groups having historical Tribal territories falling within the study area for the proposed project include the Southern Paiute and Chemehuevi in the more eastern reaches of California and southern Nevada; the Mojave, whose subsistence activities extended well into the Mojave Desert, although the heart of their territory was the Colorado River; and the Desert Serrano (also known as Vanyumé) who ranged and occupied the central and western parts of the project area including Baker, Barstow, and Victorville (ASM, 2018).

Southern Paiute/Chemehuevi. Historically, the Numic speaking Southern Paiute (Nuwuvi) and Chemehuevi (Nüw) occupied a crescentic region extending from southeastern Utah and northeastern Arizona, southwestward to the deserts of California and Nevada. Of the 16 subgroups identified by anthropologists, the Las Vegas subgroup inhabited a relatively large area extending into the Mojave Desert, including the Spring Mountain Range and roughly bounded on the west by the Black Mountains, and on the northerly extent by the Avawatz Mountains. The Chemehuevi, now recognized as a separate tribe, are generally classified by anthropologists as the southwestern most branch of the Southern Paiute. Prehistorically,

their territory was arranged in a patchwork of semi-sedentary use areas where available water sources formed nuclei around which resource collection was tied in each appropriate season. Broader boundaries were conceptualized to extend to flowing bodies of water, encompassing the internal use areas. These internal areas were woven together by a complex system of foot-paths. With their knowledge of the landscape. Southern Paiute managed and modified the environment to assure their survival within their traditional homelands. The modern descendants of the Chemehuevi belong to 3 federally recognized tribes, including the Colorado River Indian Tribes, the Chemehuevi Tribe of the Chemehuevi Reservation, and the Twenty-Nine Palms Band of Mission Indians.

Kawaiisu. The Kawaiisu occupied the southern end of the Sierra Nevada watershed by the Piute and Tehachapi mountains. The habitat was in the mountainous ridge between the Mojave Desert and the San Joaquin Valley. Relocation by the United States government in the late 1800s resulted in the loss of much of the Kawaiisu traditional dress, music, language, and knowledge of traditional practices. Currently, the Kawaiisu number around 250 and are a non-federally recognized Indian tribe. An additional Kawaiisu organization is the Kawaiisu Tribe of the Tejon Indian Reservation. This is not a federally recognized tribe. Members are represented by a five-member tribal council.

Mojave. The Mojave trace the origin of their people to Spirit Mountain (Mastamho) and are thought to have been occupying their territory since as early as A.D. 900. The traditional territory of the Mojave centered in the Mojave Valley and along the Colorado River; however, their area extended into the Mojave Desert. Reports of Mojave activities extend north to the Great Basin, west to the Pacific Ocean, south to Yuma, Arizona, and southeast to Gila Bend. Three groups comprised the tribe: the northern Matha lyathum, the central Hutto-pah, and the southern Kavi lyathum. There is some evidence that substantial Mojave occupation of the central Mojave Desert may have occurred while maintaining the main habitation areas along the Colorado River. Oral tradition from the Chemehuevi and Mojave suggests Mojave were living in the Mojave Sinks at some point; Chemehuevi tradition suggests that that Mojave were exterminated from the central Mojave Desert through warfare. Archaeological remains from the Cronise Basin indicate influence from the Colorado River area, which may be evidence of Mojave occupation. Today, descendants of the Mojave belong to the following federally recognized tribes: Colorado River Indian Tribes (CRIT), Fort Mojave Indian Tribe, and the Fort Yuma Quechan Indian Nation (Quechan Tribe).

Serrano. Serrano territory generally encompassed the San Bernardino Mountains east of Cajon Pass, east to Twentynine Palms and south to Yucaipa Valley. When an outpost of the San Bernardino Mission was established at Redlands in 1819, the Spanish forced most of the Western Serrano into the missions, away from their homeland. Serrano descendants belong to the San Manuel Band of Mission Indians, the San Fernando Band of Mission Indians, and Morongo Band of Mission Indians. The San Manuel Band of Mission Indians and the Morongo Band of Mission Indians are federally recognized tribes.

Trail Networks. The Southern California Desert features a significant network of trails that supported a complex of prehistoric trade relations (Davis 1961: 2-3), and religious relations (Johnson 2003: 159). There are actually three braided trail corridors that are generally traversed today by Interstate Highway I-15/40 in the northern desert, Interstate Highway I-8 in the south and Interstate Highway I-10 in the central section of the desert. Trade between the Southern California Desert groups and the Lower Colorado River groups and Great Basin groups was extensive. Trading was an important aspect to groups' culture as it provided an opportunity for the communication of cultural ideas and allowed groups to obtain non-local items. Various ethnographic and archaeological sources document evidence of trade between the Pacific Coast and groups in the Southwest (e.g., Sample 1950:4-5; Davis 1961: 2; Schaefer and Laylander 2007: 254-255; Fowler 2009:87-88; Fitzgerald et al. 2005:2). These five cultures, the Mojave, Chemehuevi,

Quechan, Cahuilla, and Serrano, all played an important role in this trade process. Several of the routes that extend from the coast to the Southwest pass through the Colorado Desert (Davis 1961: 70 Map 1), and tribes were able to take advantage of their primary position as trade facilitators (Westec 1980:284). As important middlemen to the trade process, groups were able to acquire a suite of resources and finished objects that were incorporated into their cultural milieu. Exchanging items of equal value was the most prevalent type of trade to occur between neighboring groups (Davis 1961: 8-9).

Trails were not only used for secular purposes such as trade, warfare, and communication, but also played a critical role in the ceremonial lives of several of the Native American groups. For many tribes, dreaming and dream interpretation were the foundation of life. Dreams were believed to be the source of knowledge, skills, courage, success in love and war, and shamanistic power. In particular, the role of dreaming and the trails upon which dreamers travel are especially important resources to Native Americans. Dreaming, the knowledge and methods for proper dreaming, and the revelations resulting from dreaming are thought to be the basis of Lower Colorado Native American lifeways (Forde 1931:201-204; Gifford 1926:58-69; Kroeber 1976:754-755, 783-784; Wallace 1947:252-258).

Sacred Lands File Search

A letter was sent to the Native American Heritage Commission (NAHC) on June 7, 2018, requesting an updated search of the Sacred Lands File and a current AB 52 Tribal Consultation List identifying any tribal groups or persons who have expressed an interest in receiving notification about projects being undertaken or applications being reviewed by the CPUC. On June 14, 2018, the NAHC responded that the Sacred Lands File search was positive and provided a list of 7 tribal organizations identified as potentially having an interest in the proposed project. These tribes included: Chemehuevi Reservation, the Colorado River Indian Tribe, the Morongo Band of Mission Indians, the San Fernando Band of Mission Indians, the San Manuel Band of Mission Indians, the Serrano Nation of Mission Indians, and the Twenty-Nine Palms Band of Mission Indians.

Assembly Bill (AB) 52 Native American Tribal Consultation

AB 52 requires that within 14 days of the lead agency determining that a project application is complete, a formal notice and invitation to consult about the proposed project be sent to all tribal representatives who have requested in writing to be notified of projects that may have a significant effect on TCRs located within the proposed project area (PCR § 21080.3.1(d)).

AB 52 states that once California Native American tribes have received the project notification letter, the tribe then has 30 days to submit a written request to consult (PCR § 21080.3.1(d)). Upon receiving a Tribe's written request to consult, the lead agency then has 30 days to begin tribal consultation. Consultation must include discussion of specific topics or concerns identified by tribes. Any information shared between the tribes and the lead agency representatives is protected under confidentiality laws and not subject to public disclosure (GC § 6254(r); GC § 6254.10) and can be disclosed only with the written approval of the tribes who shared the information (PCR § 21082.3(c)(1-2)).

Consultation as defined in AB 52 consists of the good faith effort to seek, discuss, and carefully consider the views of others. Consultation between the lead agency and a consulting Tribe concludes when either of the following occurs: (1) the parties agree to measures to mitigate or avoid a significant effect, if a significant effect exists on a TCR; or (2) a consulting party, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached (PCR § 21080.3.2(b)).

Project Notification

On October 22, 2018, the CPUC mailed certified letters to representatives of tribes that had previously submitted a written request to the CPUC to receive notification of proposed projects. The letters included a brief description of the proposed project, information on how to contact the lead agency Project Manager, and a USGS topographic quadrangle showing the proposed project components and lay-down areas. The letters noted that requests for consultation needed to be received within 30 days of the date of receipt of the notification letter. The formally notified tribes include the following:

- Agua Caliente Band of Cahuilla Indians
- Colorado River Indian Tribes
- Gabrieleno Band of Mission Indians – Kizh Nation
- Mission Creek Band of Mission Indians, Mission Creek Reservation
- Pala Band of Mission Indians
- Pechanga Band of Luiseno Mission Indians
- San Manuel Band of Mission Indians
- Santa Ysabel Band of the Iipay Nation (Kumeyaay)
- Tongva Ancestral Territorial Tribal Nation
- Torres Martinez Desert Cahuilla Indians
- Twenty-Nine Palms Band of Mission Indians

A separate non-AB 52 courtesy notification letter was sent to those tribes identified by the NAHC Sacred Lands File search and Bureau of Land Management (BLM) Section 106 outreach for the Proposed Project. Tribes based in California include: Chemehuevi Tribe, Fort Mojave Indian Tribe, Morongo Band of Mission Indians,[1] San Fernando Band of Mission Indians, Serrano Nation of Mission Indians and Timbi-sha Shoshone Tribe. Tribes based in Nevada include: Kawaiisu Tribe, Las Vegas Tribe of Paiute Indians, Moapa Band of Paiute Indians and Pahrump Paiute Tribe.

Initially, three tribes requested to consult on the Proposed Project: the San Manuel Band of Mission Indians, the Morongo Band of Mission Indians, and the Twenty-Nine Palms Band of Mission Indians. Subsequently, the Fort Mojave Tribe requested consultation. Subsequently, in its comment letter on the MND as part of public review the Colorado River Indian Tribes (CRIT) requested consultation.

Meetings

In December 2018, the initial three consulting tribes were provided cultural resource reports from BLM from which sensitive site location information had been redacted. These were the San Manuel Band of Mission Indians (San Manuel), the Morongo Band of Mission Indians (Morongo), and the Twenty-Nine Palms Band of Mission Indians (Twenty-Nine Palms). In initial consultation conversations with the San Manuel, the tribe expressed concern over the quality of the cultural resources and ethnographic technical reports, the methods used to evaluate the resources, the final eligibility determinations, and the lack of site location information. The differences between Section 106 and CEQA/AB 52 resource types and resource evaluation approaches were discussed in detail. The BLM, which had managed preparation of the reports, was advised of the San Manuel's issues.

In response to a request from the San Manuel for clarification regarding the specific nature of potential project impacts to all prehistoric resources in the Proposed Project area, the CPUC circulated a detailed

[1] The Morongo Band of Mission Indians subsequently was included in the AB 52 list when they formally requested of CPUC to be consulted on projects within their geographical area of interest.

table describing the prehistoric resources and potential project impacts. The CPUC also provided a preliminary draft of Tribal Cultural Mitigation measures, which they reviewed and commented on. Subsequently, the BLM met with San Manuel representatives and showed them maps that indicated resource locations. The San Manuel were then able to identify sites within their traditional tribal area that were of potential interest to them. As well, this table was circulated by email to the other two tribes consulting at that time — the Morongo and Twenty-Nine Palms. The San Manuel indicated that they were satisfied that the majority of the prehistoric resources could be successfully avoided, but they requested a site visit to particular resource sites in order to further consider avoidance strategies or other mitigation measures if necessary.

The Morongo and Twenty-Nine Palms were advised of the field site visit and were provided a copy of the revised mitigation measures, which had incorporated many of the suggestions from the San Manuel. The Morongo and the Twenty-Nine Palms each indicated their desire to participate in the site visit and the Twenty-Nine Palms identified three additional sites of interest to them in addition to the original list provided by the San Manuel.

Site Visits

A two-day site visit took place on May 16-17, 2019. Representatives from the San Manuel, Morongo, Twenty-Nine Palms, CPUC, BLM, National Parks Service (NPS), and SCE attended. Representatives of the Morongo and the Twenty-Nine Palms participated on the first day, the Morongo and the San Manuel participated on the second day. During this site visit, several large landscape-sized tribal cultural resources with boundaries that overlap with the Proposed Project Area were mentioned by tribal representatives. Construction methods and locations and monitoring of construction activities in the vicinity of prehistoric resources by cultural resources specialists and tribal representatives were discussed.

The Fort Mojave Tribe (Ft. Mojave) requested consultation after consultation had begun with the other tribes. Ft. Mojave was provided the same resource information that had been provided to the other tribes, and BLM met with tribal representatives to review maps showing site locations. A second site visit took place on June 25 and 26, 2019. Representatives from Fort Mojave, CPUC, BLM, NPS and SCE attended. The sites previously visited with the others were revisited, plus one additional site identified by Ft. Mojave. Subsequently, Ft. Mojave was provided the draft proposed mitigation measures for review and comment.

Based on cultural report information, the site visits, and tribal input, the CPUC has determined that it considers all prehistoric resources within the CEQA Area of Direct Impacts and CEQA Area of Indirect Impacts to be both TCRs and historical resources eligible for the CRHR under Criteria 1 for their contribution to important events in the past.

Subsequent to publication of the Draft MND, the CRIT requested government-to-government consultation with the CPUC. CPUC policy permits consultation even after the response period specified in AB 52 has lapsed, if there is sufficient time for meaningful consultation. The CPUC met with CRIT representatives on November 5, 2019 in response to their request made in the MND comment letter. Based on this consultation meeting, the CPUC considers CRIT a consulting tribe on the ELM project. Therefore, there are five consulting tribes on the ELM Project: San Manuel Band of Mission Indians, Morongo Band of Mission Indians, Twenty-Nine Palms Band of Mission, Fort Mojave Tribe, and Colorado River Indian Tribes.

Resources Identified

Tribal outreach resulted in the identification of a large cultural landscape, which AB 52 defines as one type of Tribal Cultural Resource. Cultural landscapes consist of geographic areas, including both natural and cultural resources, associated with a historic event, activity or person. Cultural landscapes can be spaces

rather than things that can be owned. These spaces or places are given meaning through their association with local and regional histories, cultural identities, beliefs, and behaviors. Landscapes can include horizons, unmarked spiritual corridors, and places of connection between the earth's surface and the upper and lower realms. While these kinds of landscapes are often associated with Native Americans, they can be associated with any cultural group or belief system. Cultural landscapes can be determined eligible and nominated for inclusion on the CRHR as either sites or districts. As such, these landscapes can be contiguous or noncontiguous.

Some of the previously identified cultural landscapes identified in the southern California desert include: the Keruk/Xam Kwatcan/Dream Trail, the Salt Song Trail and the Pacific to Rio Grande Trails Landscape.

The Keruk/Xam Kwatcan/Dream Trail runs the length of the Colorado River between Spirit Mountain (Newberry Mountains) in the north and Pilot Knob (Cargo Muchacho Mountains) in the south. Three "Big Houses", Spirit Mountain in the North, Pilot Knob in the south, and Palo Verde Peak in the middle, are considered to be abodes of ancestor spirits (relatives who have passed away) (Johnson 2003:163). Family members travel near to the big houses and utilize the various earth figures along the trail in an effort to address the ancestor spirits and ask that they move on to the next world. The area reserved for beseeching ancestral spirits to depart this world are often marked with earth figures, cairns, and trails. Campsites are usually located at a comfortable distance away from the earth figures.

The Salt Song Trail is a culturally important trail for the Southern Paiute. The Salt Song Trail goes east through the Coachella Valley and south of the Chocolate Mountains to the Colorado River, where it then heads north into northwestern Arizona, southwest Utah, and southeast Nevada. The Salt Song is sung at the Annual Mourning Ceremony or Cry Ceremony. The Song ushers the ceremony participants and the spirit of the deceased from place to place in a circuit, naming places, landforms and other natural phenomena. The Salt Song describes where to go and how to get there and what can be found at specific places. Southern Paiute people travel on these trails physically across the land, mentally in a dream state, and spiritually after death. The Salt Songs contain numerous place names for mountains, water sources, valleys, and other geographic points of interest, many of which are also physical points on known trails (Fowler 2009:88). The Salt Song Trail, its associated shrines, and the sacred landscape along its route together comprise a cultural landscape (Musser-Lopez and Miller 2010).

The Pacific to Rio Grande Trails Landscape (PRGTL) is a cultural landscape that encompasses three primary trail corridors from the southern Pacific coast of California across the deserts and the Colorado Plateau of the Southwest to the northern Rio Grande Valley in what is now New Mexico. These trail corridors are generally traversed today by Interstate Highway I-15/40 in the northern desert, Interstate Highway I-8 in the south and Interstate Highway I-10 in the central section of the desert. This landscape was identified by the California Energy Commission as part of the Palen Solar Energy Project. The landscape includes archaeological sites and features, a complex trail system, springs, tanks and wells, and culturally important plant and animal species (Braun and Gates 2013).

Based on consultation with the Ft. Mojave, specifically with a former Tribal Council Member and current Director of the Ahamakav Cultural Society, the CPUC has identified a large cultural landscape/Tribal Cultural Resource that encompasses and expands beyond the CEQA Areas of Direct and Indirect Impacts for the entire project. This resource is referred to here as the Mojave Trails Landscape. This landscape is the northern-most segment of the PRGTL described above.

The boundaries of the landscape extend from the Colorado River in the east, Cajon Pass in the west, Granite Mountains to the north, and I-40 to the south. Mojave songs, specifically Bird Songs and the Deer Song Cycle name specific landmarks within this landscape. The most well-known component of this

landscape is the Mojave Trail or Road which runs between water sources across the Mojave Desert between the Colorado River and Mojave River then to the Cajon Pass.

The resource is both a collection of multiple mapped trail segments and associated artifacts and features as well as a more ephemeral spiritual corridor used by dreamers. Secular activities associated with this resource include travel and trade. Ceremonial activities associated with this resource include dreaming by living dreamers as well as travel by the deceased. The deceased travel with the aid of traditional practitioners who, through song, story and prayer, usher the deceased along the path in an effort to assist them on their post burial journey to the afterlife. As such the thematic associations of this resource include travel, trade, and ritual.

The period of significance of the resource extends from the earliest human occupation of the region beginning 11,500 years ago and extending to the present day, as Fort Mojave Indian Tribal members continue to use this landscape in both secular and ceremonial ways.

Characteristic site types for the Mojave Trails Landscape have been described by archaeologists working in the Mojave Desert for decades. These include: destinations, trails, and trail-associated sites or features. *Destinations* primarily include water sources, but also include residential, religious, and resource-collection sites. Water-oriented destinations include natural features such as rivers, springs, lakes, rainwater tanks, as well as man-made wells. Residential sites include villages and camps with evidence of a full range of activities. Religious sites include geoglyphs and petroglyphs. *Trails* can either be created over time by multiple users following the same route or can be formally constructed. They average 30 cm in width and can be traced for many kilometers, interrupted only by gullies and washes. Trails are usually the shortest and most convenient routes from one point on the landscape to another. *Trail-associated sites or features* could include: concentrations of ceramics/pot drops, cleared circles, rock rings, rock clusters, rock cairns, rock alignments, petroglyphs, and geoglyphs. When the trail itself is not preserved, its route can often be approximately traced by distinctive patterns of trail-associated sites and features.

The CPUC considers the Mojave Trails Landscape to be a Tribal Cultural Resource eligible for the CRHR under Criteria 1 and 4. Under Criteria 1, a resource is eligible if it is associated with “events that have made a significant contribution to the broad patterns of our history.” In the context of a Native American site where its importance is not recorded in written form, "history" includes both traditional oral and written history. Important events can include specific events, or repetitive trends. Places referred to in Native American oral histories and creation stories, therefore, are potentially eligible.

Native American groups in the Mojave Desert consistently accord mythological importance to springs, petroglyph sites, and particularly trails systems. Trails across the desert mark the locations of travels of ancestral groups as they traveled to the Colorado River. Trails also facilitate dream travel to these places and the times when events mentioned in story and song occurred (Cleland 2005: 132). The particular trail that forms one of the connecting links for this cultural landscape, the Mojave Trail, is well known from multiple historical and ethnographic sources. It was an essential trade, transportation, and ritual route for Native American peoples and early European visitors in the Mojave Desert during prehistoric and historic times. This route was an essential connection between the Pacific Coast and the Southwestern deserts of Arizona and New Mexico.

The CPUC considers the resources that make up the Mojave Trails Landscape to be significant under CRHR Criteria 1, for their ties to important events in American history. However, most property types associated with the Mojave Trails Landscape exist today as archaeological resources, such as scatters of lithic artifacts, pot drops, cleared circles, and webs of intersecting trails. These sites are also considered register-eligible under Criterion 4 for their ability to yield information important in history and prehistory.

Therefore, the CPUC considers that all of the prehistoric resources within the CEQA Areas of Direct and Indirect Impacts to be eligible for the CRHR under Criteria 1 as contributors to the Mojave Trails Landscape. All of these resources are also considered eligible as contributors to the Mojave Trails Landscape under Criteria 4 for their ability to yield information important in history and prehistory.

Mitigation Measures

Draft Mitigation Measures CR-1 to CR-8 were developed to address potential impacts to cultural resources (see Section 5.5) and TCRs. The San Manuel were the first Band to engage in extensive consultation, during which time they reviewed and comment on the draft mitigation measures. The draft measures were revised based on several of their comments. The revised mitigation text was provided to the initial three tribes on May 16, 2019. The San Manuel responded in an email on May 24, 2019, stating that they accepted the revised mitigation measures and that the tribe would not be requesting San Manuel monitors. The Morongo Band suggested revisions to the draft mitigation measures on June 24, 2019, including a request for tribal monitors to be involved during construction. The Twenty-Nine Palms Band did not provide any comments on the mitigation measures. The Fort Mojave Tribe furnished comments on the mitigation measures on July 16, 2019. The comments from each tribe were considered and to the greatest extent deemed feasible by the CPUC included during finalization of the measures.

5.18.2 Regulatory Background

State and Local

California

There are numerous state regulations and policies that direct management of cultural resources on state lands and by state agencies. The following is a discussion of the most pertinent laws affecting the proposed project and impact analysis from a state perspective. These laws identify four types of resources: historical resources, unique archaeological resources, human remains, and tribal cultural resources. Please see Section 5.5, Cultural Resources, for more details about potentially relevant state regulations, which also apply to Tribal Cultural Resources.

Assembly Bill 52. AB 52 requires consultation with a tribe that is traditionally and culturally affiliated to the geographic area where a project is located if the tribe has requested consultation regarding projects in the tribe's area of traditional and cultural affiliation. Public Resource Code (PRC) Sections 21073, 21074, 21080.3, 21082.3, 21083.09, 21084.2, and 5097.94 (Assembly Bill AB 52 2014). Public Resources Code Section 21074 defines a TCR as "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." TCRs also include "non-unique archaeological resources" that may not be scientifically significant, but still hold sacred or cultural value to a consulting tribe.

CEQA requires that impacts to TCRs be identified and, if impacts will be significant, that mitigation measures be implemented to reduce those impacts to the extent feasible (PRC § 21081). In the protection and management of the cultural environment, both the statute and the CEQA Guidelines provide definitions and standards to be used for the assessment of potential impacts to TCRs.

Impacts to a TCR are considered potentially significant if the affected resource is: (1) listed or eligible for listing in the CRHR, or in a local register of historical resources as defined in PCR § 5020.1(k); or (2) a resource determined by the lead agency, in its discretion and supported by substantial evidence, to be

significant pursuant to criteria set forth in of PCR Section 5024.1(c). In applying these criteria, the lead agency must consider the significance of the resource to a California Native American tribe.

Thus, a project may have a substantial adverse change in the significance of a TCR if:

- The adverse change is identified as being substantial through consultation with any California Native American tribe that requests consultation and is traditionally and culturally affiliated with the geographic area of a proposed project (PCR § 21084.2).
- The resource is listed, or eligible for listing, in the CRHR or in a local register of historical resources, and if the resource or its immediate surroundings are subject to physical demolition, destruction, relocation, or alteration such that the significance of an historical resource would be materially impaired. (State CEQA Guidelines section 15064.5 (b)).

The fact that a TCR is not listed in or determined to be ineligible for listing in the CRHR, is not included in a local register of historical resources or is not identified in a historical resources survey does not preclude a lead agency from determining that the resource may be a historical resource.

Nevada

2017 Nevada Revised Statues Chapter 383 - Historic Preservation and Archeology. This chapter establishes the Office of Historic Preservation: establishes the State Register of Historic Places; establishes the Commission for Cultural Centers and Historic Preservation; identifies roles, penalties and procedures in the event of the discovery of an Indian burial site; and identifies penalties for individuals that knowingly and willfully removes, mutilates, defaces, excavates, injures or destroys a historic or prehistoric site or resource on state land.

Local

The CPUC has sole and exclusive jurisdiction over the siting and design of the Proposed Project components located in the State of California. Pursuant to CPUC G.O. 131-D, Section XIV.B, "Local jurisdictions acting pursuant to local authority are preempted from regulating electric power line projects, distribution lines, substations, or electric facilities constructed by public utilities subject to the CPUC's jurisdiction. However, in locating such projects, the public utilities shall consult with local agencies regarding land use matters." Consequently, public utilities are directed to consider local regulations and consult with local agencies, but the county and cities' regulations are not applicable as the county and cities do not have jurisdiction over the Proposed Project. For informational purposes, local regulations in California jurisdictions are provided in Appendix C. The Proposed Project is subject to local regulations in the State of Nevada. However, no regulations pertaining to TCRs were identified.

Federal

Portions of the proposed project are located on BLM land and NPS land and require a Right-of-Way (ROW) Grant on BLM land and Special Use Permits for ROW and construction on NPS land. Issuing a grant or permit is a federal undertaking that requires compliance with the National Environmental Policy Act (NEPA) and Section 106 of the National Historic Preservation Act (NHPA). Section 106 requires that federal agencies consider the effect of their actions on properties that may be eligible for or listed in the National Register of Historic Places. See Section 5.5, Cultural Resources, for more details about relevant federal regulations.

5.18.3 Applicant Proposed Measures

See Section 5.5, Cultural Resources, subsection 5.5.3, for the full text of Cultural Resource APMs. These are applicable to Tribal Cultural Resources as well.

APM CUL-01: Environmentally Sensitive Areas (Requires protection and avoidance of resources). [Superseded by Mitigation Measures CR-1 through CR-6.]

APM CUL-02: Cultural Resources Survey (Requires surveys prior to construction).

APM CUL-03: CRMP (Requires Cultural Resource Management Plan [CRMP]). Superseded by Mitigation Measures CR-1 through CR-6.]

In addition to these APMs, SCE has identified two APMs specific to Tribal Cultural Resources:

APM TCR-01: Tribal Monitoring. An archaeological monitor, and tribal monitor that is culturally affiliated with the project area, may be present for all ground-disturbing activities within or directly adjacent to previously identified TCR(s) and prehistoric resources as outlined in the CRMP. The archaeological and tribal monitors will consult the CRMP to determine when to increase or decrease the monitoring effort should the monitoring results indicate a change is warranted. Monitoring reports shall be prepared and submitted to the BLM and CPUC on a monthly basis.

APM TCR-02: Tribal Engagement Plan. A tribal engagement plan shall be prepared, which will detail how Native American tribes will be engaged and informed throughout the proposed project. The tribal engagement plan will be included in the CRMP.

5.18.4 CEQA Significance Criteria

Appendix G of the CEQA Guidelines (14 CCR 15000 et seq.) provides guidance on assessing whether a project would have significant impacts on the environment. Consistent with Appendix G, the Proposed Project would have significant Tribal Cultural Resource impacts if it would cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:

a. listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or

b. a resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. (In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.)

5.18.5 Methodology

Information presented in this section was gathered through AB 52 consultation between the CPUC and California Native American Tribes that have cultural affiliations with the proposed project area and have requested to consult on the proposed project – the San Manuel Band of Mission Indians; the Morongo Band of Mission Indians; the Twenty-Nine Palms Band of Mission Indians; and the Fort Mojave Tribe. Supplementary information for this section was gathered from the cultural resource literature and records search, cultural resources field survey, ethnographic summary, and pre-AB 52 tribal outreach described in detail in Section 5.5, Cultural Resources.

5.18.6 Project Impacts and Mitigation Measures

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)?

Note: The CEQA Guidelines define historical resources to include:

- *A resource listed in, or determined to be eligible by, the State Historical Resources Commission for listing in the CRHR;*
- *A resource listed in a local register of historical resources or identified as significant in a historical resource survey meeting the requirements of section 5024.1(g) of the Public Resources Code; or*
- *Any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California, provided the agency's determination is supported by substantial evidence in light of the whole record. (14 CCR 15064.5(a).)*

Construction

LESS THAN SIGNIFICANT WITH MITIGATION. AB 52 consultation with tribes resulted in the identification of the Mojave Trails Landscape as a Tribal Cultural Resource with boundaries that overlap with the Proposed Project area. Based on information received from tribes during AB 52 consultation, the CPUC considers all of the prehistoric resources within the CEQA Areas of Direct and Indirect Impacts to be eligible for the CRHR under Criteria 1 as contributors to the Mojave Trails Landscape. All of these resources are also considered eligible as contributors to the Mojave Trails Landscape under Criteria 4 for their ability to yield information important in history and prehistory.

Direct Impacts: In the California portion of the Proposed Project area, 1 ethnohistoric resource, 18 multicomponent resources and 28 prehistoric resources are within the CEQA Area of Direct Impacts and are considered eligible to the CRHR as contributors to the Mojave Trails Landscape. In the Nevada portion of the Proposed Project area, 3 known prehistoric resources are within the CEQA Area of Direct Impacts and are considered contributors to the Mojave Trails Landscape; if the resources in Nevada were in California, they would be considered eligible for the CRHR. These resources are potentially subject to direct impacts from the Proposed Project. Direct impacts to these known resources would be addressed by Mitigation Measure CR-5 (Avoidance of Cultural and Tribal Cultural Resources), which would protect the resources from destruction through avoidance and monitoring during construction.

Direct effects could occur to TCRs previously identified. These would be eligible for the CRHR. Impacts to known resources and inadvertently discovered resources would be addressed by the implementation of Mitigation Measures CR-1 through CR-8, which would reduce these impacts to less than significant levels.

Indirect Impacts: In the California portion of the Proposed Project area, 319 known prehistoric resources are within the CEQA Area of Indirect Impacts and are considered eligible to the CRHR as contributors to the Mojave Trails Landscape. In the Nevada portion of the Proposed Project area, 50 known prehistoric resources are within the CEQA Area of Indirect Impacts and are considered contributors to the Mojave

Trails Landscape. If the resources in Nevada were in California, they would be considered eligible for the CRHR. These resources are potentially subject to indirect impacts from the Proposed project.

Proposed Project activities would be clearly visible from these sensitive resources. Construction activities would be temporary or short-term in nature and would cease with the end of construction. Permanent visual changes (e.g., series capacitor facilities and repeater facilities) would be of a similar nature and scale as existing visible facilities on the ROW and in the vicinity. Therefore, the Proposed Project would not cause a substantial adverse change in the significance of an historical resource or TCR. As such, these resources are not subject to indirect effects from the Proposed Project and no mitigation is necessary.

Operations and Maintenance

LESS THAN SIGNIFICANT. O&M activities would occur in previously disturbed locations. No ground disturbance that would cause a substantial adverse change in the significance of a TCR is anticipated to occur during routine O&M activities. Therefore, the impact is less than significant during O&M.

Mitigation Measures

Implementation of Mitigation Measures CR-1 through CR-8 would evaluate and protect known and unanticipated discoveries of tribal cultural resources, thereby reducing construction impacts to less than significant.

CR-1 **Retain a Cultural Resources Specialist.** Prior to the start of construction, a project Cultural Resources Specialist (CRS) whose training and background conforms to the U.S. Secretary of Interior's Professional Qualifications Standards, as published in Title 36, Code of Federal Regulations, part 61 (36 C.F.R., part 61) shall be retained by SCE to supervise monitoring of construction excavations and to prepare a Cultural Resources Management Plan (CRMP) for the approved project. Their qualifications shall be appropriate to the needs of the project, specifically an archaeologist with demonstrated prior experience in the southern California desert and previous experience working with Southern California Tribal Nations. A copy of their qualifications shall be provided to the CPUC for review and approval. The project Cultural Resources Specialist shall use the services of Cultural Resources Monitors, tribal monitors and Field Crew as needed, to assist in mitigation, monitoring, and curation activities, as outlined in the CRMP. A copy of all proposed cultural staff qualifications shall be provided to the CPUC for review and approval prior to beginning work.

CR-2 **Cultural resources environmental awareness training.** Project personnel, including cultural resources monitors and tribal monitors, shall receive training that includes sensitivity training provided through participating tribes in video format regarding the appropriate work practices necessary to effectively implement the APMs and mitigation measures related to cultural resources and tribal cultural resources, including human remains. Training shall be required for all personnel before they begin work on a project site and repeated as needed for all new personnel before they begin work on the Project. This training program shall be submitted to the CPUC for approval at least 30 days before the start of construction and include procedures to be followed upon the discovery or suspected discovery of archaeological materials, tribal cultural resources, and human remains, consistent with the procedures set forth in the CRMP. This training may be integrated with a broader Worker Environmental Awareness Training program. Documentation of the training will be provided to the BLM and CPUC. The CPUC will provide documentation to the consulting tribes.

CR-3 **Prepare and implement a Cultural Resources Management Plan.** Prior to the beginning of construction, SCE shall submit at least 90 days before construction a Cultural Resources Management Plan (CRMP) for the project to the BLM and CPUC for review. The CPUC will submit the CRMP to representatives of consulting tribes for a 30-day review and comment period prior to approving the CRMP. The CPUC will in good faith consider any comments received from consulting tribes and incorporate such comments into the CRMP as deemed feasible. A single plan document that meets the requirements of both BLM and CPUC is acceptable. The CRMP shall be implemented under the direction of the SCE and the project Cultural Resources Specialist. The CRMP shall be prepared at the sole expense of the project proponent and shall meet all regulatory requirements. At a minimum the CRMP must address the following:

- The duties of the project Cultural Resources Specialist and associated staff shall be fully explained, including oversight/management, monitoring, and reporting duties with respect to known cultural resources and tribal cultural resources as well as site evaluation, data collection, and reporting for any newly identified resources discovered during project activities. The professional standards and ethical guidelines for all cultural resource personnel will be clearly outlined in the CRMP.
- No collection of artifacts is authorized or planned for this project. If an unanticipated discovery requires evaluation via excavation and artifact collection, the retention/disposal, and permanent and temporary curation policies shall be specified. The decision-making process for identifying which artifacts are curated or reburied, where they are reburied and the individuals, including tribal participants, making these decisions shall be described. These policies shall apply to cultural resources materials and documentation resulting from evaluation and treatment of cultural resources and tribal cultural resources discovered during project activities.
- The CRMP shall define and map all known prehistoric and historic resources eligible to the NRHP and CRHR within 100 feet of proposed work areas. How these resources will be avoided and protected during construction will be described. Avoidance measures to be used will be described, including where and when they will be implemented. How avoidance measures and enforcement of Environment Sensitive Areas (ESAs) will be coordinated with construction personnel will be included.
- The implementation sequence and the estimated time frames needed to accomplish all project-related tasks (i.e., evaluation of new resources resulting in work stoppage, time to complete reports, etc.) during the project activities and any post-project analysis phases of the project, if necessary, shall be specified. The intensity of monitoring proposed for each resource that may be impacted by project activities shall be outlined in the CRMP.
- Person(s) expected to perform each monitoring and, if necessary, treatment task, their responsibilities, and the reporting relationships between project construction management and the monitoring and treatment team shall be outlined in the CRMP.
- Tribal Monitors shall be retained to monitor ground disturbing activities within 100 feet of prehistoric and protohistoric resources. Tribal Monitors shall be retained for data recovery within prehistoric and protohistoric resources identified for data recovery. The ELM Project area spans multiple Tribal areas. The Tribe affiliated with a specific area will be considered first to provide Tribal Monitors. If multiple Tribes or Tribal Organizations are affiliated with a specific area, Tribal Monitors will be selected on a rotating basis. The CRMP will describe the roles and responsibilities of the monitors. Tribal monitors will be compensated. All

impact-avoidance measures (such as the presence of monitors) to prohibit or otherwise restrict access to sensitive resource areas that are to be avoided during ground disturbance, construction, and/or operation shall be described. Areas where these measures are to be implemented shall be identified. The description shall address how these measures would be implemented prior to the start of ground disturbance and how long they would be needed to protect the resources from project-related impacts.

- The commitment to record resources on Department of Parks and Recreation (DPR) 523 forms, to map, and to photograph all newly identified cultural resources over 50 years of age shall be stated. Participating tribes may offer their perspective regarding the newly identified cultural resource. Comments by tribes may be documented on the DPR 523c, parts A13 (Interpretation) and A14 (Remarks).
- The commitment to curate all artifacts retained as a result of any archaeological investigations in accordance with the appropriate requirements and the California State Historical Resources Commission's Guidelines for the Curation of Archaeological Collections, into a retrievable storage collection in a public repository, museum, or reburial at the request of tribal representatives shall be stated. The different curation policies for archaeological material collected on BLM land as opposed to private or state land, shall be clearly articulated.
- The commitment of SCE to pay all curation or reburial fees for artifacts recovered and for related documentation produced during cultural resources investigations conducted for the project shall be stated. Should consulting tribes request that artifacts not be reburied, the CRMP shall identify a curation facility that could accept cultural resources materials resulting from project cultural resources investigations on private or state land. Tribal monitors shall be present for any reburials.
- A final report shall be prepared presenting the results of the monitoring efforts. The contents, format, and review and approval process of the final report shall meet appropriate federal, state, and local guidelines.

CR-4 **Inadvertent discovery of cultural or tribal cultural resources.** If previously undiscovered resources are identified during project activities all activities within 100 feet (30 meters) of the resource shall halt. The onsite construction supervisor and SCE shall be notified. SCE will notify the CPUC and BLM of the discovery. The monitoring team shall flag-off the area. SCE and its cultural resource specialist will coordinate with the CPUC, BLM, NPS and tribal representatives as appropriate, on avoidance measures.

If the resource cannot be avoided, methods of resource evaluation, and methods of mitigation will be discussed with all appropriate parties. Work may be temporarily diverted to activities that are outside of 100 feet (30 meters) of the discovered or suspected resource. The resource shall be evaluated to determine whether it is eligible for the NRHP, CRHR, a unique archaeological resource, a tribal cultural resource, or part of a larger culturally sensitive landscape area or traditional cultural property. If the resource is determined not to be significant, work may recommence in the area. If the resource is determined significant work shall remain halted within 100 feet (30 meters) of the area of the find, SCE shall consult with the BLM, CPUC, and representatives of the consulting tribes as appropriate regarding methods to ensure that no adverse effect and no substantial adverse change would occur to the significance of the resource. Preservation in place (i.e., avoidance) is the preferred method of mitigation for impacts to cultural resources. Other methods of mitigation, described below, shall only be used if it is determined the method would provide equivalent or superior mitigation

of the impacts to the resource. The alternative methods of mitigation may include data recovery and documentation of the information contained in the resource to answer questions about local prehistory or history. The methods and results of the evaluation or data recovery work at an archaeological find shall be documented in a professional-level technical report to be filed with the California Historical Resources Information System (CHRIS). Work in the area may commence upon completion of treatment, as approved by the BLM and CPUC.

If data recovery of resources is necessary, additional archaeologists shall perform the excavation while the monitoring team(s) continues to monitor construction. Additionally, the tribes shall be offered the opportunity to monitor data recovery efforts at prehistoric sites in addition to construction efforts, under the same contract terms. This opportunity shall additionally be extended to tribes that consulted on this project, but for which a tribal monitor was not provided for construction efforts.

CR-5 **Avoidance of cultural and tribal cultural resources.** When project work is planned within 100 feet of a known prehistoric-era cultural resource or a tribal cultural resource, or any resources that are eligible for the CRHR and/or NRHP, avoidance areas shall be established and monitors shall be present as outlined in the CRMP. ESAs shall be established with a 50-foot buffer around each resource prior to project activities, except where the 50-foot buffer would encroach on a work area, in which event the ESA buffer shall be the near edge of the identified work area. Monitoring teams shall include one qualified cultural resources monitor and one Native American monitor at prehistoric sites. ESAs shall be established by a qualified cultural resources monitor. The timing and intensity of the monitoring may vary according to the type of resource and the nature of the work planned and shall be determined in consultation with consulting tribes, as appropriate.

CR-6 **Prepare monitoring reports.** Upon completion of cultural resources and tribal cultural resources monitoring, SCE shall prepare a single report that summarize the monitoring efforts and the results, analyses, and conclusions of the monitoring program. Individual volumes per land ownership will be included and provide additional details. Copies of the report shall be submitted to both the CPUC and BLM within 60 days of the close of construction. Thereafter, consistent with individual agency policy, each agency will disseminate to the consulting tribes the report applicable to land under that agency's jurisdiction. Draft reports under CPUC jurisdiction will be submitted to consulting tribes for a 30-day review and comment period concurrent with agency review. If no new resources were discovered during construction, a letter report shall be submitted to the CPUC and BLM summarizing monitoring efforts. If resources were identified during construction, the reports shall be consistent with the California Archaeological Resources Management Reports (ARMR) and commensurate with the nature and significance of the identified resource(s). If artifacts are collected, they shall be curated at a recognized curation facility unless consulting tribes request that the Native American artifacts be reburied on site. Documentation associated with any newly identified resources shall be filed with the CHRIS, if appropriate.

CR-7 **Inadvertent discovery of human remains on state owned land or private property.** In the event that human remains or suspected human remains are identified, SCE shall comply with California law (Heath and Safety Code Section 7050.5; PRC Sections 5097.94, 5097.98, and 5097.99). The area shall be flagged off and all project activities within 200 feet (60 meters) of the find shall immediately cease. The CPUC-approved Cultural Resources Specialist and SCE shall be immediately notified. SCE shall immediately contact the Medical Examiner at the County Coroner's office, BLM, CPUC as well as representatives of consulting tribes. The Medical

Examiner has two (2) working days to examine the remains. If the Medical Examiner believes the remains are Native American, they shall notify the California Native American Heritage Commission (NAHC) within 24 hours. If the remains are not believed to be Native American, the appropriate local law enforcement agency will be notified.

The NAHC will immediately notify the person or tribe it believes to be the most likely descendant (MLD) of the remains, and the MLD has 48 hours to make recommendations to the landowner or representative for the respectful treatment or disposition of the human remains and any associated grave goods. If the MLD does not make recommendations within 48 hours, the remains shall be reinterred in the location they were discovered and the area of the property shall be secured from further disturbance. If there are disputes between the landowner and the MLD, the NAHC shall mediate the dispute and attempt to find a solution. If the mediation fails to provide measures acceptable to the landowner, the landowner or their representative shall reinter the remains and associated grave goods and funerary objects in an area of the property secure from further disturbance. The location of any reburial of Native American human remains shall not be disclosed to the public and shall not be governed by public disclosure requirements of the California Public Records Act, Cal. Govt. Code § 6250 et seq., unless otherwise required by law. The Medical Examiner shall withhold public disclosure of information related to such reburial pursuant to the specific exemption set forth in California Government Code Section 6254(r).

CR-8 **Inadvertent discovery of human remains on federal land.** If potential human remains are discovered during any Project activity on lands administered by federal agencies, all activities within 200 feet that will cease immediately. SCE will take appropriate steps to secure and protect human remains and any funerary objects from further disturbance. SCE will notify the BLM and the County Coroner (California Health and Safety Code 7050.5(b)) immediately. If the remains are determined to be Native American or if Native American cultural items pursuant to the Native American Graves Protection and Repatriation Act (NAGPRA) are uncovered, the remains shall be treated in accordance with the provisions of NAGPRA (43 CFR 10) and the Archaeological Resources Protection Act (43 CFR 7). SCE shall assist and support the federal agency, as appropriate, in all required NAGPRA and Section 106 actions, government-to-government and consultations with Native Americans, agencies, and consulting parties as requested by the federal agency. SCE shall comply with and implement all required actions and studies that result from such consultations.

(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 shall consider the significance of the resource to a California Native American tribe?

Construction

LESS THAN SIGNIFICANT WITH MITIGATION. AB 52 consultation with tribes resulted in the identification of the Mojave Trails Landscape as a Tribal Cultural Resource with boundaries that overlap with the Proposed Project area. Based on information received from tribes during AB 52 consultation, the CPUC considers all of the prehistoric resources within the CEQA Areas of Direct and Indirect Impacts to be eligible for the CRHR under Criteria 1 as contributors to the Mojave Trails Landscape. All of these resources are also considered eligible as contributors to the Mojave Trails Landscape under Criteria 4 for their ability to yield information important in history and prehistory.

Direct Impacts: In the California portion of the Proposed Project area, 1 ethnohistoric resource, 18 multi-component resources and 28 prehistoric resources are within the CEQA Area of Direct Impacts and are considered eligible to the CRHR as contributors to the Mojave Trails Landscape. In the Nevada portion of the Proposed Project area, 3 known prehistoric resources are within the CEQA Area of Direct Impacts and are considered contributors to the Mojave Trails Landscape; if the resources in Nevada were in California, they would be considered eligible for the CRHR. These resources are potentially subject to direct impacts from the Proposed Project. Direct impacts to these known resources would be addressed by Mitigation Measure CR-5 (Avoidance of Cultural and Tribal Cultural Resources), which would protect the resources from destruction through avoidance and monitoring during construction.

Direct effects could occur to TCRs previously unidentified. These would be eligible for the CRHR. Impacts to known resources and inadvertently discovered resources would be addressed by the implementation of Mitigation Measures CR-1 through CR-8, which would reduce these impacts to less than significant levels.

Indirect Impacts: In the California portion of the Proposed Project area, 319 known prehistoric resources are within the CEQA Area of Indirect Impacts and are considered eligible to the CRHR as contributors to the Mojave Trails Landscape. In the Nevada portion of the Proposed Project area, 50 known prehistoric resources are within the CEQA Area of Indirect Impacts and are considered contributors to the Mojave Trails Landscape. If the resources in Nevada were in California, they would be considered eligible for the CRHR. These resources are potentially subject to indirect impacts from the Proposed project.

Proposed Project activities would be clearly visible from these sensitive resources. Construction activities would be temporary or short-term in nature and would cease with the end of construction. Permanent visual changes (e.g., series capacitor facilities and repeater facilities) would be of a similar nature and scale as existing visible facilities on the ROW and in the vicinity. Therefore, the Proposed Project would not cause a substantial adverse change in the significance of an historical resource or TCR. As such these resources are not subject to indirect effects from the Proposed Project and no mitigation is necessary.

Operations and Maintenance

LESS THAN SIGNIFICANT. O&M activities would occur in previously disturbed locations. No ground disturbance that would cause a substantial adverse change in the significance of a TCR is anticipated to occur during routine O&M activities. Therefore, the impact is less than significant during O&M.

Mitigation Measures

CR-1 Cultural Resources Staff.
CR-2 Cultural Resources Environmental Awareness Training.
CR-3 Cultural Resources Monitoring and Treatment Plan.
CR-4 Inadvertent Discovery of Cultural or Tribal Cultural Resources
CR-5 Avoidance of Cultural and Tribal Cultural Resources.
CR-6 Monitoring Reports.
CR-7 Inadvertent Discovery of Human Remains on State Owned Land or Private Property.
CR-8 Inadvertent Discovery of Human Remains on Federal Land.

5.18.7 References

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5.19 Utilities and Service Systems

UTILITIES AND SERVICE SYSTEMS Would the project:	Potentially Significant Impact	Less Than Significant 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 storm water 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?	☐	☐	☒	☐
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?	☐	☐	☐	☒

Significance criteria established by CEQA Guidelines, Appendix G.

5.19.1 Environmental Setting

This section describes the utilities and service systems in the vicinity of the Proposed Project components and whether physical deterioration, damage, or disruption of any utilities or service systems facilities would occur or be accelerated as a result of the project. Utility and services system facilities associated with electricity, domestic (potable) water supply, stormwater, solid waste, communications, and natural gas are provided and maintained by a variety of local purveyors, including cities, counties, special districts, water agencies, and private companies. In the project vicinity there are also interstate natural gas transmission lines.

Section 5.15, Public Services, describes the setting and potential impacts on the demand for schools, parks and other public facilities.

Utility and service system information was obtained from the general plans and urban water management plans (UWMPs) for the County of San Bernardino, the City of Hesperia, Clark County, and the City of Boulder City. Internet searches were also conducted to gather information regarding utility service providers in the vicinity of the Proposed Project (SCE, 2018).

Electricity and Natural Gas

San Bernardino County. Within San Bernardino County, retail electric service is provided by SCE. Depending on location, natural gas is provided by Southern California Gas Company (SoCalGas), Southwest Gas Corporation, and Victorville Municipal Utilities Services (SCE, 2018). SoCalGas has a natural gas transmission line that is parallel to portions of the Lugo-Mohave 500 kV Transmission Line in central San Bernardino County (SoCalGas, 2019a; SoCalGas, 2019b).

Clark County. Within Clark County, electrical service is provided by Nevada Power, Overton Power District #5, and Valley Electric Association. Nevada Power Company provides electrical service to the Las Vegas

Valley and the outlying Clark County. The City of Boulder City owns and operates its own municipal electrical distribution system (SCE, 2018).

Water Pipelines

San Bernardino County. San Bernardino County's domestic water sources are supplied through both local and imported water sources. For the entire county, it is estimated that, on average, 85 percent of the domestic water is supplied by local sources and 15 percent is imported water purchased from other sources. Imported water is primarily purchased from the Metropolitan Water District of Southern California (MWD) and the State Water Project (also known as the California Aqueduct) (SCE, 2018).

Water purveyors in San Bernardino County available to support construction activities near Lugo Substation (SCE, 2018), include:

- City of Hesperia Water District (approximately 65-million-gallon capacity).
- Phelan Piñon Hills Community Service District (approximately 1.4-billion-gallon capacity).
- City of Victorville Water District (approximately 11.4-billion-gallon capacity).
- San Bernardino County Service Area 42 – Oro Grande (approximately 246,000-gallon capacity).

SCE anticipates that the Golden State Water Company (approximately 1.7-billion-gallon capacity) in the City of Barstow would provide water for construction activities conducted in the vicinity of Pisgah Substation (SCE, 2018).

Clark County. Water in southern Nevada is managed by the Southern Nevada Water Authority (SNWA), a cooperative, not-for-profit agency charged with managing the region's water resources. The SNWA is responsible for water treatment and delivery, as well as acquiring and managing long-term water resources for southern Nevada. Approximately 90 percent of southern Nevada's water comes from the Colorado River and is stored in Lake Mead, which has a storage capacity of approximately 9.4 trillion gallons (SCE, 2018).

The water purveyor in Clark County most likely to support construction activities near Mohave Substation (SCE, 2018) is EPCOR Water (approximately 9.8-million-gallon capacity). Construction near Eldorado Substation could utilize water from the City of Henderson Utility Services (approximately 97-billion-gallon capacity), Las Vegas Valley Water District, and the Utilities Department of North Las Vegas (approximately 11.4-million-gallon capacity) (SCE, 2018).

Sewer and Wastewater Pipelines

San Bernardino County. In the unincorporated areas of San Bernardino County, wastewater disposal is largely provided by septic systems. Near the City of Hesperia, wastewater treatment is provided by the Victor Valley Wastewater Reclamation Authority (VVWRA), which operates as a Joint Powers Authority and serves San Bernardino County, as well as the City of Hesperia, the Town of Apple Valley, and the City of Victorville (SCE, 2018).

Clark County. The Clark County Water Reclamation District (CCWRD) is responsible for wastewater treatment and reclamation in all of the unincorporated areas of Clark County, including the communities of Blue Diamond, Indian Springs, Laughlin, Searchlight, and Moapa Valley. Incorporated cities within the Las Vegas Valley handle wastewater within their individual jurisdictions. Approximately 150 million gallons of wastewater are collected and transported each day through pipelines to the Clark County Water Reclamation Treatment Facility. In areas where public sewers are not available to carry wastewater to municipal wastewater treatment plants, individual sewage disposal systems (i.e., septic tank systems) provide the functions of both sewer collection and treatment plant (SCE, 2018).

San Bernardino County. The San Bernardino County Flood Control District (SBCFCD) is responsible for providing flood control and related services to unincorporated areas and incorporated cities within the county. SBCFCD provides flood protection on major streams, water conservation, and storm drain construction, and is responsible for implementing the Drainage Area Management Plan. The cities in San Bernardino County implement construction and maintenance of local storm drains that feed into the County's area-wide system (SCE, 2018).

Clark County. Within Clark County, flood control and stormwater management are administered by the Clark County Regional Flood Control District. Construction activities would be located primarily within the Montana Wash-Colorado River, Piute Wash, and Bullhead City-Colorado River watersheds. Where stormwater management is provided in the Las Vegas Valley, the storm drain system carries discharge off of city streets and routes it into curbside catch basins.

Communications Lines

San Bernardino County. Cable and Internet service in San Bernardino County is provided by Charter Communications and Time Warner Cable. Additional providers of telephone and Internet service include AT&T and Verizon (SCE, 2018).

Clark County. Cable and Internet service in Clark County is largely supplied by Cox Communications in the Las Vegas Valley. In the outlying areas of the county, various cable companies provide service. Clark Cablevision provides service to Laughlin and Searchlight. Telephone service in the Las Vegas Valley is largely provided by Embarq. Other providers include Nevada Bell, Nextlink, XO Communications, and Idacomm (SCE, 2018).

Solid Waste Disposal

San Bernardino County. The County of San Bernardino Solid Waste Management Division is responsible for the operation and management of the County of San Bernardino's solid waste disposal system, which consists of five regional landfills and nine transfer stations. The Solid Waste Management Division administers the county's solid waste handling franchise program and the refuse collection permit program, which authorizes and regulates trash collection by private haulers in unincorporated areas. Within the City of Hesperia, sanitation services are administered by Advance Disposal. Advance Disposal also operates a Materials Recovery Facility (MRF) where recyclables are diverted from landfills (SCE, 2018).

Clark County. Clark County contracts with Republic Services for solid waste and trash disposal service, and the County is served by two Class I landfills, Apex Regional Landfill and Transfer Station and Laughlin Landfill. Within the City of Boulder City, solid waste and recycling services are provided by B.C. Waste Free and B.C. Disposal. Solid waste and recyclables are disposed of at the Boulder City Landfill, a Class I Disposal Site. This facility accepts municipal solid waste, construction and demolition waste, industrial process waste, and transportation equipment waste (SCE, 2018).

5.19.2 Regulatory Background

State and Local

California Government Code – Protection of Underground Infrastructure. The responsibilities of California utility operators working in the vicinity of utilities are detailed in the California Government Code (CGC), "Protection of Underground Infrastructure" (CGC Title 1, Division 5, Chapter 3.1 §§4216-4216.24). This law requires that an excavator must contact a regional notification center at least two days prior to excavation of any subsurface installation. Any utility provider seeking to begin a project that may dam-

age underground infrastructure can call Underground Service Alert, the regional notification center. Underground Service Alert will notify the utilities that may have buried lines within 1,000 feet of the project. Representatives of the utilities are required to mark the specific location of their facilities within the work area prior to the start of project activities in the area. The code also requires excavators to probe and expose underground facilities by hand prior to using power equipment.

California Integrated Waste Management Board Solid Waste Policies, Plans, and Regulations. The Integrated Waste Management Act of 1989, or Assembly Bill (AB 939) as codified in the Public Resources Code (PRC §40050 et seq.), administered by the California Integrated Waste Management Board (CIWMB), requires all local and county governments to adopt a Source Reduction and Recycling Element to identify means of reducing the amount of solid waste sent to landfills. To assist local jurisdictions in achieving these targets, the California Solid Waste Reuse and Recycling Access Act of 1991 established requirements for all new developments to include adequate, accessible, and convenient areas for collecting and loading recyclable and green waste materials.

Local

The CPUC has sole and exclusive jurisdiction over the siting and design of the Proposed Project components located in the State of California. Pursuant to CPUC G.O. 131-D, Section XIV.B, "Local jurisdictions acting pursuant to local authority are preempted from regulating electric power line projects, distribution lines, substations, or electric facilities constructed by public utilities subject to the CPUC's jurisdiction. However, in locating such projects, the public utilities shall consult with local agencies regarding land use matters." Consequently, public utilities are directed to consider local regulations and consult with local agencies, but the county and cities' regulations are not applicable as the county and cities do not have jurisdiction over the Proposed Project. No local Utilities and Service System regulations applicable to the Proposed Project were identified. The Proposed Project is subject to local regulations in the State of Nevada.

Federal

Utilities and service systems are provided regulatory oversight primarily by state and local programs. No federal laws or regulations pertaining to utilities or service systems would be applicable.

5.19.3 Applicant Proposed Measures

The Proposed Project does not include any APMs related to Utilities and Service Systems.

5.19.4 CEQA Significance Criteria

Appendix G of the CEQA Guidelines (14 CCR 15000 et seq.) provides guidance on assessing whether a project would have significant impacts on the environment. Consistent with Appendix G, the Proposed Project would have significant utilities and service system impacts if it would:

a. *Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects*

b. *Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years*

c. *Result in a determination by the wastewater treatment provider which serves or may serve the project that it has 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*

5.19.5 Methodology

The analysis compares Proposed Project activities against the capabilities of utilities and service systems described in the environmental setting of this section, with consideration to the significance criteria identified in Appendix G of the State CEQA Guidelines. This approach was used for local, state, and federal lands. The discussion addresses whether the Proposed Project could disrupt existing utility and service systems or cause a collocation accident and determines whether construction of the Proposed Project would directly or indirectly impact existing utility infrastructure through deterioration, damage, or disruption of service, thus requiring the construction or relocation of facilities. The analysis also addresses potential effects on natural gas transmission pipeline facilities owned by SoCalGas and identified through coordination with the gas company (SoCalGas, 2019b).

Existing utilities that may be affected by construction and operation of the Proposed Project include:

- Electricity
- Natural gas
- Water supply
- Stormwater management
- Sewer and wastewater treatment
- Cable and telephone

5.19.6 Project Impacts and Mitigation Measures

a. Would the project require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?

Construction

LESS THAN SIGNIFICANT. The Proposed Project would involve construction and modification of new and existing electric power transmission and communications facilities. Construction would generate a minimal demand for water or wastewater treatment and no demand for natural gas facilities. It would not require the relocation, expansion, or development of new utility systems. However, it would require minor modifications to some existing electric power lines and the extension of power to the proposed series capacitor and fiber optic repeaters sites for nearby existing distribution lines.

Water, Wastewater Treatment or Storm Water Facilities. Construction work crews would bring their own drinking water to work areas. Staging yards would include portable sanitation facilities. An adequate number of portable toilets would be provided for all workers across the work areas, generally one for every 15 workers, and these would be maintained by a licensed sanitation contractor. The maximum volume of wastewater generated would vary up to approximately 1,610 gallons per week, which would be transferred to existing off-site disposal facilities (SCE, 2018). The need to include stormwater

diversion features in the design of the newly disturbed areas is discussed in Section 5.10 (Hydrology and Water Quality). The implementation of a Stormwater Pollution Prevention Plan (SWPPP) would be required by the Regional Water Quality Control Board. The use of existing groundwater supplies during construction is discussed in Section 5.10 (Hydrology and Water Quality). Existing wastewater treatment facilities would be adequate to accommodate the minimal demand for sanitary sewer service, and no new domestic water treatment facilities would be needed to satisfy the demand for potable water during construction of the Proposed Project. Thus, the project would not result in any impact related to the construction or expansion of water or wastewater treatment facilities.

Electric Power, Natural Gas, or Telecommunications Facilities. Construction of the Proposed Project would have the potential to disrupt existing underground utility systems or cause a collocation accident. Coordination with other utility system owners and compliance with California Government Code §§4216-4216.9 and CPUC General Order 95 would reduce the likelihood of accidental disruptions from a collocation accident. Prior to initiating underground construction, including drilling for TSP foundations or LST footings, SCE or its contractor would contact Underground Service Alert to identify any existing underground utilities in the construction zone.

Operation and Maintenance

LESS THAN SIGNIFICANT WITH MITIGATION. During routine operation and maintenance of the Proposed Project, SCE's new facilities would be unmanned and would not create any need for new or expanded utilities or service systems. However, once the Proposed Project is operational it would have the potential to affect other utilities and metallic objects in the vicinity. In particular, the Proposed Project would increase the power flow and the current flow on the existing 500 kV transmission lines.

The flow of electric current within a power line produces a magnetic field in the vicinity of the line. The strength of the magnetic field produced is directly related to the amount of current flow in the power line. Physical objects or materials such as trees, walls, or the ground do not shield the magnetic field generated by a power line. However, the strength of the magnetic field lessens relatively rapidly with increasing distance from the power line.

Electric currents and voltages can be induced in metallic objects located within the magnetic field created by power lines. An electric current can flow when an object has an induced charge and a path to ground is present. The amount of induced current that can flow depends upon the proximity of the metallic object to the power line. Two potential risks are of concern: the potential for shocks and arcing, and the potential for corrosion of underground steel pipelines. Operation of high-voltage transmission lines includes the risk of electrical shocks to people and electric arcs that could form across small gaps between conductive surfaces or objects near the transmission lines. Arcs can have the secondary effect of igniting flammable materials in the vicinity of the arc. In addition, induced currents have the potential to lead to corrosion of metallic objects, such as underground metallic pipelines, from the discharge of any induced current to ground.

The Proposed Project would install series capacitors to increase the current flow on the existing 500 kV transmission lines, resulting in increased magnetic field levels above existing conditions. Induced currents travelling from and in the immediate vicinity of electric transmission lines could accelerate the corrosion of nearby existing steel pipelines, which could lead to long-term accidental system disruption of such pipelines.

Induced currents and voltages on adjacent metallic (i.e., steel, ductile iron) or conducting objects, such as buried utility pipelines or communication wires, near the modified 500 kV facilities depend upon sev-

eral factors including: the proximity to the power lines; the length of the metallic object parallel to the power lines; the strength of the magnetic field; and any existing grounding. Other metallic objects that could be exposed to an increase in induced voltages and currents include buildings or parallel fences, if adjacent to the transmission lines.

Major natural gas pipelines parallel a portion of the Lugo-Mohave 500 kV Transmission Line. One pipeline is parallel to and near SCE's Lugo-Mohave 500 kV Transmission Line ROW for approximately 55 miles. This segment of gas pipeline is north of Interstate 40 and located primarily on BLM land (approximately 35 miles) and within the Mojave National Preserve (approximately 25 miles) (SoCalGas, 2019a). East of Ludlow and north of I-40, a segment of a second pipeline parallels the first pipeline for approximately 6 miles. (SoCalGas, 2019b). The pipelines' owner, SoCalGas, indicates that it has requested technical information from SCE and anticipates engaging a third-party contractor to study and determine the potential effect on SoCalGas's existing steel pipelines of increased power flow on the 500 kV transmission lines. Although the extent of any protection that may be needed is not known at this time, SoCalGas expects that it would perform the installation of any measures needed to provide appropriate protection to the pipeline (SoCalGas, 2019b).

The provision of appropriate protection to the pipelines would be considered to be a connected action stemming from the changes on the 500 kV Transmission Line proposed by SCE because such protections would not be needed in the absence of the SCE project. The actual design measures, protective features, and their locations and methods for installation would not be known until after final engineering and coordination with utility owners. The discussion below provides information on the types of actions that may be employed as a result of the connected action, which is also embodied in Mitigation Measure UT-1 to ensure that such protective measures are put into place. If implementation of a mitigation measure (e.g., UT-1) will result in effects on the environment, such impacts must be discussed. Therefore, this discussion also addresses the effects of implementing Mitigation Measure UT-1 and adds Mitigation Measure UT-2 to ensure that impacts will be less than significant.

An AC (alternating current) study will be performed by SoCalGas to help determine the effect of the increased electrical load of the Lugo-Mohave 500 kV Transmission Line on the gas pipelines and the type, location, and amount of protective measures that may be necessary. According to SCE, SoCalGas would install any new protection. Until SoCalGas's engineering studies are completed, the extent and type of any such protection is unknown. To be conservative, this Initial Study assumes protection would be needed and installation of the protection would result in some level of ground disturbance along approximately 60 miles of gas pipeline. The pipelines are adjacent to existing maintained access roads and little, if any, additional roadwork would be needed to facilitate access for installation of any protection that may be required. The pipeline ROWs were disturbed when the pipelines were originally constructed, but except for the access roads, the land has largely naturally revegetated.

While actual protective measures and construction methods would be determined based on the engineering studies, typical forms of protection used on previous transmission projects located near or crossing gas pipelines have included deep ground rods, zinc ribbon wire, and gradient control mats. These three potential methods are described below by way of illustration. No information is currently available on what methods of protection may be used, if needed.

- **Deep Ground Rods (DGR).** Installation of DGRs may require an area of disturbance for drilling equipment and material laydown. Depending on final project design, this laydown area may be wholly or partially on the existing access road parallel to the pipeline. To install the rods, an approximate six-inch-diameter hole would be drilled 5 feet from the pipeline to a depth that would be determined by the depth below ground of the pipeline itself. If needed, standard drilling fluids would be used to

maintain the borehole in an open condition. Soil cuttings may be temporarily stockpiled at the site and then transported to an appropriate off-site landfill for disposal. Ground rod pipes (typically ranging from 0.5 to 1.5 inches in diameter) would be placed in the hole. The top of the pipe would then be connected to the existing gas pipeline with a wire, which is installed a minimum of 2 feet below grade. Finally, the hole would be backfilled with a bentonite clay, electrically conductive material pumped to the bottom of the hole through the ground rod pipes until it returns to the surface. This material is compatible with groundwater, remains stable over time, and prevents water transport through the borehole. Finally, the top of the borehole would be sealed with a bentonite clay plug, which is then covered with native soil.

- **Zinc Ribbon (ZR) Mitigation Wire.** Installation of ZR requires a 10-foot-wide disturbance along a trench with a work area on either end of the trench. ZR or a Faraday Shield would be installed underground approximately 5 feet from the existing gas pipeline. The ZR wire would be connected to ground rods and connected to the existing pipeline with wire. These mitigation features would be installed approximately 2 to 3 feet below grade
- **Gradient Control Mat (GCM).** Installation of GCM may require a disturbance area of approximately 30 feet by 60 feet. The GCM's function is to provide a safe, uniform voltage gradient at the surface of the earth in the immediate vicinity of above ground appurtenances (i.e., gas valves, fences, above ground pipes) on an influenced pipeline. These mats would be installed near such features.

With protective measures such as these installed, induced current effects on existing underground pipelines and other underground facilities would be avoided.

Mitigation Measure UT-1 would ensure that SCE would take the necessary steps in coordination with other parties to minimize any potential effects on pipelines through appropriate measures, such as providing increased cathodic protection or utility relocation, if needed.

The primary environmental impacts of implementing Mitigation Measure UT-1 are expected to be to biological resources (vegetation removal and disturbance). Based on the proximity to each other of the transmission line and the pipelines, the vegetation and wildlife near the pipelines and any environmental impacts caused by installing protective measures would be similar to those identified for the transmission line aspects of the ELM Project. If previously undisturbed ground is affected by the cathodic protection installation, impacts to cultural and tribal cultural resources could occur.

Mitigation Measure UT-2 would ensure that the mitigation measures required to ensure that the Proposed Project's impacts with regard to implementing pipeline protection are less than significant would apply to work associated with the installation of any required pipeline or underground utility protection. It is anticipated that SCE will pay for some or all of the work required to provide protection to the pipelines affected by the Proposed Project. Because installation of protective measures along the pipelines would be undertaken by a third party (namely, SoCalGas or its contractor) that is not a party to SCE's CPUC Application for the ELM Project, Mitigation Measure UT-2 is needed to ensure that other applicable mitigation measures imposed on SCE for the ELM Project are also implemented during any related pipeline protection work growing out of the ELM Project's implementation.

Standard operating procedures would minimize the potential exposure of workers and the public to electrical shock hazards from direct contact with conductive objects. The potential for inductive and conductive interference between the 500 kV transmission lines and existing conductive objects within or in close proximity to the transmission corridor could increase with the increased power flow achieved by the Proposed Project. Potential conductive objects include steel structures supporting the existing overhead lines or near the transmission line ROW, street light poles, metal fences or gates, or steel pipelines.

Induced currents and voltages on conducting objects near the modified 500 kV facilities would not pose an electrical shock threat in the environment if the conducting objects are sufficiently protected. Because the significance of the risk of shock hazards depends on the details of existing grounding and ungrounded objects, which are not known in detail at this time, this analysis recommends mitigation to identify the risk and provide safety features where needed.

Mitigation Measure UT-3 would determine what nearby metal objects could present a shock or arc hazard due to induced currents, determine the details of the grounding or other measures to be installed, and ensure their timely implementation.

With Mitigation Measures UT-1, UT-2, and UT-3 the potential impact caused by the Proposed Project due to induced voltages or currents on utilities or other adjacent metallic objects would be less than significant with mitigation.

Mitigation Measures

UT-1 **Provide cathodic protection.** Prior to commencing construction or as soon as such data are available, if it is not available before construction, SCE shall determine and report to CPUC and BLM the location of adjacent utilities and other metallic or conducting objects susceptible to induced voltages and currents. The scope of SCE's report shall include the results of an alternating current interference study by SoCalGas on the natural gas pipelines that parallel or cross portions of the Lugo-Mohave 500 kV Transmission Line. Prior to the in-service date of the Proposed Project series capacitors, SCE shall ensure that the necessary grounding or other appropriate measures to provide appropriate cathodic protection has been installed and shall confirm this to the CPUC and BLM.

If SCE identifies other utilities near the 500 kV Transmission Lines that may be susceptible to increased risk of corrosion due to induced currents or voltages, SCE shall conduct or have conducted an alternating current interference study during construction of the ELM Project that evaluates the alternating current interference effects of the 500 kV transmission lines on such other utilities. The study shall include the development of a model using the maximum magnetic field levels for the transmission lines, including the conductor arrangement. For all utilities identified with a corrosion potential, SCE shall coordinate with the owner of the utility and use data gathered in the alternating current interference study to determine appropriate design measures to protect the utility from corrosion, such as ground mats or gradient control wires for cathodic protection of buried pipelines and other utilities. The study, summary of coordination with potentially affected utilities, and specifications of any design measures to be installed shall be submitted to the CPUC and BLM for review and approval at least 60 days prior to initiation of installation of such protection. All required protective and grounding work shall be completed prior to the in-service date of the Proposed Project series capacitors.

UT-2 **Implement mitigation measures during pipeline protection work.** Any agreement between SCE on the one hand and any party undertaking installation of pipeline protection measures required as a result of the ELM Project on the other hand shall include a requirement that applicable mitigation measures required during construction of the ELM Project also apply to and be implemented during any required pipeline-related work. At a minimum, and to the extent that they apply in the geographic area of the pipeline work, these will include mitigation measures for impacts to biological resources, cultural and tribal cultural resources, and hazards and hazardous materials. The BLM and NPS may substitute equally effective

mitigation measures or may require additional measures be implemented. A copy of the agreement between SCE and any other party for the pipeline work shall be provided to CPUC, BLM, and NPS. Business confidential information may be redacted, but the general nature of any redaction shall be identified. Absent a binding agreement between SCE and any other party to implement the required mitigation measures, or equally effective measures imposed by BLM and/or NPS, SCE will not be authorized to fund any of the required pipeline work.

UT-3 **Provide safety features for induced currents on adjacent metallic objects.** Prior to commencing construction or as soon as such data are available, if it is not available before construction, SCE shall determine and report to CPUC and BLM the location of metallic or conducting objects that may present a shock hazard to the public due to induced voltages or currents. SCE shall prepare an Induced Current Touch study that evaluates the conductive and inductive interference effects of the 500 kV transmission lines and new overhead distribution lines on the identified conductive objects. The Induced Current Touch study, including the criteria and approach that were used to determine what objects could present a shock and the details of the grounding or other measures to be installed, shall be submitted to the CPUC and BLM for review and approval. Prior to the in-service date of the Proposed Project series capacitors, SCE shall install the necessary grounding or other appropriate measures to protect the public from hazardous shocks or arcing.

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?

Construction

LESS THAN SIGNIFICANT. Construction of the Proposed Project would require water supplies for dust control and would include grading and some removal of existing vegetation that would have the potential to reduce water infiltration into the soil, as the existing areas are generally uncompacted and permeable. The use of existing groundwater supplies during construction is discussed in Section 5.10 (Hydrology and Water Quality). The Proposed Project would not require the development of new water supplies or expansion of existing facilities.

Operation and Maintenance

LESS THAN SIGNIFICANT. During operation, the Proposed Project components would be unmanned and require no supply of water.

Mitigation Measures

No mitigation is required.

c. Would the project result in a determination by the wastewater treatment provider that serves or may serve the Proposed Project that it has adequate capacity to serve the Proposed Project's projected demand in addition to the provider's existing commitments?

LESS THAN SIGNIFICANT. The Proposed Project would generate minimal wastewater during construction. Portable sanitation facilities would be provided for construction work crews and serviced by a private company. This would generate a nominal amount of wastewater to be treated. There would be no sewer connection to any of the Proposed Project components. Existing wastewater facilities would ade-

quately accommodate the minor demand caused by project construction while serving existing commitments. Therefore, this impact would be less than significant.

Operation and Maintenance

LESS THAN SIGNIFICANT. During operation, the Proposed Project components would be unmanned and no new, permanent need for wastewater treatment would occur.

Mitigation Measures

No mitigation is required.

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?

Construction

LESS THAN SIGNIFICANT. A private contractor would collect and transport any construction-related solid waste to a landfill authorized to accept the material. Small amounts of construction debris would be related to use of building materials (such as concrete and metal). SCE would recycle waste materials (e.g., metals) as appropriate. Total solid waste generated by construction of the Proposed Project is anticipated to be minor compared to the capacity of existing landfills, and the landfills serving the Proposed Project would have adequate capacity for the expected waste. Recovered materials, such as the OHGW to be replaced, would be recycled. Therefore, the impact of solid waste disposal on landfill capacity would be less than significant.

Operation and Maintenance

LESS THAN SIGNIFICANT. During operation, the Proposed Project components would be unmanned and would not generate notable quantities of solid waste.

Mitigation Measures

No mitigation is required.

e. Would the project comply with federal, state, and local management and reduction statutes and regulations related to solid waste?

Construction

NO IMPACT. The California Integrated Waste Management Act of 1989, which emphasizes resource conservation through reduction, recycling, and reuse of solid waste guide solid waste management, requires that localities conduct a Solid Waste Generation Study (SWGS) and develop a Source Reduction Recycling Element (SRRE). Construction activities would be in accordance with these applicable Solid Waste Management Policy Plans by recycling materials as appropriate. Construction of the Proposed Project would include replacement of existing wood poles and removal of some existing infrastructure (e.g., conductor, steel, concrete, and debris) that would be either reused, disposed of in a Class I hazardous waste landfill, or disposed of in the lined portion of a RWQCB-certified municipal landfill. Hazardous liquid materials would be subject to the Spill Prevention, Control, and Countermeasure Plan developed for the Proposed Project. All solid waste generated during construction of the Proposed Project would be temporarily stored in a designated area of laydown yards and would be reused or disposed in a manner consistent with applicable statutes and regulations related to solid waste.

As identified in Item (d) above, the landfills serving the Proposed Project would have sufficient capacity to accommodate project construction solid waste disposal needs, and project solid waste disposal would not require the need for new or expanded landfill facilities. Therefore, the Proposed Project would comply with applicable statutes and regulations related to solid waste disposal limits and landfill capacities. No impact would occur.

Operation and Maintenance

LESS THAN SIGNIFICANT. During O&M, the Proposed Project components would be unmanned and would not generate solid waste in excess of any standards or facility capacity, nor would it affect solid waste reduction goals. Where feasible, solid waste materials (e.g., metal, wire, wood) would be recycled.

Mitigation Measures

No mitigation is required.

5.19.7 References

SCE (Southern California Edison). 2018. Eldorado-Lugo-Mohave Series Capacitor Project: Proponent's Environmental Assessment (PEA). Volumes 1 through 8. April.

SoCalGas (Southern California Gas). 2019a. Gas Transmission Pipeline Interactive Map – San Bernardino, Pipeline locations in San Bernardino County. http://socalgas.maps.arcgis.com/apps/webappviewer/index.html?id=faeed481312f4e5fb056f739ff169e02. Accessed May 6, 2019.

_____. 2019b. Email correspondence to CPUC Energy Division. Re: Data Request to Sempra for pipeline information regarding the SCE proposed Eldorado-Lugo-Mohave Project filed at the CPUC. April 2.

5.20 Wildfire

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 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?	☐	☐	☒	☐

Significance criteria established by CEQA Guidelines, Appendix G.

5.20.1 Environmental Setting

Wildland fire protection in California is the responsibility of the State, local, or federal government, depending on the location. The California Department of Forestry and Fire Protection (CAL FIRE) is required by law to map areas of significant fire hazards based on fuels, terrain, weather, and other relevant factors. These zones, referred to as Fire Hazard Severity Zones (FHSZ), influence how people construct buildings and protect property to reduce risk associated with wildland fires. FHSZ maps identify the likelihood that an area will burn over a 30- to 50-year period without considering modifications that may occur, such as through fuel reduction efforts or other changes in the fuel regime (CAL FIRE, 2018). Risk is not indicated by the maps. Risk is the potential damage that can be done by a fire, based on existing conditions. Risk can be reduced by various strategies, such as creation of defensible space, fuel load reduction, and, in the case of structures, the use of sprinklers and ignition-resistant building materials and construction.

In January 2018, the CPUC adopted a Fire-Threat Map that delineates the boundaries of a new High Fire-Threat District where stricter fire-safety regulations apply to investor-owned utilities. These districts were developed by CPUC in collaboration with CAL FIRE. Figure 5.20-1. Fire Hazard Areas, shows the portion of the Proposed Project that traverses CPUC-designated fire threat areas as well fire hazard severity zones designated by CAL FIRE. Tier 2 fire-threat areas depict areas where there is an elevated risk (including likelihood and potential impacts on people and property) from utility associated wildfires. Tier 3 fire-threat areas depict areas where there is an extreme risk (including likelihood and potential impacts on people and property) from utility associated wildfires.

For the Proposed Project, the areas of fire hazard concern are from Lugo Substation in Hesperia to a point west of Lucerne Valley. In this area, the parallel Eldorado-Lugo 500 kV Transmission Line and Lugo-Mohave 500 kV Transmission Line cross an estimated 12.5 miles of Tier 2 High Fire-Threat District and would result in an estimated 26 acres of disturbance within the district, see Figure 5.20-1. The tier designations shown on the maps drive certain maintenance, inspection, and vegetation management criteria/inspection intervals. These activities are detailed in SCE's 2019 Wildfire Mitigation Plan (SCE, 2019).

In 2007, CAL FIRE adopted FHSZ maps for State Responsibility Areas. The State Responsibility Area FHSZ maps use three fire hazard severity zone classifications: Very High, High, and Moderate. These fire hazard severity zone classifications are based on a combination of how a fire will behave and the probability of flames and embers threatening buildings.

In 2008, CAL FIRE developed recommended maps for Fire Hazard Severity Zones in Local Responsibility Areas (which also includes areas of federal jurisdiction). For areas of local (and federal) responsibility, CAL FIRE uses only two FHSZ designations: Very High or Non-Very High. The local responsibility area FHSZ rating reflects flame and ember intrusion from adjacent wildlands and from flammable vegetation found in the urban area (CAL FIRE, 2018).

The Eldorado-Lugo 500 kV Transmission Line and Lugo-Mohave 500 kV Transmission Line cross an estimated 7.7 miles of Very High FHSZ in State and Local/Federal Responsibility Areas and 11.4 miles of High FHSZ in State Responsibility Areas east of the Lugo Substation, see Figure 5.20-1 (CAL FIRE, 2007a,b). The Proposed Project would result in an estimated 4 acres of disturbance in the very high fire severity zone and in an estimated 30.8 acres of disturbance in the high fire severity zone (CAL FIRE, 2007a,b). The remainder of the Proposed Project is not located in state responsibility areas or lands classified as very high fire hazard severity zones. In general, the wildfire hazard potential in the Mojave Desert is considered very low to moderate (USFS, 2018).

Nevada does not have FHSZ mapping; however, wildland fire threat is mapped in the state by the Nevada Division of Forestry (NDF) and is presented on the Nevada Natural Resources and Fire Information Portal (NDF, 2018). Based on this mapping, most of the Proposed Project in Nevada is in very, very low to low fire threat areas, with small pockets of low to moderate fire threat near the community of Searchlight. The Mohave Substation and the immediate area is mapped as ranging from moderate to high fire threat. The fire threat is derived from historical fire occurrence, landscape characteristics including surface fuels and canopy fuels, percentile weather derived from historical weather observations, and terrain conditions (NDF, 2018).

5.20.2 Regulatory Background

State and Local

California

California Public Utilities Commission General Order 95. CPUC's GO 95 is the key standard governing the design, construction, operation, and maintenance of overhead electric lines in the State. GO 95 Rule 35 governs tree trimming requirements, including minimum vegetation clearances around power lines in extreme and very high fire threat zones in Southern California. The rule requires radial clearances be 120 inches from vegetation for bare line conductors in Extreme and Very High Fire Threat Zones in Southern California

GO 95 Rule 31.2 requires that lines be inspected frequently and thoroughly to ensure that they are in good condition, and that lines temporarily out of service be inspected and maintained in such condition so as not to create a hazard.

California Public Resources Code Sections 4294 and 4293. The California Public Resources Code (CPRC) Sections 4292 and 4293 specify requirements related to fire protection and prevention in transmission line corridors. CPRC Section 4292 states that any person that owns, controls, operates, or maintains any electrical transmission or distribution line has primary responsibility for fire protection of such areas, and shall maintain around and adjacent to any pole or tower which supports a switch, fuse, transformer,

lightning arrester, line junction, or dead end or corner pole, a firebreak which consists of a clearing of not less than 10 feet in each direction from the outer circumference of such a pole or tower (CPRC 4292). CPRC 4293 states that any person that owns, controls, operates, or maintains any electrical transmission or distribution line upon any mountainous land, or in forest-covered land, or grass covered land which has primary responsibility for the fire protection of such area, shall maintain a clearance of the respective distances.

Power Line Fire Prevention Field Guide 2008 Edition. CAL FIRE, the state's three investor-owned utilities (Pacific Gas and Electric Company, Southern California Edison Company, and San Diego Gas and Electric), and other California electric utilities have mutually developed a comprehensive field guide for their personnel. Its purpose is "to provide information and guidance to the personnel of the fire service agencies and electrical operators for minimum uniform application within the areas of their respective jurisdiction and franchise responsibilities." In addition to safety of the public, the guide details fire hazard reduction maintenance procedures for the safety of conductors and certain hardware.

Senate Bill 901. Signed into law in September 2018, SB 901, among other things, amends the Public Utilities Code to require utilities to prepare wildfire mitigation measures if the utilities' overhead electrical lines and equipment are located in an area that has a significant risk of wildfire resulting from those electrical lines and equipment. The bill requires the wildfire mitigation measures to incorporate specified information and procedures and utilities to prepare a wildfire mitigation plan.

The San Bernardino County Fire Office of Emergency Services prepared the County Emergency Operations Plan (revised January 2018) that includes fire hazard. There is no emergency route plan that overlaps the Project area. The Mountain Area Safety Taskforce developed an emergency route plan for the area immediately south of the project.

Local

No local Utilities and Service System regulations applicable to the Proposed Project were identified

Federal

A variety of line and tower clearance standards are used throughout the electric transmission industry. Nationally, most transmission line owners follow the National Electric Safety Code (NESC) rules or American National Standards Institute (ANSI) guidelines, or both, when managing vegetation around transmission system equipment. The NESC deals with electric safety rules, including transmission wire clearance standards, whereas the applicable ANSI code deals with the practice of pruning and removal of vegetation.

5.20.3 Applicant Proposed Measures

The Proposed Project does not include any APMs related to Wildfire.

5.20.4 CEQA Significance Criteria

Appendix G of the CEQA Guidelines (14 CCR 15000 et seq.) provides guidance on assessing whether a project would have significant impacts on the environment. Consistent with Appendix G, if the Proposed Project is in or near state responsibility areas or lands classified as very high fire hazard severity zones, it would have significant wildfire impacts if it would:

a. Substantially impair an adopted emergency response plan or emergency evacuation plan

b. Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire

c. Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment

d. Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes

5.20.5 Methodology

The approach to wildfire is to review the existing and proposed work within the high and very high FHSZ and determine whether the work would result in additional wildfire risk.

5.20.6 Project Impacts and Mitigation Measures

a. Substantially impair an adopted emergency response plan or emergency evacuation plan?

Construction

LESS THAN SIGNIFICANT. The project does not cross over or is not near any roads in the very high FHSZ nor is it within the evacuation routes; however, some state and county routes within the high FHSZ are identified as evacuation routes south of the project. SCE would implement traffic control protocols and a project-specific traffic plan under Mitigation Measure T-1 Construction Traffic Control Plan, to reduce interference with an adopted emergency response or evacuation plans. Additionally, SCE would coordinate with local county and city authorities, including emergency responders. In the event of an evacuation, construction would cease, and obstructed roads would be opened to traffic (SCE, 2018). Impacts from construction of the project related to interference with emergency response or evacuation plans would be less than significant.

Operation and Maintenance

NO IMPACT. Operation and maintenance activities would be incorporated into the existing O&M schedule for the existing transmission lines, substations, and associated facilities. Operation and maintenance activities would generally not occur in roadways; however, operation and maintenance activities associated with the Proposed Project facilities may infrequently require temporary lane closures to allow access. This occurrence would be the same as for existing facilities. No additional impact would occur because of operating and maintaining the project.

Mitigation Measures

T-1 **Construction Traffic Control Plan.** (The full text of this measure is in Section 5.17, Transportation. It requires a plan that minimizes interference with traffic.).

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?

Construction

LESS THAN SIGNIFICANT WITH MITIGATION. The project would not result in any occupied facilities. Most activities associated with the Proposed Project would occur along existing transmission lines and are designed

to improve the efficiency of power delivery and voltage stability on the transmission lines and provide safe and reliable electrical service. Because they would primarily occur within existing ROW or at existing substations, they would not exacerbate wildfire risks. One clearance discrepancy at Tower M14-T4 on the Eldorado-Lugo 500 kV Transmission Line occurs within a very high FHSZ. By raising the tower to address the discrepancy, the Proposed Project would reduce wildfire risks at this location.

Project-related construction activities in the ROW, existing substations, or yards located in or near high or very high FHSZ locations have the potential to be an ignition source for a wildland fire. Examples of ignition sources include: sparks from welding or from metal striking metal or stone and igniting surrounding vegetation; parking vehicles over dry vegetation where hot undercarriages could ignite grass or shrubs; and improperly discarded smoking materials. To reduce the wildfire risk, SCE would implement standard fire prevention protocols and follow a fire prevention plan. The portions of the Proposed Project area located within moderate to very high fire hazard severity/wildfire threat zones would be grubbed of vegetation and graded before the staging of equipment (SCE, 2018). However, the standard protocols do not require SCE to coordinate the plan with agency fire experts nor require appropriate monitoring of the fire protocols during construction. To address this, Mitigation Measure WF-1 would require SCE to allow agency review of the plan and require a project Fire Marshal to ensure the plan is followed and the risk of wildfire is reduced. With Mitigation Measure WF-1, the impact of exacerbating wildfire risks during construction would be less than significant.

Operation and Maintenance

NO IMPACT. Operation and maintenance activities would be incorporated into the existing O&M schedule for the existing transmission lines, substations, and associated facilities. As with current operations and maintenance, SCE would comply with all current federal and State laws related to vegetation clearance and fire prevention. The utility would also implement the SCE Wildfire Mitigation Plan (SCE, 2019) required under SB 901 for the portions of the project that cross SCE's High Fire-risk Areas. No additional impact would occur because of operating and maintaining the project.

Mitigation Measures

WF-1 **Prepare and implement a Fire Management Plan.** A project-specific Fire Management Plan for construction of the ELM project shall be prepared by SCE and submitted for review and approval by the CPUC prior to initiation of construction. The draft copy of the Plan must also be provided to each responsible fire agency at least 90 days before the start of construction activities in areas designated as Very High or High Fire Hazard Severity Zones with a request for comments on the Plan's adequacy within 30 days. Plan reviewers shall include CPUC, BLM, CAL FIRE, and San Bernardino County. Comments received on the draft Plan shall be provided to SCE from all other reviewers, and SCE shall resolve each comment in consultation with the commenting agency. CPUC shall approve the final Plan, which shall be provided to the Plan reviewing agencies at least 30 days prior to the initiation of construction activities in the Fire Hazard Severity Zones. SCE shall fully implement the Plan during all construction activities.

A qualified project Fire Marshal or person of similar title and experience shall be established by SCE to implement and enforce all provisions of the approved Fire Management Plan as well as perform other duties related to fire detection, prevention, and suppression for the project. The Fire Marshal shall monitor construction activities to ensure implementation and effectiveness of the plan.

The Plan shall cover:

- The purpose and applicability of the plan;
- Responsibilities and duties;
- Preparedness training and drills;
- Procedures for fire reporting, response, and prevention that include:
  - identification of daily site-specific risk conditions,
  - the appropriate tools and equipment needed on vehicles and to be on hand at sites,
  - reiteration of fire prevention and safety considerations during tailboard meetings, and
  - daily monitoring of the red-flag warning system with appropriate restrictions on types and levels of permissible activity;
- Coordination procedures with BLM and San Bernardino County fire officials;
- Crew training, including fire safety practices and restrictions; and
- Methods for verification that Plan protocols and requirements are being followed.

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?

Construction

LESS THAN SIGNIFICANT WITH MITIGATION. Most activities associated with the Proposed Project would occur along existing transmission line ROWs and would rely primarily on existing paved roads and unpaved access roads for access. No fuel breaks or emergency water sources would be required. The proposed series capacitor and repeater facility sites would connect to the local electrical distribution system for facility power. New infrastructure would be required at the mid-line series capacitors, including electric distribution and telecommunication facilities, and at the fiber optic repeater facilities but none of the new infrastructure or distribution lines would be within a high or very high FHSZ. To reduce wildfire risk, this analysis recommends Mitigation Measure WF-1, Prepare and implement a Fire Management Plan. While the Proposed Project would result in additional infrastructure, it would be outside a high or very high FHSZ and because SCE would implement a fire prevention plan during construction, the increase in associated fire risk during construction would be less than significant with mitigation.

Operation and Maintenance

NO IMPACT. Operation and maintenance activities would be incorporated into the existing O&M schedule for the existing transmission lines, substations, and associated facilities. As with current operations and maintenance, SCE would comply with all current federal and State laws related to vegetation clearance and fire prevention. No additional impact would occur because of operating and maintaining the project.

Mitigation Measures

WF-1 **Prepare and implement a Fire Management Plan.** (The full text of this measure is provided above).

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?

Construction

LESS THAN SIGNIFICANT. During construction, the Proposed Project could temporarily disturb an estimated 4 acres in the very high fire severity zone and 30.8 acres in the high fire severity zone. The temporary

disturbance could result in runoff, but the ground disturbance is in isolated locations disbursed over 20 miles of transmission line ROW and no one area is large enough and near enough to residences to expose people and structures to significant risks. The largest ground disturbance footprint is associated with helicopter landing zones which are not near any structures or people and a construction yard which is located on a flat area adjacent to Lugo Substation. Not all of these locations would necessarily be used during construction. SCE would implement Best Management Practices in compliance with a Storm Water Pollution Prevention Plan that would further reduce the impact and the impact would be less than significant.

Operation and Maintenance

NO IMPACT. Operation and maintenance activities would be incorporated into the existing O&M schedule for the existing transmission lines, substations, and associated facilities. As with current operations and maintenance, SCE would comply with all current federal and State laws related to vegetation clearance and fire prevention. No additional impact would occur because of operating and maintaining the project.

Mitigation Measures

No mitigation is required.

5.20.7 References

CALFIRE (California Department of Forestry and Fire Protection). 2018. Frequently Asked Questions About: Fire Hazard Severity Zoning and New Building Codes for California's Wildland-Urban Interface. http://www.fire.ca.gov/fire_prevention/downloads/Doc_7_FAQs_ALL.pdf. Accessed January 9, 2019.

_____. 2007a. SW San Bernardino County Fire Hazard Severity Zones in SRA. http://frap.fire.ca.gov/webdata/maps/san_bernardino_sw/fhszs_map.62.pdf. Accessed January 4, 2019

_____. 2007b. SW San Bernardino County Fire Hazard Severity Zones in LRA – Hesperia. http://www.fire.ca.gov/fire_prevention/fhsz_maps/FHSZ/san_bernardino/Hesperia.pdf. Map accessed January 4, 2019.

CPUC (California Public Utilities Commission). 2018. CPUC Fire-Threat Map GIS files. http://www.cpuc.ca.gov/firethreatmaps/. Accessed February 14, 2019.

NDF (Nevada Division of Forestry). 2018. Natural Resources and Fire Information Portal website. https://www.nevadafireinfo.org/maps/. Accessed December 2018.

USFS (U.S. Forest Service). 2018. Wildfire Hazard Potential Version 2018. https://www.firelab.org/sites/default/files/images/downloads/whp_2018_classified_postersize.jpg. Accessed January 9, 2019.

SCE (Southern California Edison). 2019. 2019 Wildfire Mitigation Plan. http://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M263/K645/263645320.PDF. Accessed February 12, 2019.

_____. 2018. Eldorado-Lugo-Mohave Series Capacitor Project: Proponent's Environmental Assessment (PEA). Volumes 1 through 8 and Responses to Questions and Data Requests.

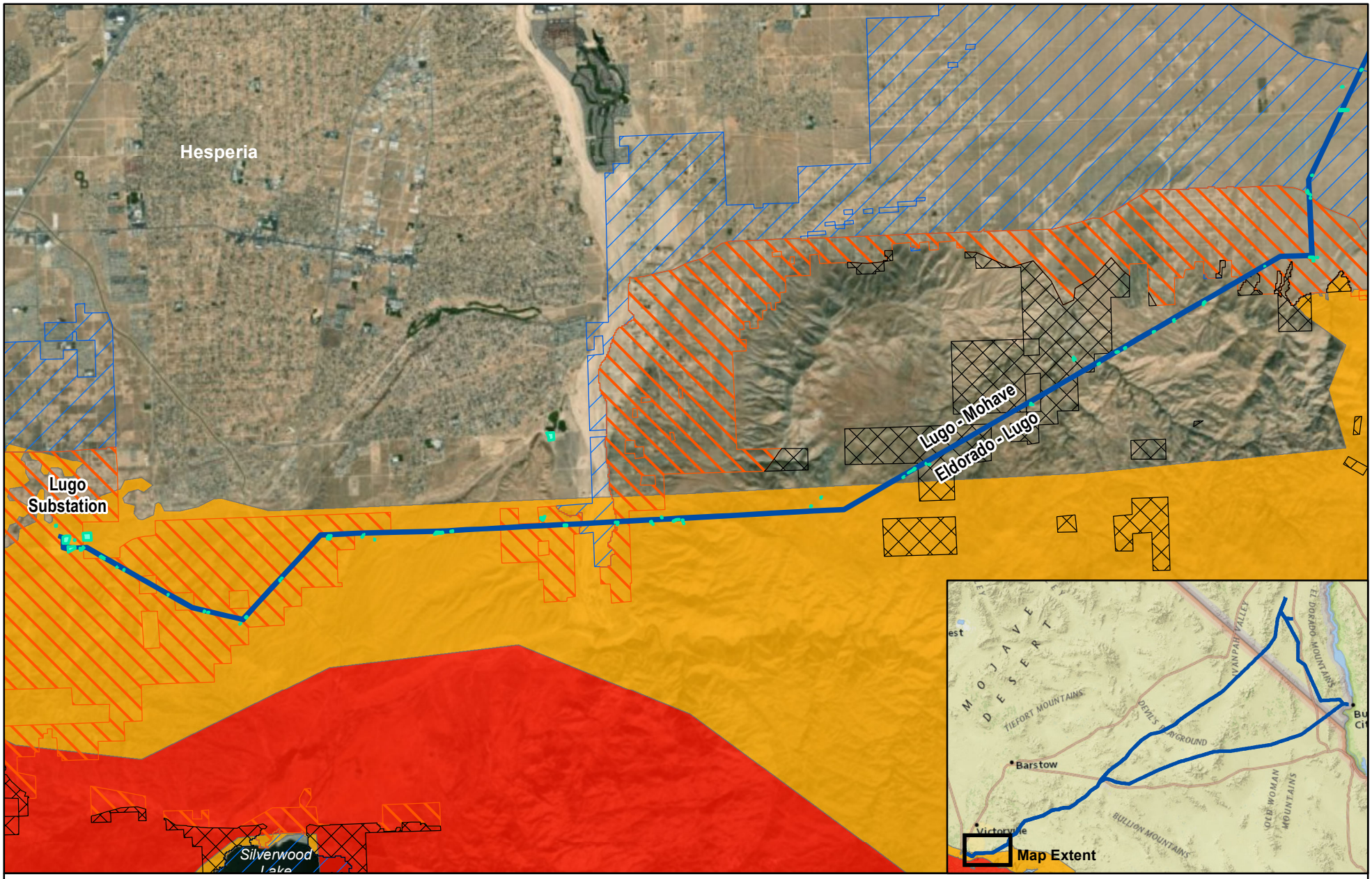

Figure 5.20-1.

Fire Risk

5.21 Mandatory Findings of Significance

MANDATORY FINDINGS OF SIGNIFICANCE	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a. 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?	☐	☒	☐	☐
b. 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.)	☐	☐	☒	☐
c. Does the project have environmental effects that would cause substantial adverse effects on human beings, either directly or indirectly?	☐	☒	☐	☐

Significance criteria established by CEQA Guidelines, Appendix G.

a. 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 WITH MITIGATION INCORPORATED. Chapter 5, Environmental Setting and Environmental Impacts, identifies impacts from project implementation and the level of significance of those impacts. As appropriate, mitigation measures are identified that ensure impacts will be less than significant. With implementation of mitigation measures and applicable Applicant Proposed Measures identified in this Initial Study, construction and O&M of the Proposed Project would not:

- 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.

As discussed in Chapter 4, Project Description, construction of the Proposed Project would temporarily disturb approximately 375.4 acres and permanently disturb approximately 7.0 acres. As discussed in Section 5.4, Biological Resources, construction activities could result in the removal of special-status plant species. Impacts would be minimized through the implementation of proposed mitigation measures, which include the preparation of a revegetation plan to restore vegetation communities and replace special-status plants. Desert tortoises would be protected through pre-activity surveys and monitoring, as well as other preventative measures. Nesting birds would be protected through a Nesting Bird Management Plan, including pre-construction surveys. Permanent impacts to suitable desert tortoise critical habitat would be compensated for at a 5-to-1 ratio and impacts to non-critical habitat would be compensated for at a 1-to-1 ratio, or as required by regulatory agencies. No impacts to wetlands are anticipated. Impacts to jurisdictional waters would be mitigated by Mitigation Measures HWQ-1 and HWQ-2, as described in

Section 5.4.6. Because the Proposed Project is located almost exclusively within existing and previously disturbed ROW, it would not substantially reduce the habitat of a fish or wildlife species. Habitat that is impacted would be restored or replaced as required; therefore, wildlife populations would not drop below self-sustaining levels due to habitat loss (and fish populations would not be affected at all). Because vegetation communities and rare plants would be restored or replaced, the Proposed Project would not threaten to eliminate a plant or wildlife community. Finally, because the Proposed Project is located almost entirely within existing ROWs with existing transmission facilities and in existing substations, the Proposed Project would not reduce the number or restrict the range of rare or endangered plants or wildlife.

Construction of the Proposed Project would not result in permanent impacts to drainages and would not impact any wetlands under the jurisdiction of the USACE, SWRCB, NDEP, or CDFW.

As discussed in Section 5.5, Cultural Resources and Section 5.18, Tribal Cultural Resources, cultural resources surveys have been completed and consultation with Native American tribes conducted. The results of the surveys were considered during the final design of the Proposed Project to minimize impacts on cultural resources during construction. In addition, the Proposed Project would not require the modification or demolition of any historic-era buildings. Avoidance measures would be implemented to protect cultural resources and tribal cultural resources in construction areas. SCE would also develop a Cultural Resources Management Plan (CRMP) and a Paleontological Resources Mitigation and Monitoring Plan (PRMMP), both of which would provide for further monitoring and resource protection, as needed.

b. 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, effects of other current projects, and the effects of probable future projects.)

LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED. CEQA requires lead agencies to consider the cumulative impacts of proposed projects under review. A project may result in significant adverse cumulative impacts when its effects are cumulatively considerable; that is, the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, other current projects, and probable future projects regardless of what agency or person undertakes such other actions (Section 15130(a)(1)).

Approach to Cumulative Impact Analysis

Under CEQA, there are two acceptable and commonly used methodologies for establishing the cumulative impact setting or scenario: the "list approach" and the "projections approach." The first approach would use a "list of past, present, and probable future projects producing related or cumulative impacts." (Section 15130 (b)(1)(A)). The second approach is to use a "summary of projections contained in an adopted general plan or related planning document, or in a prior environmental document which has been adopted or certified, which described or evaluated regional or area wide conditions contributing to the cumulative impact." (Section 15130 (b)(1)(B)). Because the Proposed Project extends over a considerable distance, with activities occurring at widely separated locations making use of the projections approach unwieldy, the "list" approach was selected. As used in the analysis of cumulative impacts, the term "cumulative scenario" is used to include the proposed ELM Project and other identified projects whose impacts have the potential to combine with or overlap with those of the Proposed Project.

Projects used in the cumulative impact analysis are listed in Table 5.21-1, ~~Cumulative Projects within 1 Mile of the Proposed Project, and Table 5.21-2,~~ Cumulative Projects 1 to 5 Miles from the Proposed Project. The approximate locations of all the projects are shown on Figure 5.21-1, Planned and Proposed Projects within 5 Miles of the Proposed Project. (Figure 5.21-1 is found at the end of this section.)

Table 5.21-1. Cumulative Projects within 5 Miles of the Proposed Project

Project ID No. / Project Name	Project Description	Location	Proximity to Proposed Project (miles)	Nearest Proposed Project Component	Status	Anticipated Construction Schedule	Map
Tapestry Specific Plan	Construction of distinctive villages that include an approximately 15,000 mixed-density residential units; mixed-use town centers, park land; an extensive trail system; elementary schools, middle schools, and high schools; public and civic facilities; a wastewater reclamation plant and lift stations; roadways, drainage facilities, domestic and recycled water infrastructure, and other associated infrastructure; and preservation of open space. Development would be phased over a number of years.	City of Hesperia, California	<0.1	Lugo-Mohave 500 kV Transmission Line	Final EIR prepared in July 2015;	Begin 2019 Multi-year	1 of 8
TTE 16-00008	Construction of 12 single-family lots on approximately 7.5 acres.	City of Hesperia	0.7	Eldorado-Lugo 500 kV Transmission Line	Extension approved in June 2016	—	1 of 8
TTE 16-00003	Construction of a 103-lot, single-family, residential subdivision in four phases on approximately 55.2 acres.	City of Hesperia, California	0.8	Eldorado-Lugo 500 kV Transmission Line	Third extension approved in March 2016	—	1 of 8
Ranchero Road Corridor Project – Phases I, II, III	Phase I – Construction of a grade separation at the BNSF Railway where Ranchero Road terminates at either side of the railroad right-of-way (ROW). Phase II – Construction of a freeway interchange at Ranchero Road and Interstate (I-) 15. Environmental clearance was received in the spring of 2010. Phase III – A future joint project with San Bernardino County. The project goal is to widen Ranchero Road from two to four lanes between I-15 and the Phase I undercrossing.	San Bernardino County, California	1.0	Lugo Substation	Unfunded	—	1 of 8
Ranchero Road Improvement: Seventh Avenue to Mariposa Road	Various improvements to Ranchero Road, including the Ranchero Road Underpass, a new interchange at I-15, and the widening of Ranchero Road between the two.	City of Hesperia, California	1.5	Eldorado-Lugo 500 kV Transmission Line	Design	—	1 of 8
Hesperia Gateway Center/ CUP16-00002	Construction of an approximately 3,645-sq.ft. minimart with 12 fuel dispensers and an automated 968-sq.ft. car wash; or a drive-thru restaurant.	City of Hesperia, California	2.7	Lugo Substation	Under construction	2016–Unknown	1 of 8

Table 5.21-1. Cumulative Projects within 5 Miles of the Proposed Project

Project ID No. / Project Name	Project Description	Location	Proximity to Proposed Project (miles)	Nearest Proposed Project Component	Status	Anticipated Construction Schedule	Map
TTE16-0009	Development of 37 single-family residential lots on approximately 10 acres.	City of Hesperia, California	2.9	Lugo Substation	Third extension approved in June 2016	—	1 of 8
SPRE16-00003	Construction of an approximately 5,006-sq.ft. building expansion of an existing church on approximately 2.7 acres.	City of Hesperia, California	3.0	Lugo Substation	Extension approved in June 2016	—	1 of 8
P201100238/ WIND	Construction of an accessory wind energy system for an approximately 100-foot wind-generating tower on a portion of approximately 2.3 acres.	City of Hesperia, California	3.0	Lugo Substation	—	—	1 of 8
Love's Travel Center Project	Development of a travel center on approximately 10.6 acres with 12,271 square feet of commercial uses, including a country store, two fast food restaurants, and a vehicle service/tire care center.	City of Hesperia, California	3.0	Lugo Substation	Final EIR completed in April 2015	—	1 of 8
TTE 16-00005	Construction of 20 single-family residential lots on approximately 5 acres.	City of Hesperia, California	3.2	Lugo Substation	Extension approved in May 2016	—	1 of 8
TTE16-00004	Construction of nine single-family residential lots on approximately 2.5 acres.	City of Hesperia, California	3.2	Lugo Substation	Extension approved in May 2016	—	1 of 8
SPRE15-00007	Construction of a two-story, 84-unit apartment complex on approximately 5.6 acres.	City of Hesperia, California	3.3	Eldorado-Lugo 500 kV Transmission Line	Seventh extension approved in January 2016	—	1 of 8
TTE16-00006	Construction of 17 single-family residential lots on approximately 5.0 acres.	City of Hesperia, California	3.3	Lugo Substation	Extension approved in May 2016	—	1 of 8
TTE16-00010	Construction of 100 single-family residential lots on approximately 25 acres.	City of Hesperia, California	3.3	Lugo Substation	Second extension approved in June 2016	—	1 of 8
P201100308/ WIND	Construction of an accessory wind energy system for an approximately 80-foot wind-generating tower with an overall height of 93.5 feet on approximately 1.9 acres.	San Bernardino County, California	3.4	Lugo Substation	—	—	1 of 8
Deep Creek Project	Development of 202 residential lots on approximately 249 acres.	San Bernardino County, California	3.5	Eldorado-Lugo 500 kV Transmission Line	Environmental review	—	1 of 8

Table 5.21-1. Cumulative Projects within 5 Miles of the Proposed Project

Project ID No. / Project Name	Project Description	Location	Proximity to Proposed Project (miles)	Nearest Proposed Project Component	Status	Anticipated Construction Schedule	Map
SPR 16-00002	Construction of a four-story, 98-room hotel and a four-story, 110-room hotel on approximately 5 acres.	San Bernardino County, California	3.9	Lugo Substation	Approved in March 2016	—	1 of 8
TT15-00003	Construction of a two-story, 84-unit senior condominium development; a two-story, 131-unit senior assisted living facility; a two-story, 300-person adult day care center; a spa and wellness center; medical offices; other senior-oriented retail uses; and an approximately 4,000-sq.ft. commercial building in four phases on approximately 10 acres.	City of Hesperia, California	4.1	Lugo Substation	Approved in July 2016	—	1 of 8
CUP15-00007	Construction of a retail development comprised of an approximately 18,600-sq.ft. Aldi Market, an 11,700-sq.ft. Les Schwab Tire building, a 10,000-sq.ft. retail building, a 7,000-sq.ft. retail building, and a 3,000-sq.ft. drive-thru restaurant on approximately 7.4 acres.	City of Hesperia, California	4.1	Lugo Substation	Approved in January 2016	—	1 of 8
SPRE16-00002	Construction of an approximately 21,400-sq.ft. retail center on approximately 2.5 acres.	City of Hesperia, California	4.3	Eldorado-Lugo 500 kV Transmission Line	Sixth extension approved in May 2016	—	1 of 8
SPRR15-00009	Construction of an approximately 8,450-sq.ft., two-story addition to an existing 8,772-sq.ft. church.	City of Hesperia, California	4.6	Eldorado-Lugo 500 kV Transmission Line	Approved in February 2016	—	1 of 8
TTE15-00002	Creation of 52 single-family lots on approximately 9.4 acres.	City of Hesperia, California	4.6	Eldorado-Lugo 500 kV Transmission Line	Extension approved in January 2016	—	1 of 8
96 Unit Senior Apartment Complex	Construction of a 96-unit senior apartment complex.	City of Hesperia, California	4.8	Lugo Substation	Approved in April 2016	2016–Unknown	1 of 8
Rattlesnake Mountain Off Highway Vehicle (OHV) Trails	Proposal to evaluate adding OHV trails to the San Bernardino National Forest's motorized trail system. New trails would start near Rattlesnake Mountain and travel southeast to Big Pine Flat.	San Bernardino County, California	2.4	Lugo-Mohave 500 kV Transmission Line	Approved; pending funding	—	2 of 8

Table 5.21-1. Cumulative Projects within 5 Miles of the Proposed Project

Project ID No. / Project Name	Project Description	Location	Proximity to Proposed Project (miles)	Nearest Proposed Project Component	Status	Anticipated Construction Schedule	Map
Clean Focus Apply Valley East	Construction of a 3 MW, PV, solar-powered electricity-generating facility on approximately 23 acres.	San Bernardino County, California	4.1	Eldorado-Lugo 500 kV Transmission Line	Environmental review	—	2 of 8
Dynamic Development Company, LLC	Constriction of an approximately 9,026-sq.ft. general retail building on approximately 1.8 acres.	San Bernardino County, California	4.2	Lugo-Mohave 500 kV Transmission Line	Environmental review	—	2 of 8
High Desert Corridor	Development of a multipurpose corridor that could connect Antelope Valley in Los Angeles County with Victor Valley in San Bernardino County.	San Bernardino County, California	4.3	Eldorado-Lugo 500 kV Transmission Line	Final EIR completed in June 2016	—	2 of 8
Ord Mtn Solar and Calcite Substation Project	Construction of Ord Mountain Solar Project and Calcite Substation, connecting to SCE's existing Lugo-Pisgah No. 1 220 kV Transmission Line.	Community of Lucerne Valley, California	<0.1	Eldorado-Lugo 500 kV Transmission Line & Barstow Repeater	Draft EIR published	–	**3 of 8**
Sienna Solar Project	Construction and operation of a 300 MW PV solar energy facility on approximately 990 acres in the community of Lucerne Valley.	Located on Lucerne Dry Lake bed; and the northwest corner of SR-247 and Granite Road in San Bernardino County	2.2	Lugo-Mohave 500 kV Transmission Line	Under review	—	3 of 8
Hacienda at Fairview Valley Specific Plan	Specific plan for a master planned community, including development of 3,114 residential units; approximately 15 acres of commercial space; and approximately 336 acres of parks, equestrian and open space on 1,557 acres.	San Bernardino County, California	3.9	Eldorado-Lugo 500 kV Transmission Line	Environmental review	—	3 of 8
P201100112/ PREAPPDR	Development of a 10 MW, PV, solar-powered electricity-generating facility on approximately 80 acres; and a 20 MW, PV, solar-powered electricity-generating facility on approximately 128 acres.	San Bernardino County, California	4.2	Lugo-Mohave 500 kV Transmission Line	—	—	3 of 8
Southland Business and Industrial Park	Construction of an industrial park within the Southland proposed master plan development on over 400 acres.	Clark County, Nevada	3.5	Lugo-Mohave 500 kV Transmission Line	—	—	5 of 8

Table 5.21-1. Cumulative Projects within 5 Miles of the Proposed Project

Project ID No. / Project Name	Project Description	Location	Proximity to Proposed Project (miles)	Nearest Proposed Project Component	Status	Anticipated Construction Schedule	Map
UC-0337-15 Myers, Veda C., et al.	Expansion of an existing electrical substation and increase of structure height on a portion of the approximately 6.1-acre project site.	Community of Searchlight, Nevada	0.2	Eldorado-Mohave 500 kV Transmission Line	Approved by the Searchlight Town Advisory Board with staff conditions in September 2015	—	6 of 8
UC-0659-12 (ET-0066-16) Nevada Milling and Mining LLC, et al.	Construction of a mining operation and all accessory uses, including a modular building; hillside and foothills development in conjunction with mining operation on approximately 88.0 acres.	Community of Searchlight, Nevada	0.8	Eldorado-Mohave 500 kV Transmission Line	On hold	—	6 of 8
Searchlight Cottonwood Cove Road	Construction of approximately 0.8 miles of a multi-use trail along Cottonwood Cove Road to increase bicycle/pedestrian safety and enhance multi-modal transportation options	Clark County, Nevada	1.1	Eldorado-Mohave 500 kV Transmission Line	Unfunded	2017–Unknown	6 of 8
Harry Allen to Eldorado 500 kV Transmission Line Project	Construction of a new 500 kV transmission line between Harry Allen Substation and Eldorado Substation in Clark County, Nevada.	Clark County, Nevada	Adjacent	Eldorado Substation	Finding of No Significant Impact in 2015; approved project sponsor selected in 2016	2019-2020	7 of 8
Energy Zone Fencing	Construction of approximately 11 miles of desert tortoise (*Gopherus agassizii*) fencing, four new desert tortoise guards, and a new desert tortoise culvert to maintain habitat connectivity between the north and south sides of Eldorado Valley Drive.	Clark County, Nevada	0.1	Eldorado Substation	Development of construction bid documents for the Energy Zone Fencing project is on hold	—	7 of 8
Techren Boulder City Solar Project	Construction of a 300 MW, PV, solar-powered, electricity-generating facility; a substation with 34.5 kV to 230 kV step-up transformers, approximately 4 miles of 230 kV transmission line; and associated facilities on approximately 2,200 acres. Both alternatives consist of a transmission line within a designated federal utility corridor that would connect the Techren Boulder City Solar Project to Eldorado Substation and the McCullough Switching Station or the Los Angeles Department of Water and Power's Marketplace Substation.	Clark County, Nevada	1.5	Eldorado Substation	Under construction	2016–Unknown	7 of 8

Table 5.21-1. Cumulative Projects within 5 Miles of the Proposed Project

Project ID No. / Project Name	Project Description	Location	Proximity to Proposed Project (miles)	Nearest Proposed Project Component	Status	Anticipated Construction Schedule	Map
Rehabilitate Five Campsites – Pilot Project for Roadside Campsite Management Plan	Restoration of campgrounds as part of a Roadside Camping Management Plan being developed for the Mojave National Preserve.	Mojave National Preserve in San Bernardino County, California	0.3	Lugo-Mohave 500 kV Transmission Line	Categorical exclusion under the National Environmental Policy Act was issued in June 2013	—	8 of 8
Lugo-Victorville 500 kV Transmission Line Special Protection Scheme (LVRAS) Project	Removal and replacement of existing overhead ground wire with optical ground wire within the existing right-of-way on the SCE Eldorado-Lugo 500 kV Transmission Line between Eldorado Substation in Nevada and Pisgah Substation in California.	Clark County, Nevada to Ludlow, California	Adjacent	Eldorado-Lugo 500 kV Transmission Line	Environmental review	2019	—
Eldorado-Lugo Project	Reconductor and upgrade/replace 25 percent of the structures on the Eldorado-Pisgah No. 1 and No. 2 220 kV lines and the Lugo-Pisgah No. 1 and No. 2 220 kV lines.	San Bernardino and Clark Counties, California and Nevada	Adjacent	Eldorado-Lugo 500 kV Transmission Line	Certificate of Public Convenience and Necessity filing TBD	2022–Unknown	—
San Bernardino County Master Stormwater System Maintenance Program	Long-term maintenance of flood control facilities throughout San Bernardino County.	San Bernardino County, California	N/A	—	The San Bernardino County Flood Control District is preparing a Draft EIR as of June 2014	—	—
Desert Renewable Energy Conservation Plan	Collaboration of the California Energy Commission, California Department of Fish and Wildlife (CDFW), BLM, and United States (U.S.) Fish and Wildlife Service (USFWS) to conserve and manage wildlife communities and facilitate permitting of renewable energy projects.	Imperial, Inyo, Kern, Los Angeles, Riverside, San Bernardino, and San Diego Counties, California	N/A	N/A	Final EIR completed; Phase I completed	N/A	—

Table 5.21-1. Cumulative Projects within 5 Miles of the Proposed Project

Project ID No. / Project Name	Project Description	Location	Proximity to Proposed Project (miles)	Nearest Proposed Project Component	Status	Anticipated Construction Schedule	Map
TransWest Express Transmission Project	Development of a regional electric transmission system.	Wyoming, Colorado, Utah, and Nevada	2.1	Eldorado Substation	Approved	2019-2021	—
P201200107/ WIND	Construction of an accessory wind energy system to install an approximately 80-foot tower with an overall height of 93.5 feet on approximately 2.2 acres	San Bernardino County, California	3.8	Eldorado-Lugo 500 kV Transmission Line	—	—	—
Laughlin–Bullhead City Bridge Project	Construction of a new, four-lane bridge over the Colorado River between the community of Laughlin, Nevada and Bullhead City, Arizona.	Clark County, Nevada	3.8	Lugo-Mohave 500 kV Transmission Line	Design	—	—

Source: SCE, 2018.

The area in which the Proposed Project would occur in San Bernardino and Clark Counties is characterized by mostly undeveloped/open space lands and utilities/infrastructure, with some low-density residential land uses. Past projects within the vicinity of the Proposed Project include solar and other energy facilities, capital improvement projects, transportation facilities, and residential and commercial developments. This section discusses whether the Proposed Project would result in cumulatively considerable significant short-term or long-term environmental impacts when combined with other past, present, and reasonably foreseeable future projects in the area. Short-term impacts are generally associated with construction of the Proposed Project, while long-term impacts result from ongoing O&M of the Proposed Project.

For affected resources, the proposed ELM Project has been determined to have no impacts or impacts that are either less than significant or are reduced to less than significant by the implementation of mitigation measures. Where there are no proposed or foreseeable other projects within 5 miles where impacts of other projects would combine with those of the ELM project, there is no opportunity for a cumulative effect to occur.[1] In those cases, the cumulative scenario consists only of the Proposed Project. This situation arises over much of the project area. As shown in Figure 5.21-1 Cumulative Projects within 5 Miles of the Proposed Project, there are extensive areas that have little or no existing development and no proposed or pending projects in the vicinity of the proposed ELM project. In these areas there would be no cumulative impacts.

Resources not considered further because there would be no cumulative impacts include the following:

- Energy – construction equipment is required to meet California efficiency standards for fuel consumption; construction of other projects in the cumulative scenario would have the same requirement. By facilitating increased delivery of energy from renewable sources, the ELM Project would help meet California renewable energy goals.
- Land Use and Planning – the ELM Project would not divide a community or conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect.
- Mineral Resources – the ELM Project would not result in the loss of access to mineral resources.
- Public Services – the ELM Project would not increase population; therefore, it would not increase the need for public services or adversely affect public services. During construction, crews would be dispersed and drawn primarily for a commuting labor forces. There would be no in-migration of population that would increase the need for public services.

Cumulative impacts to the following resources could occur as a result of construction and O&M of the ELM Project when considered in conjunction with the other planned and proposed future projects in the cumulative scenario. The geographic area that could be affected by the Proposed Project in combination with other projects varies depending on the type of environmental resource being considered. Cumulative impacts from other projects in conjunction with the Proposed Project were considered for the following resource topics at the distances indicated:

- Aesthetics – to 5 miles
- Agriculture and Forestry Resources – to 1 mile
- Air quality – to 5 miles
- Biological resources – to 5 miles
- Cultural resources – to 1 mile
- Geology and Soils – to 1 mile
- Greenhouse Gas (GHG) Emissions – to 5 miles

[1] While some resources have areas of effect less than 5 miles, to be conservative 5 miles was used for all resources.

- Hazards and Hazardous Materials – to 1 mile
- Hydrology and Water Quality – to 5 miles
- Noise – to 1 mile
- Population and Housing – Countywide
- Recreation – to 1 mile
- Transportation – to 1 mile
- Tribal Cultural Resources – to 1 mile
- Utilities and Service Systems – to 1 mile
- Wildfire – to 1 mile

These resources are discussed further in the subsections that follow.

Aesthetics

Construction. During construction, vehicles, equipment, materials, and workers would be visible at construction sites and yards associated with the Proposed Project. Except for construction of capacitor and repeater sites, all other construction activity would occur for very limited periods at various locations. When construction moves to other locations these visible elements would no longer be present. At the capacitor and repeater sites, construction would be over an extended period. However, there are no other projects identified as being planned in the vicinity of these sites. Short-term visibility of construction would not have a cumulative adverse effect. Construction activity at the capacitor and repeater sites is remote from other identified projects. Therefore, the Proposed Project would not contribute to a cumulative adverse effect during construction.

Operation and Maintenance. The Proposed Project has a number of elements that, once constructed, would result in little to no discernable visual difference when compared to existing conditions. These project elements include replacement of existing OHGW with new OPGW, installation of replacement equipment and tubular steel poles within existing substations, strengthening of selected lattice-steel tower members, and raising of selected towers. The project elements that would result in changes to the visual environment include development of two series capacitor sites and the interconnecting overhead communication line between the sites; development of three fiber optic repeater sites and their connections to local power distribution lines; and installation of marker balls on adjacent catenaries (overhead spans) at three locations.

Because the visual impact of a facility diminishes with distance, the potential area for a cumulative visual impact is less than 5 miles. If visible at all from this distance, a facility would blend with the background and any contrast would be muted by natural haze and the relative apparent size of the facility as seen from afar.

There are no cumulative scenario projects identified near the Kelbaker and Lanfair repeater sites located in the Mojave National Preserve, and the proposed facilities would be adjacent to existing towers within the transmission line right-of-way. Therefore, these facilities would not combine with other projects to result in a cumulatively significant impact. The Barstow Repeater site is approximately 0.4 miles east of Highway 247 (Barstow Road), northeast of the intersection of Haynes Road and Fern Road. If approved, a proposed solar facility, the Ord Mountain Solar and Energy Storage Project, would be located on approximately 484 acres on the east side of Fern Road, immediately north of the Lugo-Mohave 500 kV Transmission Line and the Barstow Repeater site. The Ord Mountain solar project would connect to the existing Lugh-Pisgah No. 1 220 kV Transmission Line in the transmission ROW by way of the proposed Calcite Substation, which would be located on the west side of Highway 247 adjacent to the transmission line ROW. The substation would require a Certificate of Public Convenience and Necessity from the CPUC. The Draft

EIR for the Ord Mountain project identified significant visual impacts resulting from a change in the visual environment. The Barstow repeater facility in combination with the solar project could result in a cumulatively significant visual impact. However, the Barstow repeater facility would be of size similar to that of existing residential and outbuildings in the area and would have a relatively low profile. It would be adjacent to existing transmission towers and would not conflict with views of the surrounding mountains. Section 5.1, Aesthetics, requires mitigation AES-1 and AES-2 that would minimize the visual contrast of the project design and treat structure surfaces, further reducing the visual contribution of the Barstow repeater facility. Therefore, it has a less than significant contribution to the cumulative impact on the visual landscape.

The proposed Newberry Springs and Ludlow Series Capacity facility sites are located northeast of Interstate 40, each site approximately 0.6 miles from the highway and approximately 1.25 miles apart. The series capacitor facility sites are near an existing BNSF railway line. Multiple existing transmission lines are in the area, including both 500 kV and 220 kV circuits. The existing Pisgah Substation is in the transmission line ROW between the Interstate and the Newberry Springs site. The series capacitor facilities would be consistent with the industrial visual character of the vicinity, which is characterized by multiple transmission lines, the existing substation, the Interstate, and the railway. There are no other cumulative projects in the vicinity that would contribute additional visual impacts so there would be no cumulative impact at this location.

Marker balls would be installed on 6 spans that are in 3 locations. Two are remote locations with limited access and few viewing opportunities. The third location entails two spans at Highway 18, northwest of Lucerne Valley. There are no cumulative scenario projects in the vicinity of the marker ball installations that would contribute to a cumulative visual impact. The nearest cumulative scenario projects are over 4 miles distant from where the transmission line crosses Highway 18. The 3-foot diameter marker balls would not contribute to a cumulative significant impact at any of the locations.

Agriculture and Forestry Resources

The Barstow Repeater site is the only location where projects in the cumulative scenario would have the potential to combine with agriculture and forestry resource impacts associated with the ELM Project. The Barstow Repeater would occupy approximately 0.13 acres of land zoned for agriculture that is fallow. The Ord Mountain Solar and Calcite Substation project is proposed for lands near the repeater site. The solar and substation facilities would occupy nearly 500 acres of land zoned LV/AG (Lucerne Valley/Agriculture) and LV/AG-40 that also is fallow. Thousands of acres of similar land are found in the vicinity and support similar desert vegetation. The Barstow Repeater would have a very small footprint (0.13 acres) in this landscape and is not on prime agricultural land. It would not have a cumulatively considerable impact on agriculture and forestry resources.

Air Quality

Construction. Vehicle and equipment use would occur along the entire project length and at staging yards. As described in Section 5.3, Air Quality, sources of construction-based air pollution would include fugitive dust and tailpipe emissions. With the implementation of the APMs and MMs described in Section 5.3, Air Quality, the Proposed Project's controlled emissions would be below the applicable MDAQMD and USEPA annual emission thresholds for NO_x, CO, PM_{10}, $PM_{2.5}$, and other pollutants. As a result, all emissions would be below the applicable thresholds, and impacts would be less than significant. SCE's construction timeline could potentially overlap with construction activities for 3 of the cumulative scenario projects within 1 mile and 1 project within 5 miles. In addition, the construction schedules for nine additional projects within 1 mile and 33 projects within 5 miles are unknown and could potentially overlap with the Proposed

Project, as could additional projects occurring elsewhere within the Mojave Desert Air Basin beyond the 5-mile buffer used of the cumulative impact analysis. However, these and other projects within the project area would be required to comply with local ordinances and regulations concerning air quality during construction, including dust control. Given that ELM Project activities would occur at various times and dispersed locations along the transmission line corridors, the dispersed nature of other projects in the region, and the requirement to comply with applicable air quality regulations, cumulative impacts to air quality are anticipated to be less than significant.

Operation and Maintenance. During O&M, a significant impact may occur if a project is inconsistent with the rules and regulations of the MDAQMD and Clark County DAQ's annual thresholds, or if it induces population growth. Cumulative scenario projects that would contribute to a potential cumulative air quality impact generally include those that would induce population growth, such as the large residential and condominium developments, and commercial development. O&M activities associated with the Proposed Project would be similar to those currently performed for existing facilities, although additional O&M activities associated with the proposed mid-line series capacitors and fiber optic repeater facilities would result in a minor increase in O&M activity overall. As a result, there would be a minor increase in emissions due to O&M activities. The O&M-related emissions would be minor compared to overall emissions from existing vehicle use and work activities in the region. Therefore, O&M for the project would not contribute to a cumulatively considerable impact related to air quality.

Biological Resources

Construction. As discussed in Section 5.4, Biological Resources, the Proposed Project has the potential to temporarily and permanently affect sensitive natural communities, special-status plant and wildlife species, wildlife population and movement patterns, and jurisdictional waters. The project would temporarily disturb approximately 375 acres that would be restored and permanently occupy approximately 7 acres spread over 5 locations (2 series capacitor sites; 3 repeater sites). Cumulative impacts to biological resources could occur as a result of increased ground-disturbing activities by multiple cumulative scenario projects. These cumulative activities could increase the disruption of normal animal breeding, foraging, and migration behavior, the removal of suitable habitat for multiple special-status plant and wildlife species, and the degradation of jurisdictional water features.

Construction of the Proposed Project may occur simultaneously with construction of four of the cumulative scenario projects, including the LVRAS Project (in the Eldorado-Lugo transmission corridor between Eldorado and Pisgah Substations), Harry Allen to Eldorado 500 kV Transmission Line Project (from Boulder City south to Eldorado Substation), and the Ord Mountain Solar Calcite Substation Project. A number of other projects in the cumulative scenario have construction timelines that are unknown and could potentially overlap with the Proposed Project. Several are anticipated to impact some of the same sensitive natural communities, special-status species, or habitats as the Proposed Project.

One sensitive natural community — *Yucca brevifolia* Woodland Alliance (Joshua tree woodland) — occurs in both the Proposed Project area and other project areas within 5 miles, including the Tapestry Specific Plan and the Ranchero Road Corridor Project. These two projects would require the removal of Joshua trees. However, the Proposed Project's impacts to this sensitive natural community would be temporary and it is unlikely that any Joshua trees would need to be removed. The County of San Bernardino and the City of Hesperia require projects within their jurisdictions to obtain a permit for the removal of Joshua trees and to transplant or replace the trees at an appropriate ratio. With the implementation of these measures, cumulative impacts to this natural community would be negligible. The other types of sensitive natural communities present in the Proposed Project area do not overlap with other projects in the 5-mile radius, and cumulative impacts to these communities would not occur.

Special-status plant species could be impacted by the Proposed Project, but no listed threatened or endangered plants would be affected. Construction activities associated with the ELM Project have the potential to result in mortality of special-status plants that occur within temporary construction areas. However, the project disturbance areas are small and impacts to any one plant would be limited to localized work areas. Mitigation measures, which include a revegetation plan, conducting special status plant surveys prior to construction, avoiding occurrences to the extent possible, and implementing additional mitigation (off-site compensation, salvage, and/or horticultural propagation and reintroduction) would be implemented to reduce the impact to special-status plants to less than significant. One or more of the cumulative scenario projects within 5 miles of the Proposed Project, or other projects in the region (e.g., residential development or renewable energy projects) may affect special-status plants, and may lead to a cumulatively significant impact. However, due to the limited extent of any potential ELM Project impacts to special-status plants, and the absence of listed species in the area, any potential special-status plant impacts would not contribute considerably to regional cumulative impacts.

The ELM Project would temporarily impact approximately 45.8 acres and permanently impact 0.2 acres of suitable critical habitat for desert tortoise. Other proposed projects within 5 miles would impact large quantities of desert tortoise habitat (i.e., greater than 400 acres). In addition, the LVRAS Project could impact 95.1 acres of occupied desert tortoise habitat, including 44.7 acres of critical habitat. However, the ELM project's impacts would be spread across 84 miles of the alignment. Cumulatively, these projects could contribute to habitat fragmentation and degradation, removal of food and shelter resources, changing normal behavior patterns, and attracting predator species such as ravens (*Corvus corax*) and coyotes (*Canis latrans*). However, all of these projects would be subject to permitting and mitigation requirements under the Federal Endangered Species Act and California Endangered Species Act, which are intended to minimize and mitigate for impacts to species, both at the project level and in a regional context. The ELM Project would implement mitigation measures, including pre-activity surveys, monitoring, under vehicle checks, and excavation of desert tortoise burrows, and would restore disturbed land and/or compensate for permanent impacts as required by the USFWS. Other projects would be required to implement similar measures. These measures would reduce the ELM Project's contribution to cumulative impacts. Therefore, cumulative impacts to desert tortoise and its critical habitat are expected to not be cumulatively considerable after the required avoidance, minimization, and compensatory mitigation measures are implemented.

Suitable habitat for other special-status wildlife including American badger (*Taxidea taxus*), banded Gila monster (*Heloderma suspectum cinctum*), Bendire's thrasher (*Toxostoma bendirei*), desert bighorn sheep (*Ovis canadensis nelson*), golden eagle (*Aquila chrysaetos*), Mojave fringe-toed lizard (*Uma scoparia*), pallid bat (*Antrozous pallidus*), and western burrowing owl (*Athena cunicularia*) would be affected by the ELM Project. There is evidence of the presence of desert bighorn sheep in the Proposed Project area, but the other species were not observed during surveys. Other projects in the cumulative scenario may also impact suitable habitat for one or more of those species. For example, the TransWest Express Transmission Project that terminates north of Eldorado Substation will impact potential habitat for desert bighorn sheep, banded Gila monster, and pallid bat. The Laughlin-Bullhead City Bridge Project will also impact banded Gila monster habitat. The Rattlesnake Mountain OHV Trails Project is expected to impact habitat for pallid San Diego pocket mouse, American badger, and pallid bat. (However, many of the effects of the latter project are expected to be beneficial to the habitat and the impacts were determined to be less than significant by the U.S. Forest Service.) Impacts to these species and their habitat would be reduced or avoided by the ELM Project and other cumulative scenario projects by implementing measures to avoid, minimize, and/or compensate for impacts to the individual species and their habitats. One or more of the cumulative scenario projects within 5 miles of the Proposed Project, or other projects in the region (e.g., residential development or renewable energy projects) may affect these species, and may lead to a cum-

ulatively significant impact. However, due to the limited extent of any potential ELM Project impacts to special-status wildlife, and by incorporating Mitigation Measures BR-1 through BR-13, the proposed Project ~~these impacts~~ would not contribute considerably to regional cumulative impacts.

Construction of the ELM Project would result in permanent impacts to suitable foraging and nesting habitat for special-status avian species, including Bendire's thrasher (*Toxostoma bendirei*), golden eagle (*Aquila chrysaetos*), and western burrowing owl (*Athene cunicularia*). Cumulative impacts to these species and others protected under the Migratory Bird Treaty Act may result from the disturbance or degradation of suitable foraging and nesting habitat within 5 miles of the ELM Project. The Tapestry Specific Plan is proposed to impact golden eagle foraging habitat. However, with the collective implementation of mitigation measures and any required compensatory habitat mitigation, cumulative contribution of the ELM Project to impacts on avian species are anticipated to not be cumulatively considerable.

The proposed facilities would be constructed in or adjacent to disturbed areas that are not suitable for use as wildlife migration corridors. The majority of the ELM Project's activities would occur within small, discontinuous areas, and would not create a barrier for terrestrial species that may use the surrounding area as a wildlife corridor. Other large projects within 5 miles, such as the Tapestry Specific Plan, may have effects on wildlife movements. However, the ELM Project would not contribute to the cumulative impact.

Construction of the Proposed Project could result in direct temporary impacts to of water features potentially under the jurisdiction of the U.S. Army Corps of Engineers (USACE), Regional Water Quality Control Boards (RWQCBs), the CDFW, and Nevada Department of Environmental Protection (NDEP). Other cumulative scenario projects have the potential to impact jurisdictional waters/wetlands and riparian areas, including the Ranchero Road Corridor Project, Hacienda at Fairview Valley Specific Plan, Tapestry Specific Plan, and TransWest Express Transmission Project. Any project impacting jurisdictional water features would obtain the necessary permits from the responsible resource agencies. Implementation of permit conditions would minimize and mitigate for impacts to these resources at the project and watershed levels. Accordingly, cumulative impacts to jurisdictional waters are expected to not be cumulatively considerable.

Operation and Maintenance. Following construction of the Proposed Project, O&M activities would be similar to current practices, with additional O&M activities associated with the proposed mid-line series capacitors and fiber optic repeater facilities. No permanent losses of habitat, special-status species, or jurisdictional waters are expected to occur during O&M activities. The majority of O&M activities would occur in previously disturbed areas. For those activities that may require work in previously undisturbed areas, impacts would be temporary, and disturbed areas would be restored to pre-activity conditions. Similarly, O&M activities associated with other proposed projects are not expected to have a cumulatively considerable impact. Therefore, cumulative impacts are anticipated to not be cumulatively considerable.

Cultural Resources

Construction. There are no projects in the cumulative scenario would combine with impacts from the Proposed Project at the Newberry Springs and Ludlow Series Capacitor sites and the Kelbaker and Lanfair Fiber Optic Repeater sites. Therefore, development of these facilities would not contribute to a cumulatively considerable impact on cultural resources.

Construction activities requiring ground disturbance for the Barstow Repeater facility would potentially disturb subsurface soils and could affect unknown buried cultural deposits or archaeological sites. The same is true of the proposed Ord Mountain Solar Project and Calcite Substation adjacent to the Barstow Repeater site. However, SCE would implement required mitigation measures to address potential effect,

including retaining qualified cultural resources staff, providing cultural resources environmental awareness training, avoiding known cultural resources, and preparing a Cultural Resources Management Plan prior to construction. The Cultural Resources Management Plan has the objectives of management, avoidance, and/or minimization of potential adverse effects on cultural resources. The small size of the Barstow Repeater site (0.13 acres) and the implementation of mitigation measures would result in a less than significant impact and would result in in a less than cumulatively considerable impact.

Operation and Maintenance. O&M activities associated with the Proposed Project would be similar to those currently performed for the existing facilities, with additional O&M activities associated with the proposed mid-line series capacitors and fiber optic repeater facilities. O&M of the mid-line series capacitors and fiber optic repeater sites would involve minimal (if any) ground disturbance within previously disturbed areas. Therefore, O&M activities would not cause a substantial adverse change in the significance of a cultural resource, and the Proposed Project would not contribute to a cumulatively considerable impact related to cultural resources.

Geology and Soils

Construction. The potential cumulative impacts that may occur as a result of the Proposed Project in conjunction with other planned and Proposed Projects include threats to human safety and structural integrity, soil erosion or topsoil loss, geologic unit instability, or construction on expansive soils. Construction of the Proposed Project and a majority of the cumulative scenario projects in the vicinity of the Proposed Project would include ground-disturbing activities and could potentially impact soils. Grading at construction sites can result in soil erosion and sedimentation, as well as loss of topsoil. The potential for soil erosion and sedimentation would be minimized through the implementation of Storm Water Pollution Prevention Plans (SWPPPs) and best management practices (BMPs), which are required for all projects that disturb 1 or more acres of soil. All projects would be designed to meet current building code and safety standards and would be required to adhere to regulations that limit developments on steep slopes and in landslide areas, thereby ensuring that the potential for long-term cumulative impacts are less than significant. As a result, the potential for a significant cumulative impact to geology and soils is low and is not expected to be significant.

No fossil localities were identified within the boundaries of the Proposed Project. However, several geologic units designated with a high paleontological sensitivity underlie the Proposed Project area. Therefore, prior to construction of the Proposed Project, SCE would implement mitigation that includes the preparation of a Paleontological Resources Mitigation and Monitoring Plan (PRMMP). The PRMMP would outline procedures for monitoring in areas that contain sensitive paleontological resources. The PRMMP would also include recovery and treatment protocols if sensitive paleontological resources are discovered during ground-disturbing construction activities. Additionally, the planned and proposed projects in the project vicinity that are underlain by geologic rock units/formations with high or very high paleontological sensitivity would be required to implement similar strategies in the event of an unanticipated discovery. Therefore, with the implementation of mitigation measures, a cumulatively considerable impact to paleontological resources is not anticipated.

Operation and Maintenance. Routine operation and maintenance of the Proposed Project would require periodic visits to project facilities for inspection and repair. No ground disturbance would be required. Therefore, operation and maintenance of the Proposed Project would not contribute to a cumulatively considerable impact.

Greenhouse Gas Emissions

Construction. Construction of the Proposed Project would potentially overlap with construction activities for other projects under the cumulative scenario. A cumulative GHG impact could occur during construction of the Proposed Project and other cumulative scenario projects, as well as other projects located within the greater Mojave Desert Air Basin. The main source of GHG emissions associated with the ELM Project would be fossil fuel combustion in vehicles and equipment used during construction and on-road vehicle travel associated with workers' travel. As discussed in Section 5.7, Greenhouse Gas Emissions, the total of amortized construction emissions and annual operational GHG emissions associated with the Proposed Project would be approximately 8,955.1 tons of carbon dioxide equivalent (CO_2e) in 2019 and 4,297.0 tons in 2020. Because emissions generated during construction of the Proposed Project are projected to be well below the 100,000-ton CO_2e annual threshold, impacts would be less than significant. SCE would be required to meet the California Air Resources Board's standards, which would minimize the ELM Project's construction activities contribution to GHG emissions. The other cumulative scenario projects would also be required to adhere to the MDAQMD standards and requirements. As a result, the impacts are not anticipated to be cumulatively considerable.

Operation and Maintenance. Fossil fuel combustion during periodic O&M activities would be an additional source of GHG emissions. Periodic maintenance and repair activities would continue to be conducted at a similar frequency and intensity as they are for the existing facilities, with negligible increases associated with the new capacitors and repeaters. Leakage of sulfur hexafluoride from the new circuit breakers upgraded at Eldorado, Lugo, and Mohave Substations would also generate GHG emissions; however, the amortized construction emissions would be below the 100,000-ton CO_2e annual threshold. The ELM Project would not contribute to this cumulative impact because the O&M activities associated with the project would be similar to those currently performed by SCE for existing facilities, with negligible increases associated with the proposed mid-line series capacitors and fiber optic repeaters, and the Proposed Project would not facilitate an increased capacity resulting in future growth. Therefore, the cumulative impacts related to GHG emissions would not be cumulatively considerable.

Hazards and Hazardous Materials

Construction. Cumulative impacts from hazards and/or hazardous materials can result from the concurrent construction of planned and proposed projects and the ELM Project having increased effects on public or worker safety, including exposure to hazardous materials, increased fire potential, or physical hazards. Cumulative scenario projects have the potential to result in a cumulative impacts related to overall hazards or hazardous materials when combined with the ELM Project. Because each project requires combustion-driven construction equipment, they have the potential to create a temporary impact from accidental releases of diesel and gasoline fuel, hydraulic fluids, and other hazardous liquids. While not anticipated, there is a potential for accidental spills or leaks. This potential hazard would exist during construction when equipment is located on site; however, it is very unlikely that simultaneous spills would occur in the immediate vicinity during a similar timeframe. Large releases of hazardous materials from multiple projects are highly unlikely when projects adhere to federal and State regulations.

The ELM Project and the planned and proposed projects in the cumulative scenario would be required to comply with existing hazardous materials regulations. For the ELM Project, a project-specific Hazardous Materials Management Plan would be prepared and would be implemented throughout construction of the project. Project-specific BMPs, as part of the SWPPPs and implementation of the Worker Environmental Awareness Program (WEAP), would reduce potential impacts from hazardous material incidents from the project to a less-than-significant level. As required, small releases would be contained, cleaned up, and

disposed of properly. Hazardous materials would be disposed of at State-approved, local facilities that accept hazardous waste materials, in accordance with all applicable laws and regulations. The planned and proposed projects in the cumulative scenario are presumed to comply with the same federal and State regulations and include the same or similar measures to mitigate potential impacts from hazardous wastes; therefore, the impacts related to hazardous materials are anticipated not be cumulatively significant.

Construction of the various identified projects may require temporary road or lane closures, which could impact implementation of adopted emergency response plans. Road closures and encroachment into public roadways could increase hazards if the appropriate safety measures (e.g., proper signage, orange cones, and flaggers) are not in place. However, SCE and applicants for the cumulative scenario projects would be required to obtain the encroachment permits from the local jurisdictions and implement traffic control measures accordingly. In addition, under Mitigation Measure T-1 (Construction Traffic Control Plan) SCE would coordinate with local authorities, including emergency responders, regarding appropriate procedures. Therefore, emergency access would not be directly impacted during construction. As a result, the ELM Project's contribution to a cumulative effect on implementation of adopted emergency response plans would be less than significant.

Operation and Maintenance. During O&M, the Proposed Project would continue to operate in a manner that is similar to current conditions, though additional O&M activities associated with the proposed mid-line series capacitors and fiber optic repeater facilities would result in a minor increase in O&M activities. In addition, similar levels of hazardous materials would be stored or used on site. The ELM Project facilities are remote from most other projects. Once constructed, projects in the cumulative scenario are not likely to involve the storage, use, transport, and potential for accidental release of hazardous materials. As a result, the Proposed Project's contribution to a cumulative effect on hazards and hazardous materials would be minor and would not result in a cumulatively considerable impact.

Hydrology and Water Quality

Construction. As described in Section 5.10, Hydrology and Water Quality, the Proposed Project would obtain water from local municipal water sources to use in dust suppression during construction. Because the amount of water to be used for the Proposed Project is minor compared to the amount of water available from the list of potential purveyors, as described in Section 5.19, Utilities and Service Systems, the Proposed Project would not substantially deplete surface or groundwater supplies. With the amount of water that could be provided by the local water purveyors, local water purveyors would have enough resources to prevent a substantial depletion of groundwater supply and recharge. Reclaimed water would also be used for the Proposed Project, if feasible. It is anticipated that approximately 124,200 gallons of water per day would typically be used during construction of the Proposed Project, and approximately 146,000 gallons of water per day would be used during peak construction activities. As discussed in Section 5.10, Hydrology and Water Quality, water use would be primarily for dust control and would use less than 0.06 percent of the existing capacity of municipal water agencies in the project region. The water required by the ELM Project would be used during construction; the need would cease with completion of construction. The Proposed Project would not contribute to a cumulatively considerable depletion of surface or groundwater supplies.

Construction of the Proposed Project would result in a minor increase in the total impervious surfaces within the area. These impervious surfaces would not be contiguous and would not impede groundwater recharge. Pervious surfaces adjacent to these sites would allow rain water and stormwater runoff to continue to infiltrate the ground surface, similar to pre-construction conditions. Due to the size of the groundwater basins in relation to the planned and Proposed Project sites and the large surrounding area that is

undeveloped and pervious, the additional impervious surfaces are unlikely to negatively affect groundwater recharge capacity in the vicinity. Therefore, the ELM Project would not contribute to a cumulatively considerable impact related to groundwater recharge.

Projects in the cumulative scenario have the potential to result in a cumulative impact to surface water supply and drainage if constructed concurrently. Pollutants or sediment disturbed during grading or construction could potentially increase the potential for construction-related contaminants to reach surface water or groundwater. However, all projects impacting 1 acre or more would be required to conform to the regulations and policies of the National Pollutant Discharge Elimination System Construction General Permit, which requires the implementation of SWPPPs and BMPs to reduce potential construction-related (and long-term) impacts on hydrology and water quality. Therefore, a cumulative considerable impact to water quality would not occur.

Operation and Maintenance. Once the Proposed Project is constructed, O&M would remain similar to current practices, with negligible increases associated with the proposed mid-line series capacitors and fiber optic repeaters. Surface water and groundwater would not be affected. With the implementation of SWPPPs and BMPs, cumulative impacts to water resources from other projects would be less than significant, and operation and maintenance of the ELM Project would not contribute to a cumulative impact.

Noise

Construction. Noise attenuates with distance; however, the simultaneous construction of multiple projects could result in a cumulative impact to overall noise levels in the vicinity of where projects are adjacent or nearby. The only ELM Project location where this is a possibility is at the Barstow Repeater site, should the proposed Ord Mountain Solar and Calcite Substation project be approved and be under construction at the same time as the ELM project. The Barstow Repeater is a small facility and would not have a protracted construction schedule. The only significant noise generation is anticipated to occur during site preparation, including grading. Construction activity is generally limited to the daytime hours specified in the local municipal codes to reduce and control potential noise impacts on sensitive receptors. A temporary noise impact during construction is not anticipated to be cumulatively considerable.

Operation and Maintenance. ELM Project facilities would be unmanned and would not have noise generating equipment (except for emergency generators at repeater sites). Maintenance and inspections visits would be infrequent. Noise from the operation of the transmission lines would be substantially similar under the project as compared to existing conditions, thus O&M of the ELM Project would not contribute to a cumulatively significant noise impact.

Population and Housing

Construction. The Proposed Project will draw its construction work force from the region, including San Bernardino and Clark County and their incorporated cities, as well as from nearby Riverside, Orange, and Los Angeles Counties. Because of the relatively short construction period and the dispersed location of work sites, it is anticipated that few workers would relocate, thereby increasing population locally and increasing housing demand. The same is true for projects in the cumulative scenario. Construction workers typically travel throughout a region to job locations. The Proposed Project would neither eliminate nor create any housing. Should some workers choose to relocate temporarily or during the work week, there are sufficient short-stay and rental properties available in western San Bernardino County and in Clark County to accommodate them. The effect on population and housing during construction of the ELM Project and projects in the cumulative scenario are expected to not be cumulatively considerable.

Operation and Maintenance. No new staff are anticipated to be needed to handle O&M of the ELM Project facilities. Therefore, there would be no cumulatively considerable effect from the project.

Recreation

Construction. The Proposed Project would not cause population growth that would result in the increased use of existing parks or require the construction of new recreational facilities. Recreational facilities would not be physically altered by construction of the project, which would be located adjacent to or would cross:

- Rodman Mountains Wilderness
- Kelso Dunes Wilderness
- Bristol Mountains Wilderness
- Dead Mountains Wilderness
- Mojave Trails National Monument
- Mojave National Preserve and Mojave Wilderness
- Lake Mead National Recreation Area
- Bridge Canyon Wilderness
- Big Bend of the Colorado State Recreation Area
- Old Spanish National Historic Trail

There are no other projects in the cumulative scenario in or near these areas. Only the Rehabilitate Five Campsites – Pilot Project for Roadside Campsite Management Plan in the Mojave National Preserve would occur near the project. ELM Project activity in this area would be limited to removing OHGW and replacing it with new OPGW. Therefore, the Proposed Project would not have a cumulative effect on recreation.

Operation and Maintenance. As previously described, O&M activities associated with the Proposed Project would be similar to those currently performed for the existing facilities, with additional O&M activities associated with the proposed mid-line series capacitors and fiber optic repeater facilities. O&M practices would no impact recreational uses or facilities in the area, and O&M would not introduce new employees into the area. Therefore, the project would not contribute to a cumulatively considerable impact related to recreation during O&M.

Transportation

Construction. During construction, cumulative traffic impacts could occur from projects that have over-lapping construction timeframes. Construction of the Proposed Project would occur over approximately 1.5 years. The construction of the Proposed Project could overlap the construction timelines of projects in the cumulative scenario. As described in Section 4.17, Transportation, ELM Project-related traffic would be limited to the transport of supplies to and from construction areas and material supply sources, as well as construction crews accessing sites. Crews would be spread out and assigned to several different project components on any given day, which would prevent traffic congestion at any one location. Vehicle access would primarily occur along existing local roads, access roads, and service roads within existing SCE ROWs. The dispersed nature of ELM Project activities and of cumulative scenario project locations mitigate against there being a cumulatively considerable transportation impact.

Temporary lane closures may be necessary in areas such as during OHGW removal and OPGW stringing operations and for locations where limited trenching would occur. These are not locations where other cumulative scenario projects are found. Local and regional roads and highways in the region of the ELM Project typically have unrestricted traffic flows. The level of traffic associated with the project would not alter this condition.

All projects that encroach on roads would be required to acquire permits for the encroachments and submit similar plans to avoid or reduce impacts; Given the free flow of traffic on roads in the vicinity of the ELM Project and the requirement to obtain encroachment permits as needed, the cumulative impact associated with the project is expected to not be considerable.

Operation and Maintenance. O&M activities associated with the Proposed Project would be similar to those currently performed for the existing facilities, with additional O&M activities associated with the proposed mid-line series capacitors and fiber optic repeater facilities. O&M associated with the mid-line series capacitor sites and fiber optic repeater sites would result in a minor increase in vehicle trips per year when compared to existing O&M activities. Based on the limited frequency and duration of O&M activities at the mid-line series capacitor sites and fiber optic repeater sites, a cumulatively considerable contribution to transportation impacts would not result.

Tribal Cultural Resources

Those portions of the Mojave Trails Landscape that overlap with the CEQA Areas of Direct and Indirect Impacts were analyzed for direct and indirect effects. The ELM Project was found to have no direct impacts to the Mojave Trails Landscape with mitigation because it would avoid and protect the resources that contribute to the landscape. Similarly, the ELM Project reviewed the indirect impacts of the project on the Mojave Trails Landscape and concluded that the contribution of the project would be minor because similar industrial infrastructure already exists within the viewshed of the Landscape and the resource would not be subject to impacts from the ELM Project. Because the ELM Project would not contribute to direct or indirect impacts on the Mojave Trails Landscape, it would not have impacts that could combine with the cumulative impacts to this landscape. The cumulative effect of the ELM Project in combination with effects from projects in the cumulative scenario ~~are similar to those discussed for Cultural Resources (see previous discussion). The cumulative impacts~~ would be less than considerable.

Utilities and Service Systems

Construction. No extensions of sewer or water lines would be required to serve the Proposed Project, and no new or expanded water or wastewater treatment facilities would be needed. Therefore, the project would have no cumulative effect on these facilities.

Construction of the Proposed Project would typically require approximately 124,200 gallons of water per day, and approximately 146,000 gallons of water per day would be used during peak construction activities; water service purveyors have adequate water available for the Proposed Project. However, all of the applicants for the ELM Project and cumulative scenario projects that may overlap construction period would need to coordinate with water providers to ensure the providers can accommodate the demand during construction. Because the ELM Project's relatively low water demand is required only during the construction phase, the impact on a water purveyor's long-term water supply would be insignificant. Therefore, the Proposed Project's contribution to a cumulative water supply impact would not be considerable.

The Proposed Project would generate limited quantities of construction waste — approximately 10,330 cubic yards. The amount of daily construction waste for the cumulative scenario projects is unknown; however, construction debris would be generated by these projects as well. In total, the landfills near the Proposed Project and cumulative scenario projects have a combined capacity to accept approximately 235 million cubic yards of additional waste. Solid waste generated the projects would decrease the capacity of the landfills; however, the amount would not be enough to significantly affect the capacity of the landfills. In addition, SCE would reuse and recycle materials to the extent possible to reduce landfill waste. Any impacts on landfills caused by the construction and operation of the planned and proposed

projects would also be required to conform to the regulations and policies of the local jurisdictions. As a result, the cumulative impact would not be considerable.

Operation and Maintenance. O&M of the Proposed Project would use limited amounts of water and generate limited amounts of waste, which would not exceed the capacity of utilities, service systems, and landfills. Where there is potential for the Proposed Project to induce or increase the potential for electric shock or corrosion of steel pipes, SCE would conduct technical studies to identify solutions and ensure they are implemented. Therefore, the Proposed Project would not contribute to a cumulatively considerable impact related to the capacity of utilities and service systems during O&M.

Wildfire

The ELM Project would include work in high or very high fire hazard zones. These zones are in the mountainous terrain between Lugo Substation and a location approximately 6 miles west of Lucerne Valley, where the mountains give way to a flat valley floor. The work in this area would consist of replacing an OHGW with a new OPGW on the Lugo-Mohave 500 kV Transmission Line. This would require modifying tower peaks on 3 towers (M5-T4, M12-T2, and M15-T3) and modifying the body of one tower (M15-T3) to support the OPGW. Clearance discrepancies between overhead 500 kV conductor and the ground or another electric line would be addressed as well. On the Lugo-Mohave Transmission Line, approximately 3.5 feet of concrete below the conductor span between two towers (M4-T2 and M4-T3) would be removed and a distribution line (between towers M8-T1 and M8-T2) would be reframed and lowered. On the Eldorado-Lugo Transmission Line, one tower (M14-T4) would be raised.

The only project in the cumulative scenario in this region of wildfire hazard is the Tapestry Specific Plan. The nearly 10,000-acre project will include nearly 15,000 residentials units, schools, public facilities, parks, town centers, conservation areas, and open space and would be developed over a number of years, with construction planned to begin in 2019. The project includes a Fire Protection Plan, and vegetation that contributes to fire hazards would be removed during development and replaced with approved vegetation.

Construction of the Tapestry project would largely occur after the ELM Project is complete. The construction activity associated with the ELM Project would not impair emergency evacuation routes, exacerbate fire risk, or expose people or structures to significant risks. Operation and maintenance of the transmission lines would be similar to current practice and would not increase wildfire risk. Therefore, the project would not have a cumulatively considerable impact to wildfire.

c. Does the project have environmental effects, which would cause substantial adverse effects on human beings, either directly or indirectly?

LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED. Adverse effects on humans from construction of the Proposed Project could result from persistent excessive noise, degraded air quality, and hazards (such as soil or water contamination, hazardous material spills, unexploded ordinance, structural failure due to damage from floods and earthquakes, and shock from ungrounded metallic objects near power lines).

Noise. The project could cause substantial adverse effects on humans during nighttime construction, if the noise disturbs sleep. As discussed in Section 5.13, Noise, construction-related nighttime noise impacts would be significant if they were persistent and were to occur near residences. Implementation of MM N-1 would reduce the impact to less than significant. As well, there are few residences near the Proposed Project, and any nighttime construction would be of limited duration. Refer to Section 5.12, Noise for the full description of the mitigation.

Air Quality. As discussed in Section 5.3, Air Quality, the project would be required to comply with air district standards, including use of equipment that meets specific emission standards. Dust (particulate matter) has the potential of affect human health. The effects of fugitive dust would be less than significant with mitigation. MM AQ-1 (Avoid Visible Fugitive Dust Emissions) will ensure that dust is minimized. In addition, most construction would be short-term and would occur in locations remote from residences, schools, and other sensitive receptors.

Geology and Soils: As discussed in Section 5.7, Geology and Soils, seismic impacts on workers during construction would be less than significant, and the project would not exacerbate existing seismic conditions.

Hazards and Hazardous Materials. As discussed in Section 5.9, Hazards and Hazardous Materials, hazards impacts would be less than significant. During construction, the project would be required to have spill prevention and clean-up contingency plans. Project-related excavation is limited, but if contaminated soils or groundwater are encountered, they would be handled consistent with applicable state and federal laws, as well as Mitigation Measure HAZ-1 Prepare a Hazardous Materials and Waste Management Plan. Formerly Use Defense Sites (FUDS) are found in the Mojave Desert and have the potential to contain unexploded ordnance (UXO). However, none of the Proposed Project components or work areas are within the boundaries of any of the FUDS sites. Operation and maintenance activities would be comparable to current activities and no additional impacts to human beings would occur. Project impacts would be less than significant.

Flooding. Section 5.10, Hydrology and Water Quality, addresses water-related risks. The project would not develop residences; therefore, no new residences would be constructed in flood-prone areas. The only project features known to be within floodplains are the existing Eldorado and Mohave Substations and portions of the existing transmission lines. The project changes planned at these sites would not create new obstructions to flood flow. If required, any new or replacement towers could be within unmapped floodplains, but the tower foundations would pose only minor and local obstructions to flow that would not result in adverse impact that could affect human health and safety. The only project area that could be affected by the failure of a levee or dam is where the parallel transmission lines span the Mojave River. However, the only project-related work in this vicinity is the stringing of new OPGW on existing Lugo-Mohave Transmission Line LSTs and the reframing of a 12 kV distribution east of the river to address a clearance discrepancy with the overhead 500 kV lines. There would be no possibility for the project itself to induce a dam breach. This impact is less than significant

Shock. Under Mitigation Measure UT-1 (Provide safety features for induced currents on adjacent metallic objects) SCE would be required to identify metal objects (e.g., fences, metal buildings) in the project area that could be affected by electric current in power lines. This could result in electrical shocks to people and the possibility of electric arcs that could form across small gaps between conductive surfaces. SCE would install the necessary grounding or other appropriate measures to protect the public from hazardous shocks related to operation of the Proposed Project. With implementation of UT-1 impacts would be less than significant.

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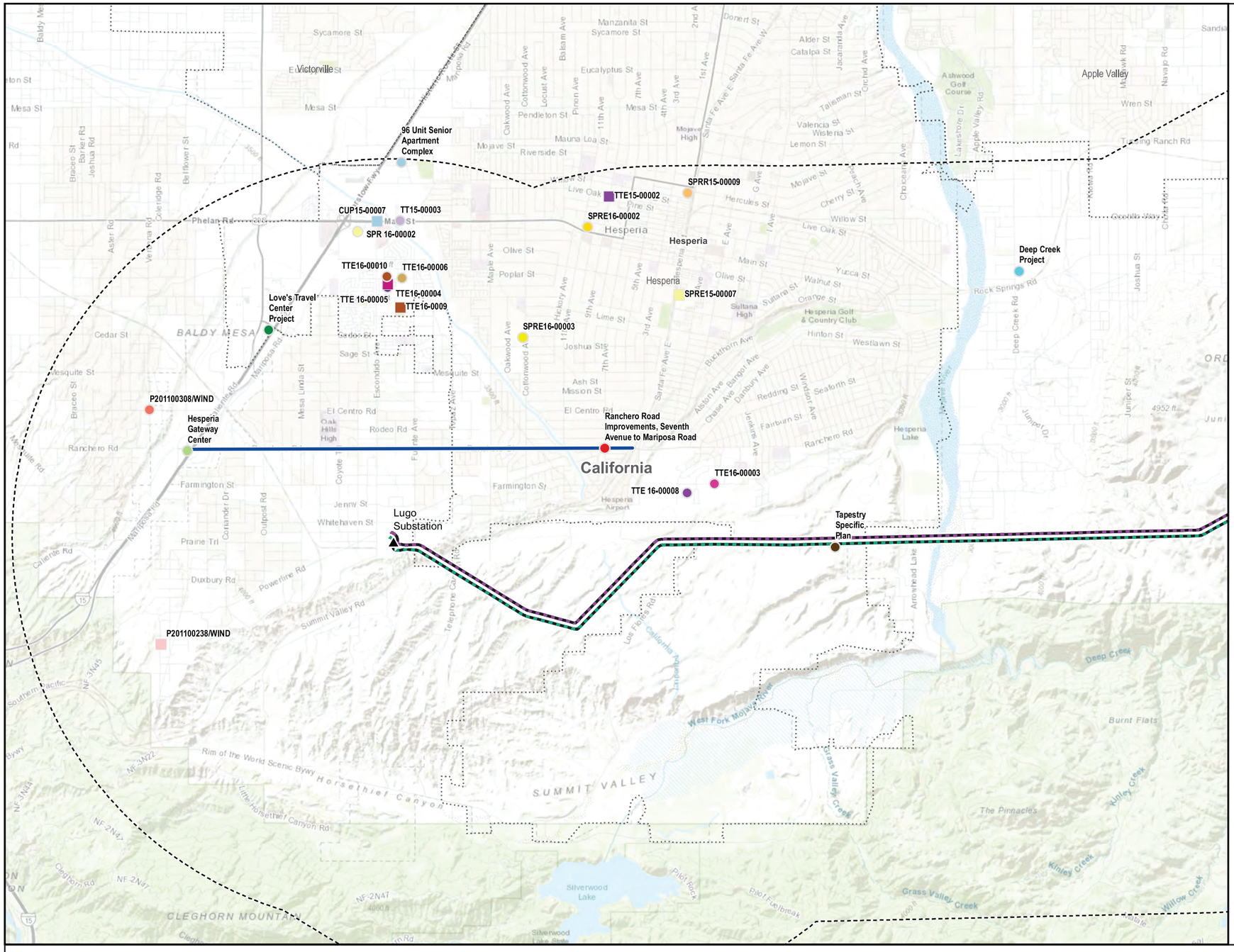
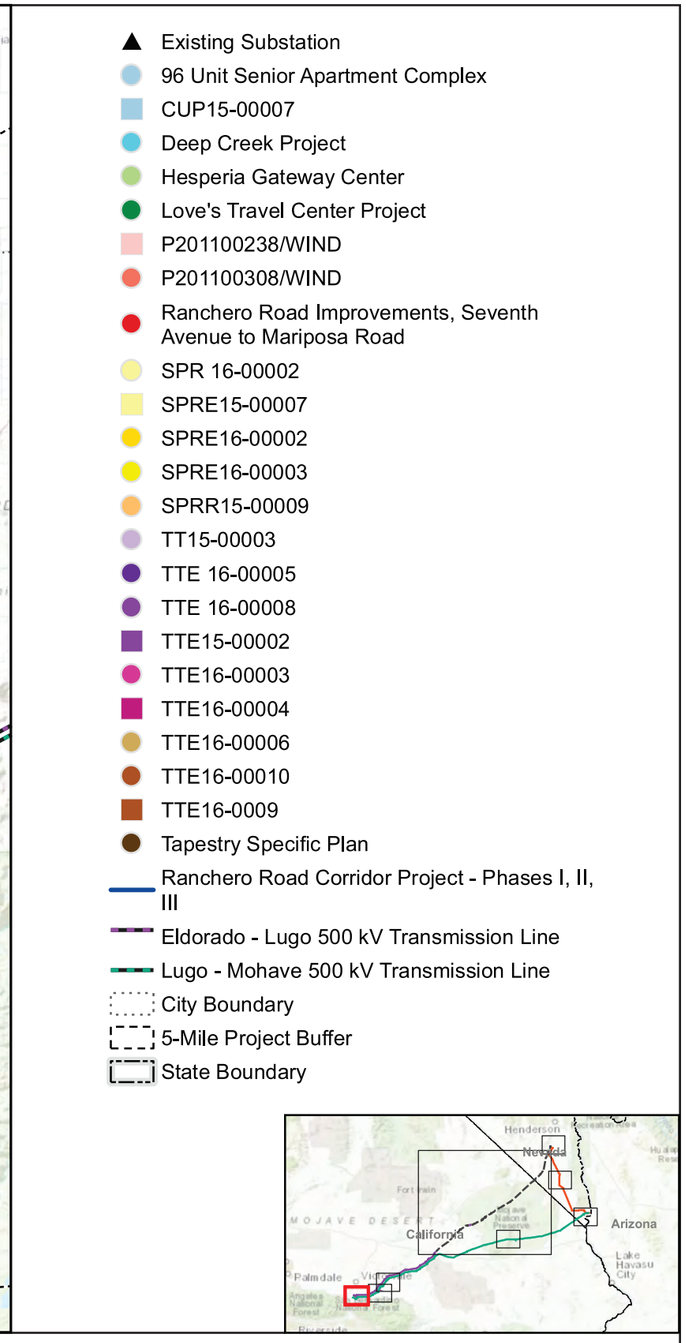
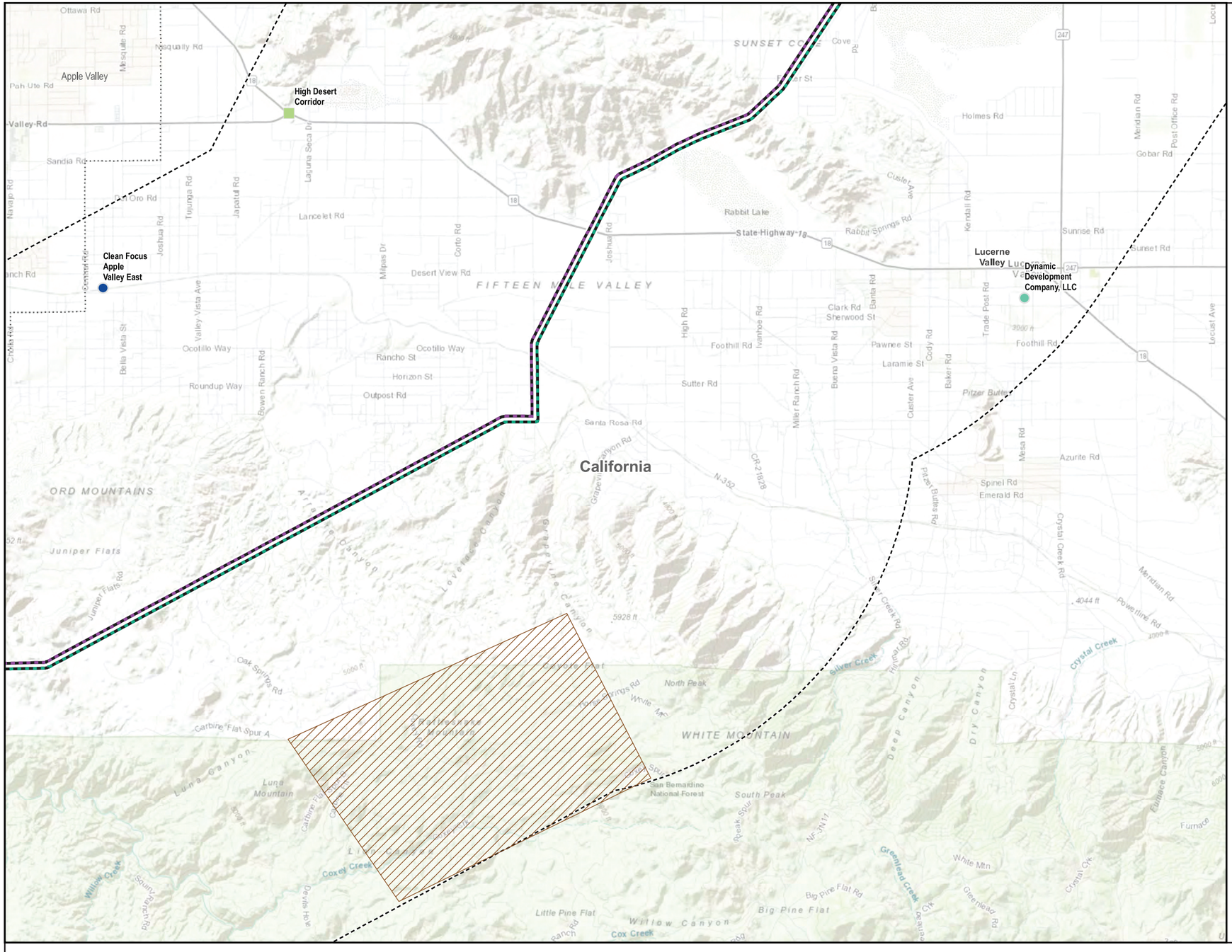




Source: SCE, 2018.

Figure 5.21-1

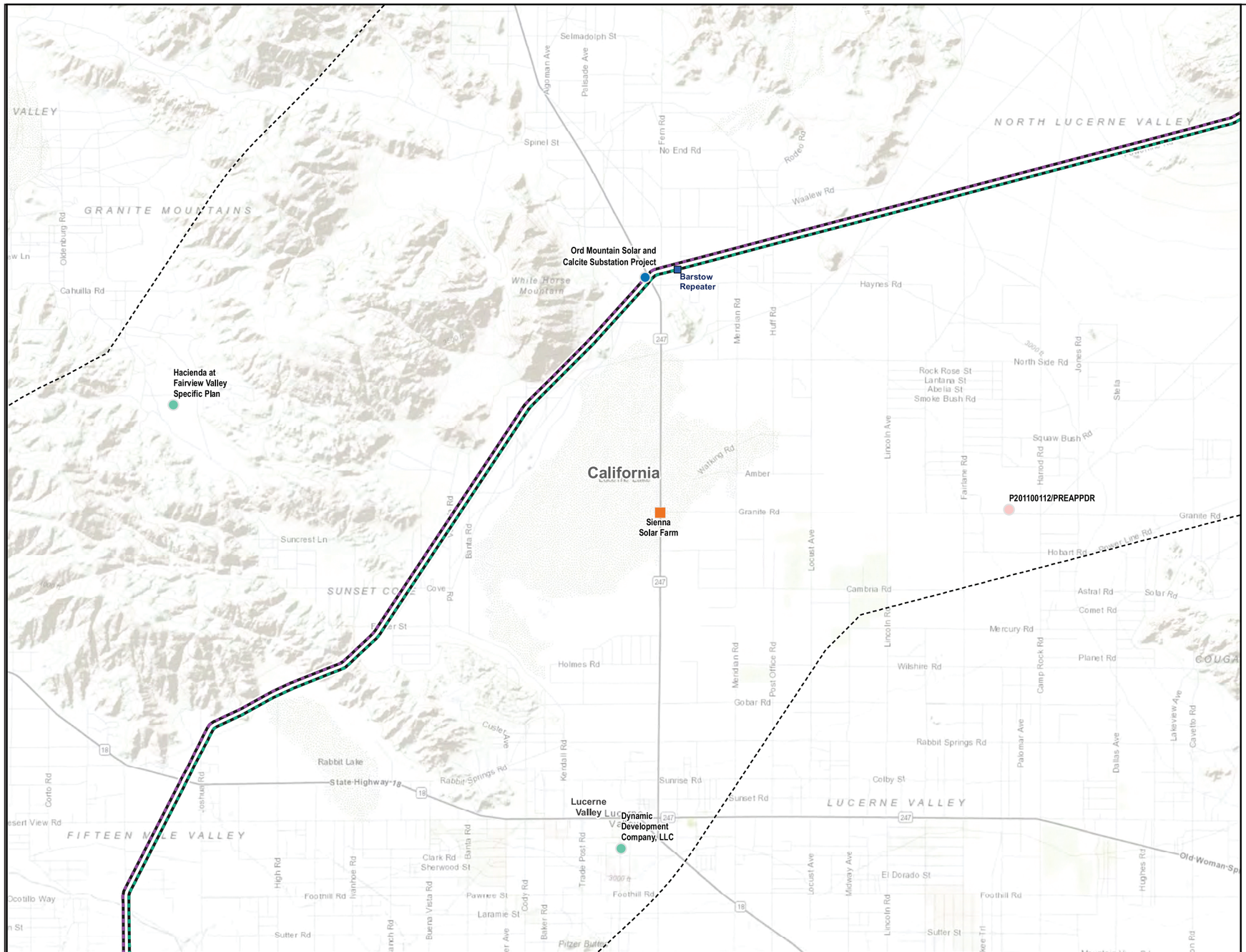
Cumulative Projects Within 5 Miles of the Proposed Project Map 1 of 8



Source: SCE, 2018.

Figure 5.21-1

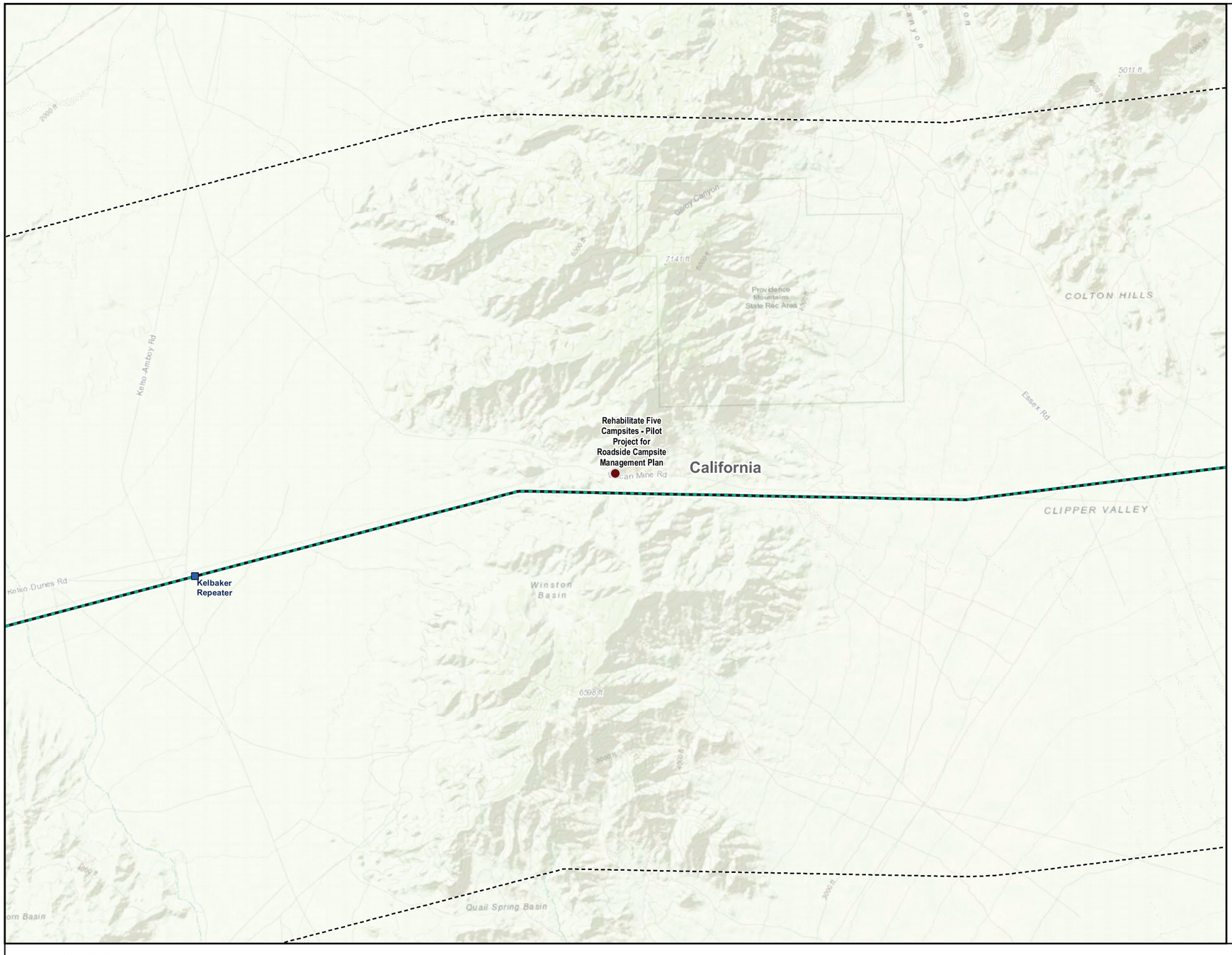
Cumulative Projects
Within 5 Miles of the Proposed Project
Map 2 of 8

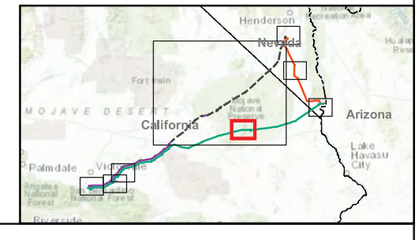


Source: SCE, 2018.

Figure 5.21-1

Cumulative Projects Within 5 Miles of the Proposed Project Map 3 of 8

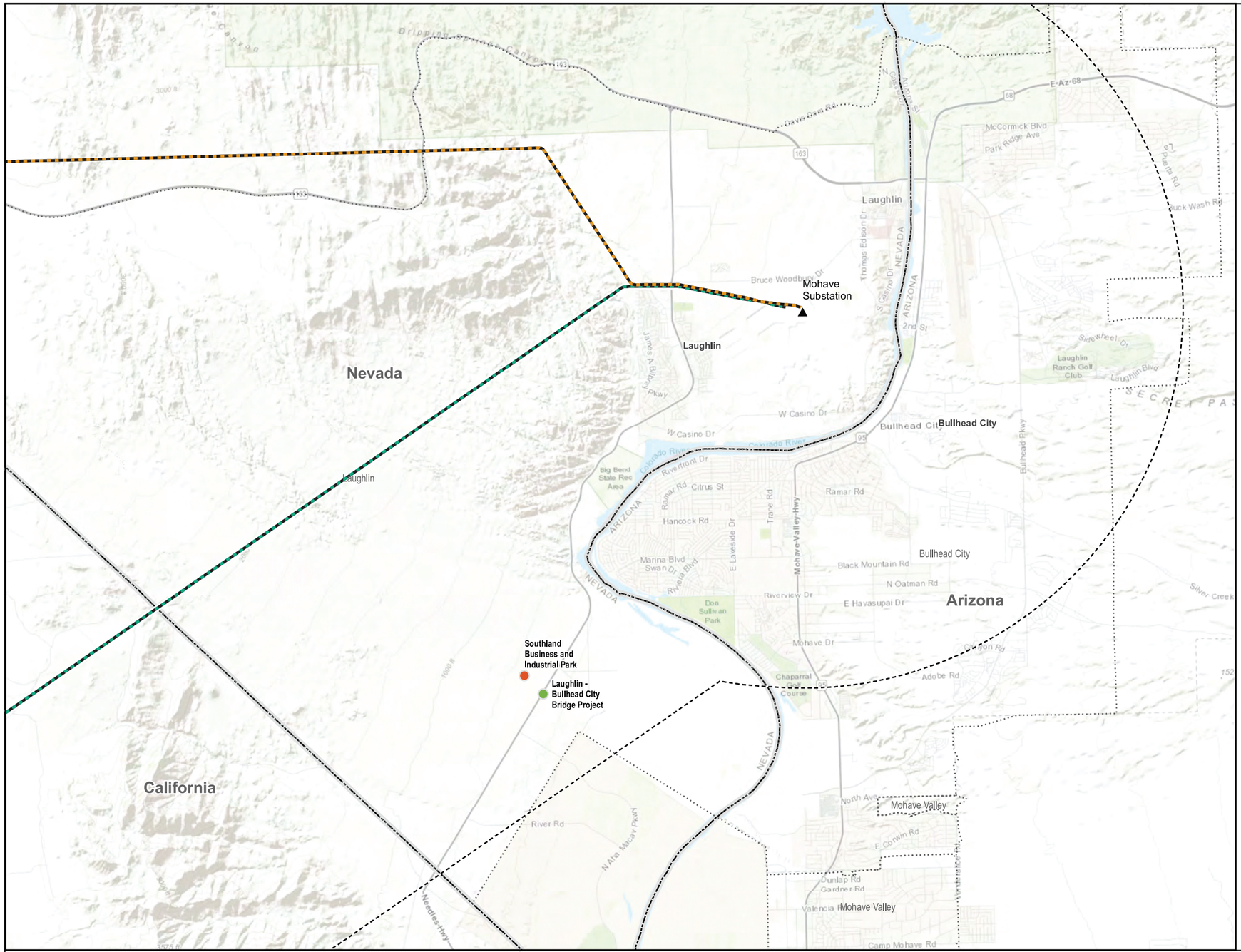


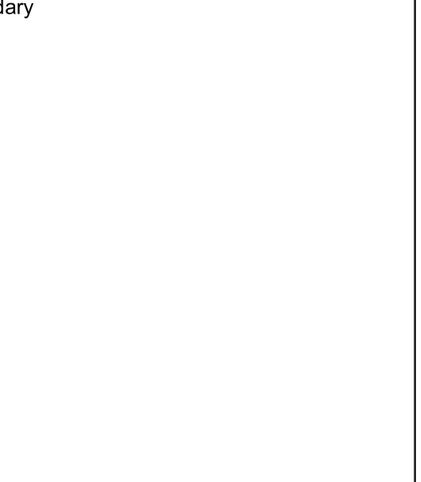


Source: SCE, 2018.

Figure 5.21-1

Cumulative Projects Within 5 Miles of the Proposed Project Map 4 of 8



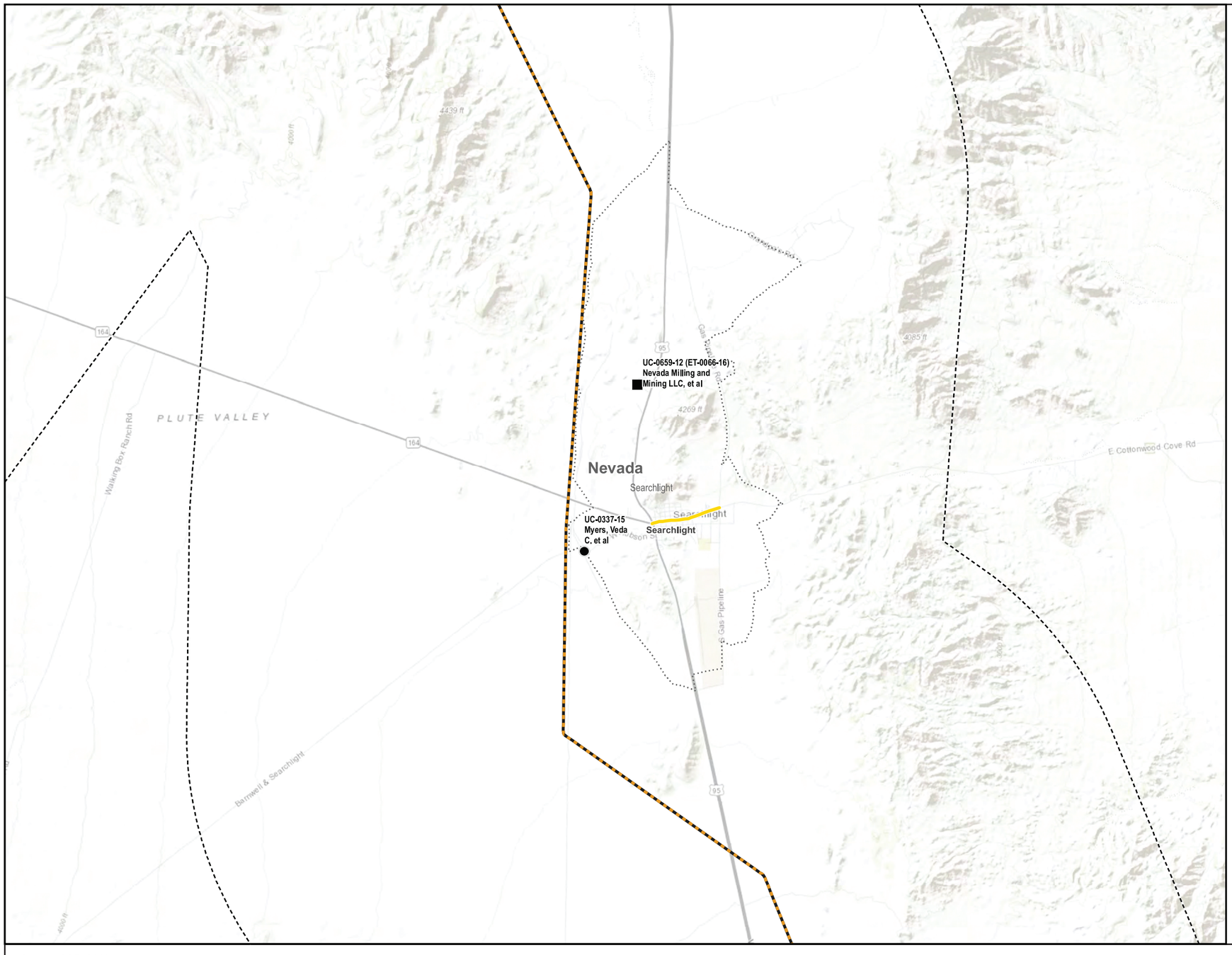


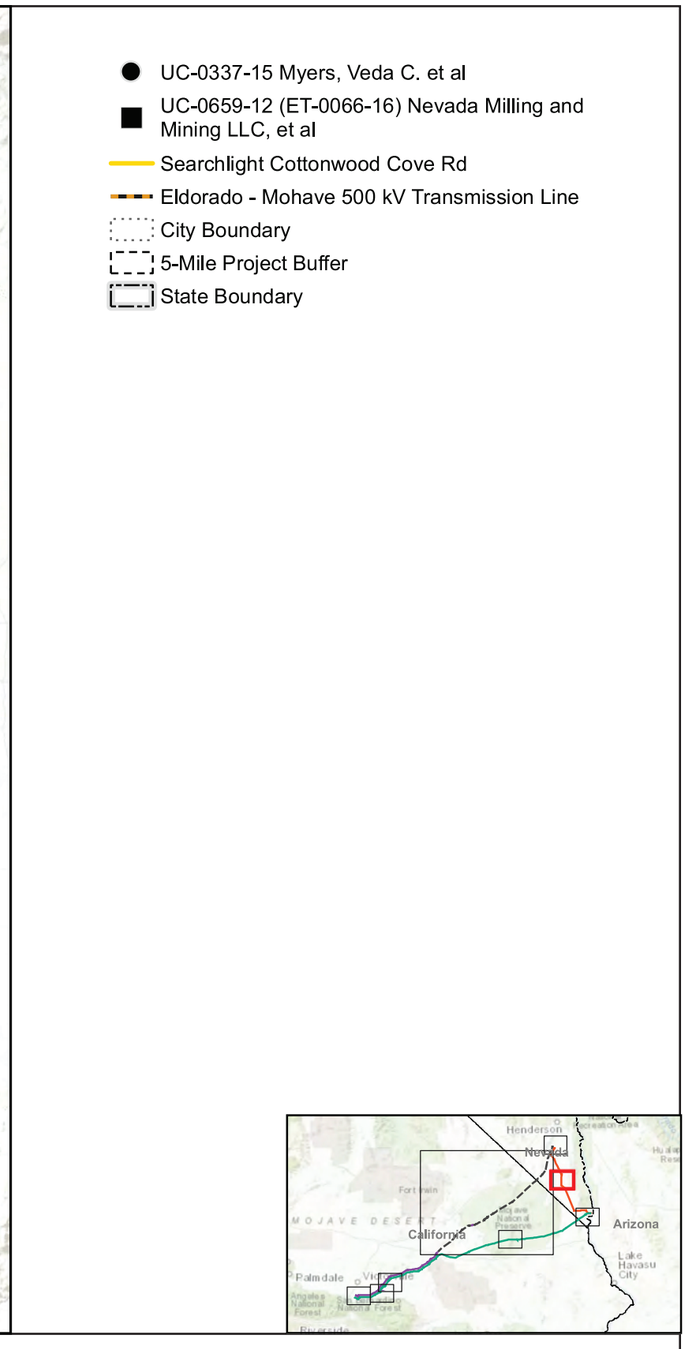
- Existing Substation
- Laughlin - Bullhead City Bridge Project
- Southland Business and Industrial Park
- Eldorado - Mohave 500 kV Transmission Line
- Lugo - Mohave 500 kV Transmission Line
- City Boundary
- 5-Mile Project Buffer
- State Boundary

Source: SCE, 2018.

Figure 5.21-1

Cumulative Projects Within 5 Miles of the Proposed Project
Map 5 of 8





Source: SCE, 2018.

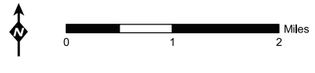
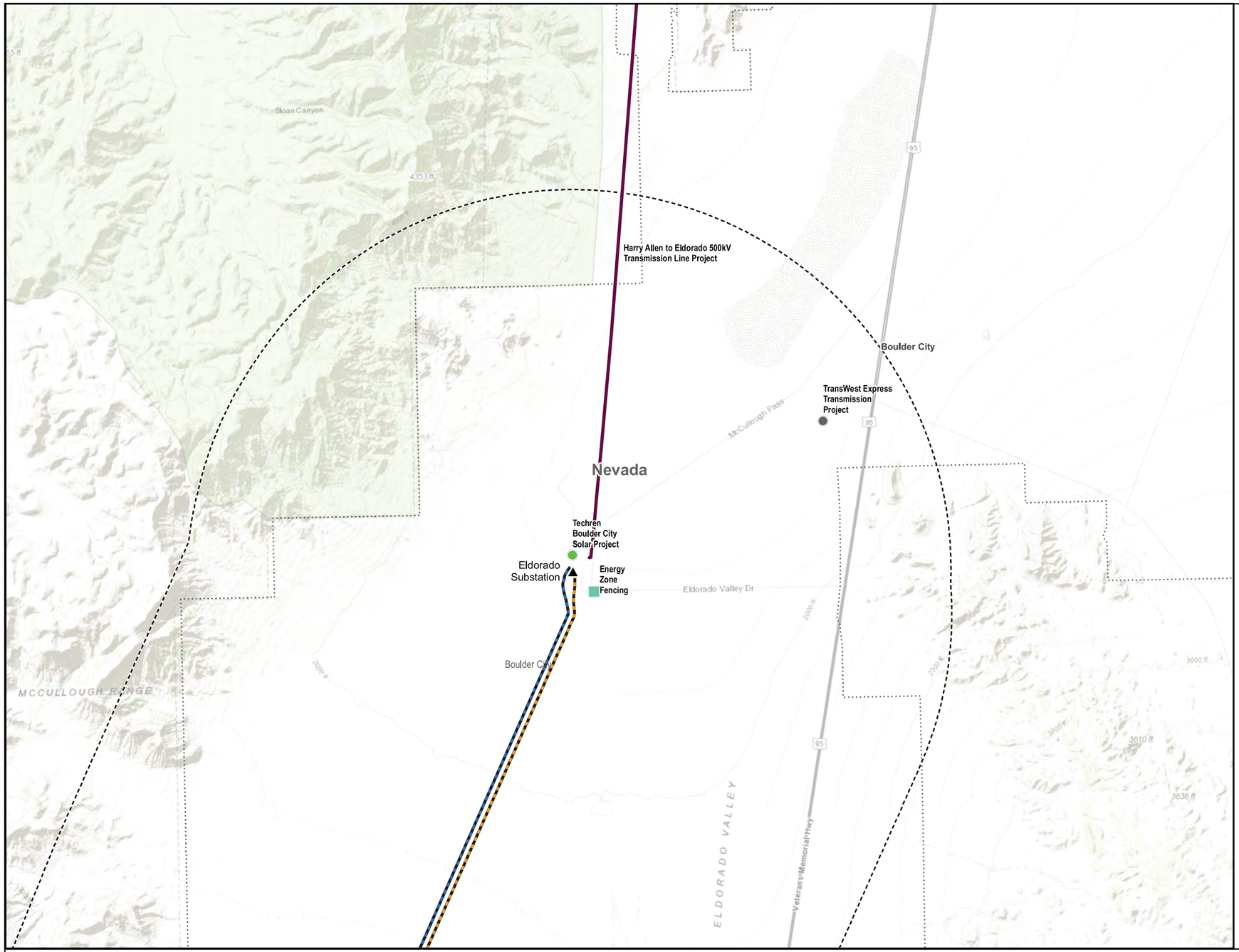
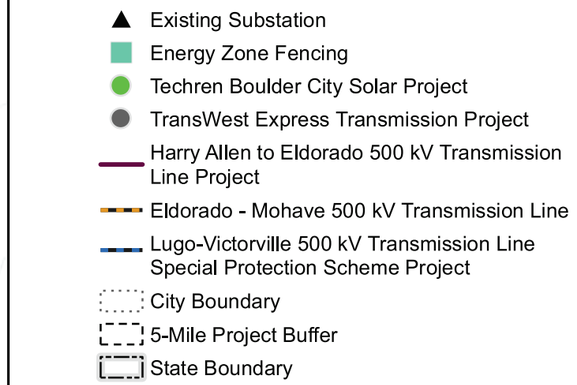
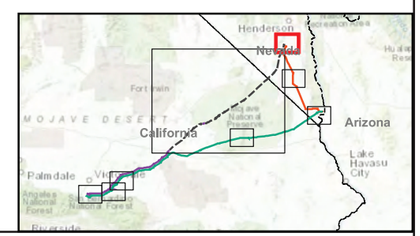


Figure 5.21-1

Cumulative Projects Within 5 Miles of the Proposed Project Map 6 of 8







Source: SCE, 2018.

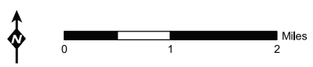
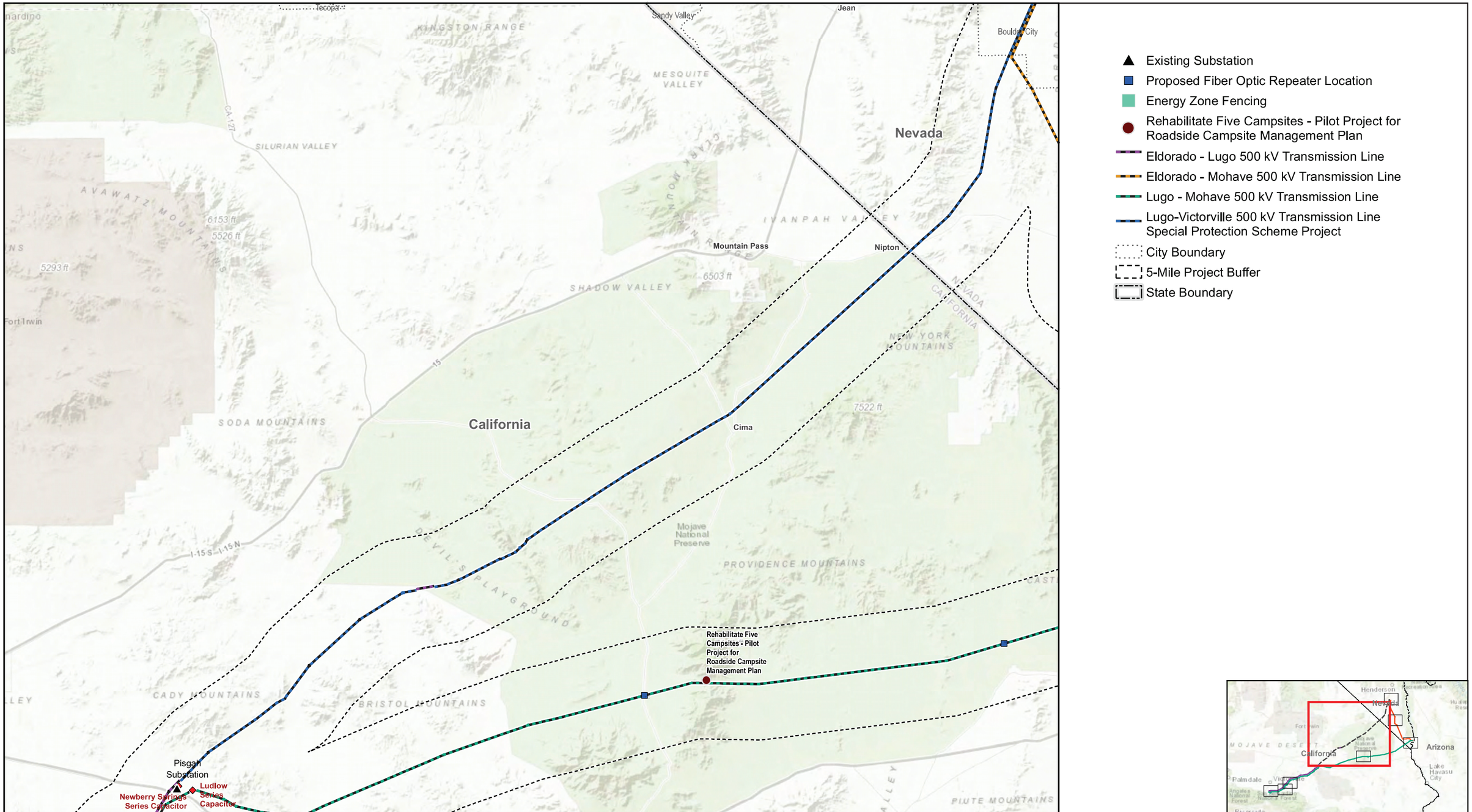


Figure 5.21-1

Cumulative Projects Within 5 Miles of the Proposed Project Map 7 of 8



Source: SCE, 2018.

Figure 5.21-1

Cumulative Projects Within 5 Miles of the Proposed Project Map 8 of 8

6. Mitigation Monitoring Plan

An Initial Study has been prepared to assess the Eldorado-Lugo-Mohave Series Capacitor Project's potential environmental effects. The Initial Study is prepared based on information in the Proponent's Environmental Assessment (PEA), additional information provided by SCE, project site visits, and supplemental research. The majority of the Proposed Project's impacts would occur during project construction. As part of SCE's application, Applicant Proposed Measures (APMs) were proposed to reduce potentially significant adverse impacts related to project construction and operation.

SCE, as the Applicant and project proponent, would be responsible for implementing all applicable measures, including the adopted mitigation measures and conditions of project approval, as well as conditions imposed in any permits or regulations administered by other responsible agencies. CPUC is responsible for monitoring and reporting on required mitigation.

The purpose of this Mitigation Monitoring Plan is to ensure effective implementation of each APM (that has not been superseded), as well as the mitigation measures identified in the Initial Study and imposed by the CPUC as part of project approval. Upon approval of the Proposed Project by the CPUC, the CPUC and SCE will establish a formal Mitigation Monitoring Compliance and Monitoring Program (MMCRP) derived for the information below that will detail the responsibilities of all parties, communication protocols, reporting requirements, plans to be submitted, mitigation measures to be implemented, etc. The MMCRP will be the basis for the CPUC's environmental monitoring and reporting activities throughout project construction, including during site rehabilitation and restoration after construction is completed. The MMCRP will be prepared and instituted prior to any notices to proceed (NTPs) being issued or the initiation of any construction.

The MMCRP will include the information provided in Table 6-1 (at the end of this section):

- The APMs SCE proposed as part of the project that are not superseded by mitigation measures;
- The mitigation measures that SCE has agreed to and that SCE or its agents and contractors must implement as part of the Proposed Project;
- The actions required to implement these measures;
- The monitoring requirements; and
- The timing of implementation for each measure.

A CPUC-designated environmental monitor will carry out all construction field monitoring to ensure full implementation of all measures. In all instances where non-compliance occurs, the CPUC's designated environmental monitor will issue a warning to the construction foreman and SCE's project manager. Continued non-compliance shall be reported to the CPUC's designated project manager. Any decisions to halt work due to non-compliance will be made by the CPUC. The CPUC's designated environmental monitor will keep a record of any incidents of non-compliance with mitigation measures, APM, or other conditions of project approval. Copies of these documents shall be supplied to the CPUC.

6.1 Minor Project Refinements

This section describes the CPUC's process for staff approval of Minor Project Refinements (MPRs) that may be necessary due to changes needed after the applicant's final engineering of elements of the proposed project. During the course of construction, circumstances may arise that require minor deviations from the project as approved. The CPUC, along with the IS/MND environmental monitors, would evaluate any proposed deviations from the approved project to ensure they are consistent with CEQA requirements.

Depending on its nature, a requested deviation would be processed as an MPR or be the subject of a Petition for Modification (PFM) submitted by the applicant to the CPUC. MPRs would be strictly limited to minor project changes that do not trigger additional permit requirements, would not have the potential to increase the severity of a significant impact or create a new significant impact, and are within the geographic scope of the IS/MND.

If a project change would create or have the potential to create a new significant impact, increase the severity of a significant impact, or occur outside the geographic area evaluated in the IS/MND, SCE would be required to submit a PFM. The CPUC would evaluate the PFM under CEQA, as appropriate, to determine what form of supplemental environmental review would be required.

6.2 Dispute Resolution

The following procedure will be observed for dispute resolution *between CPUC staff and the applicant*:

- Disputes and complaints should be directed to the CPUC Project Manager for resolution.
- Should this informal process fail, the CPUC Project Manager may initiate enforcement or compliance action to address deviations from the approved project.

Table 6-1. Mitigation Monitoring Program

Aesthetics	
MITIGATION MEASURE	**MM AES-1: Minimize visual contrast in project design.** In the final design of approved project structures, SCE shall use design fundamentals that reduce the visual contrast of new facilities with the characteristic landscape. These include surface treatments; siting and location; reduction of visibility; repetition of form, line, color, and texture of the landscape; and reduction of unnecessary disturbance. New and modified transmission structures shall be of a dulled galvanized steel consistent with that of existing structures. SCE shall treat the surfaces of other structures and new buildings visible to the public such that: (a) their colors minimize visual contrast by blending with the characteristic landscape colors; and (b) their colors and finishes do not create excessive glare. The steel used to repair or strengthen structures, new steel structures, and conductors, and OPGW shall have surfaces that are non-specular and non-reflective. Project elements with colored surfaces shall be in hues and tones that do not contrast with the surrounding landscape and are consistent with the palette of natural colors that occur in the area. SCE shall provide for review by the CPUC, BLM, and NPS, a draft Project Design and Surface Treatment Plan describing the siting, placement, and other design considerations to be employed to minimize Proposed Project contrast. The draft plan must explain how the design will minimize visual intrusion and contrast by effectively blending earthwork, vegetation manipulation, and facilities with the landscape. The Project Design and Surface Treatment Plan shall describe the colors and textures to be applied to all new facility structures, buildings, walls, fences, and components to be constructed. The draft Project Design and Surface Treatment Plan shall be submitted at least 60 days prior to the start of construction. If the CPUC notifies SCE that revisions to the plan are needed, SCE shall within 30 days of receiving that notification, prepare and submit for review and approval a revised plan to the CPUC.
Timing	Pre-construction and Construction Phases
Plan/Reporting Requirement	SCE to submit Project Design and Surface Treatment Plan at least 60 days prior to construction
Effectiveness Criteria	Visual contrasts are minimized
Verification Responsibility	Agencies or Agency Monitor will verify compliance
MITIGATION MEASURE	**MM AES-2: Screen construction activities from view.** To reduce significant impacts associated with construction yards, staging areas, and material and equipment storage

Table 6-1. Mitigation Monitoring Program

	areas shall be visually screened using temporary screening fencing, with the exception of construction yards, staging areas, and material and equipment storage areas on existing substation properties. Fencing will be of an appropriate structure, material, and color for each specific location. This requirement shall not apply if SCE can demonstrate that construction yards are located away from areas of high public visibility including public roads, residential areas, and public recreational facilities or the yards are in areas where high winds pose a risk of the screening detaching and creating a hazard. For any site that SCE proposes to exempt from the screening requirement, SCE shall define the site on a detailed map demonstrating its visibility from nearby roads, residences, or recreational facilities to the agency having jurisdiction over the land (CPUC, BLM, or NPS) for review and approval at least 60 days prior to the start of construction at that site.
Timing	Pre-construction and Construction Phases
Plan/Reporting Requirements	None
Effectiveness Criteria	Construction activities are effectively screened from view
Verification Responsibility	Agencies or Agency Monitor will verify compliance
MITIGATION MEASURE	**MM AES-3: Minimize vegetation removal and ground disturbance.** Only the minimum amount of vegetation necessary for the construction of structures and facilities shall be removed during construction. In particular, vegetation within the ROW and ground clearing at the foot of each tower and between towers shall be limited to the clearing necessary to comply with requirements of CPUC General Order 95 and other regulatory requirements. Scars from temporary work areas and access road may be highly visible when located on hill slopes and along ridges, or when visible from elevated vantage points. In order to reduce visual impacts, the boundaries of all areas to be disturbed shall be delineated consistent with the requirements of Biological Resources Mitigation Measure BR-3. Staking, flagging, or other appropriate means shall define construction work areas, such as capacitor site grading areas, staging yards, and pulling sites. Stakes and flagging shall be installed before construction and in consultation with the Project Biologist and the agency's Environmental Monitor or Visual Specialist. Areas staked or flagged shall be as small as possible in order to minimize the visibility of ground disturbance from sensitive viewing locations such as roads, trails, residences, and recreation facilities and areas. Parking areas and staging and disposal site locations shall be similarly located in areas approved by the Project Biologist and the agency's Environmental Monitor or Visual Specialist prior to the start of construction. All disturbances by Proposed Project vehicles and equipment shall be confined to the staked and flagged areas.
Timing	Construction Phase
Plan/Reporting Requirements	None
Effectiveness Criteria	Vegetation removal and ground disturbance is minimized
Verification Responsibility	Agencies or Agency Monitor will verify compliance
MITIGATION MEASURE	**MM BR-7: Restore or revegetate temporary disturbance areas.** (The full text of this mitigation measure is provided in Section 5.4, Biological Resources. It would require restoration and revegetation of disturbed areas, which would reduce visual impacts.)
Timing	Construction and Post Construction Revegetation Phases
Plan/Reporting Requirements	None
Effectiveness Criteria	Impacts to wildlife are avoided or minimized
Verification Responsibility	Agencies or Agency Monitor will verify compliance
MITIGATION MEASURE	**MM AES-4: Minimize night lighting at new project facilities.** At the project's new in-line series capacitors and fiber optic repeater facilities, SCE shall avoid night lighting where possible and minimize its use under all circumstances. To ensure this, SCE shall implement the following general principles and specifications:

Table 6-1. Mitigation Monitoring Program

	▪ When used, portable truck-mounted lighting shall point away from roads and from residences within 1,000 feet. ▪ White lighting (metal halide & LED) (a) shall only be used when necessitated by specific work tasks; and (b) shall be less than 5000 Kelvin color temperature. ▪ All lamp locations, orientations, and intensities shall be the minimum needed for safety and security. ▪ Light fixtures that could be visible from beyond project facility boundaries shall have cutoff angles sufficient to prevent lamps and reflectors from being visible beyond the project facility boundary, including security lighting. ▪ If security lighting is installed, motion sensors are to be used to activate the security lighting; lights shall operate continuously only when the area is occupied. ▪ All temporary construction lighting, including at yards, and all permanent exterior lighting shall include: (a) lamps and reflectors that are not visible from beyond the construction site or facility including any off-site security buffer areas; (b) lighting that does not cause excessive reflected glare; and (c) directed lighting that does not illuminate the nighttime sky, except for required FAA aircraft safety lighting, if required. ▪ Lighted nighttime maintenance is to be minimized or avoided as a routine practice and should occur only during emergencies.
Timing	Construction Phase
Plan/Reporting Requirements	None
Effectiveness Criteria	Night lighting is minimized
Verification Responsibility	Agencies or Agency Monitor will verify compliance
Air Quality	
MITIGATION MEASURE	**MM AQ-1: Prepare and implement a Dust Control Plan.** SCE shall ~~avoid~~ minimize visible fugitive dust emissions by implementing the following dust control measures derived from MDAQMD Rule 403.2. Prior to commencing earth-moving activity, SCE shall prepare and submit to the MDAQMD, Clark County DAQ, CPUC, BLM and NPS a **Dust Control Plan** that describes all dust control measures that will be implemented for the project, including, but not limited to: ▪ Use periodic watering for short-term stabilization of disturbed surface area to minimize visible fugitive dust emissions. If used, non-water-based or chemical soil stabilizers and dust suppressants shall be non-toxic and must not cause loss of vegetation, adverse odors, or additional emissions of ozone precursor reactive organic gases (ROG) or volatile organic compounds (VOC). ▪ Provide stabilized access route(s) to the project site as soon as is feasible and enforce a maximum 15 mile per hour vehicle speed limit on any unpaved surface. ▪ Stabilize graded site surfaces upon completion of grading when subsequent development is delayed or expected to be delayed more than thirty days, except when such a delay is due to precipitation that dampens the disturbed surface sufficiently to eliminate visible fugitive dust emissions. ▪ Maintain natural topography to the extent possible. ▪ Construct parking lots and paved areas first, where feasible. ▪ Take actions sufficient to prevent project-related trackout or spills onto publicly maintained paved surfaces, and cleanup project-related trackout or spills on publicly maintained paved surfaces within 24 hours. ▪ Cover loaded haul vehicles or provide adequate freeboard while operating on publicly maintained paved surfaces. ▪ Reduce non-essential earth-moving activity under high wind conditions, gusts exceeding 25 miles per hour.

Table 6-1. Mitigation Monitoring Program

Timing	Construction and Post Construction Revegetation Phases
Plan/Reporting Requirements	SCE to submit Dust Control Plan to MDAQMD, Clark County DAQ, CPUC, BLM and NPS prior to commencing earth-moving activity
Effectiveness Criteria	Visible fugitive dust emissions are avoided
Verification Responsibility	Agencies or Agency Monitor will verify compliance
Biological Resources	
MITIGATION MEASURE	**MM BR-1: Conduct biological monitoring and reporting.** The following provisions shall apply to the approved project during the construction and post-construction restoration phases. **Lead biologist:** SCE shall propose one or more lead biologist(s) and submit their resume(s) to the CPUC and BLM for concurrence, no less than 60 days prior to the start of any ground-disturbing activities, including those occurring prior to site mobilization (including, but not limited to geotechnical borings or hazardous waste evaluations). At minimum the lead biologist will hold a bachelor's degree in biological sciences, zoology, botany, ecology, or a closely related field; have at least three years of experience in field biology and at least one year of direct field experience with biological resources found in or near the project area, *OR* relevant education and experience that demonstrates the ability to carry out the tasks required of a lead biologist. The resume(s) shall demonstrate to the satisfaction of the CPUC and BLM the appropriate education and experience to accomplish the assigned biological resources tasks. The lead biologist will be SCE's primary point of contact to CPUC, BLM, NPS, CDFW, and USFWS regarding any biological resource issues and implementation of related mitigation measures and permit conditions throughout project construction and post-construction restoration work. In addition, the lead biologist will oversee supervision and training of biological monitors (below) and preparation and submission of all monitoring reports and notifications (below). If the lead biologist is replaced, the specified information of the proposed replacement must be submitted to the CPUC and BLM at least ten working days prior to the termination or release of the preceding lead biologist. In an emergency, SCE shall immediately notify the CPUC and BLM to discuss the qualifications and approval of a short-term replacement while a permanent lead biologist is proposed for consideration. **Biological monitors:** SCE shall assign qualified biological monitors to the project to monitor all work activities with the potential to impact special status species or their habitat during the construction phase. Work sites or activities considered to have no potential to impact special-status species or habitats will be subject to review and approval by CPUC in coordination with CDFW, USFWS, and BLM. Monitors are responsible for ensuring that impacts to special-status species, native vegetation, wildlife habitat, and sensitive or unique biological resources are avoided or minimized to the fullest extent safely possible. Monitors are also responsible to ensure that work activities are conducted in compliance with the retained APMs, mitigation measures, permit conditions, and other project requirements. Resumes of all biological monitors, including specialty monitors (including but not limited to bat, nesting bird, and special-status species monitors), shall be provided for concurrence by the CPUC and BLM, at least 10 working days prior to the monitor commencing field duties. The resumes shall demonstrate, to the satisfaction of the CPUC and BLM, the appropriate education and experience to accomplish the assigned biological resources tasks. SCE shall provide training to biological monitors, in addition to WEAP (see Mitigation Measure BR-2) and prior to the monitor commencing field duties, on biological resources present or potentially present on the Proposed Project, as well as mitigation measures,

Table 6-1. Mitigation Monitoring Program

permit requirements, project protocols, and the duties and responsibilities of a biological monitor.

Biological monitors shall inform construction crews daily of any environmentally sensitive areas (ESAs), nest buffers, or other resource issues or restrictions that affect the work sites for that day. Biological monitors shall communicate with construction supervisors and crews as needed (e.g., at daily tailgate safety meetings ("tailboards"), by telephone, text message, or email) to provide guidance to maintain compliance with mitigation measures and permit conditions. SCE shall ensure that adequate numbers of monitors are assigned to effectively monitor work activities and that communications from biological monitors are promptly directed to crews at each work site for incorporation into daily work activities. If biological monitors are unavailable for a tailboard meeting, the construction supervisors shall communicate all ESA, nest buffers, or other resource restrictions to crews during the meeting. SCE shall ensure that biological monitors are provided with an accurate daily construction work schedule as well as updated information on any alterations to the daily construction work schedule. This information shall also be provided to CPUC/BLM monitors. SCE shall ensure that biological monitors are provided with up-to-date biological resource maps and construction maps in hardcopy or digital format. These maps shall also be provided to CPUC/BLM monitors.

Monitors shall be familiar with the biological resources present or potentially present, ESAs, nest buffers, and any other resource issues at the site(s) they are monitoring, as well as the applicable mitigation measures and permit requirements. Monitors shall exhibit diligence in their monitoring duties and refrain from any conduct or potential conflict of interest that may compromise their ability to effectively carry out their monitoring duties.

Biological monitor duties and responsibilities: Throughout the duration of construction, SCE shall conduct biological monitoring and have biological monitors on site at all times when project activities are occurring in any area where there is a potential to impact sensitive biological resources or jurisdictional waters, including but not limited to vegetation removal/trimming/disturbance, all ground-disturbing work activities, and initial "drive and crush" in the project area, including work sites, yards, staging areas, access roads, and any area subject to project disturbance. Pre-construction activities (e.g., for geotechnical borings, hazardous waste evaluations, etc.) and post-construction restoration shall also be monitored by a biological monitor during all such activities.

Each day, prior to work activities at each site requiring monitoring, a biological monitor shall conduct clearance surveys ("sweeps") for sensitive plant or wildlife resources that may be located within or adjacent to the construction areas. If sensitive resources are found, the biological monitor shall take appropriate action as defined in all adopted mitigation measures, retained APMs, and permit conditions. Work activities shall not commence at any work site until the clearance survey has been completed and the biological monitor communicates to the contractor that work may begin.

Biological monitors shall clearly mark sensitive biological resource areas with staking, flagging, or other appropriate materials that are readily visible and durable. The monitors will inform work crews of these areas and the requirements for avoidance and will inspect these areas at appropriate intervals for compliance with regulatory terms and conditions. The biological monitors shall ensure that work activities are contained within approved disturbance area boundaries at all times.

Biological monitors shall have the authority and responsibility to halt any project activities that are not in compliance with applicable mitigation measures, retained APMs, permit conditions, or other project requirements, or will have an unauthorized adverse effect on biological resources.

Handling, relocation, release from entrapment, or other interaction with wildlife shall be performed consistent with mitigation measures, safety protocols, permits (including CDFW and USFWS permits), and other project requirements.

Biological monitors shall, to the extent safe, practicable, and consistent with mitigation measures and permit conditions, actively or passively relocate wildlife out of harm's way.

Table 6-1. Mitigation Monitoring Program

	On a daily basis, biological monitors shall inspect construction areas where animals may have become trapped, including equipment covered with bird exclusion netting, and release any trapped animals. Daily inspections shall also include areas with high vehicle activity (e.g., yards, staging areas), to locate animals in harm's way and relocate them if necessary. If safety or other considerations prevent biological monitors from aiding trapped wildlife or wildlife in harm's way, SCE shall consult with the construction contractor, CDFW, wildlife rehabilitator, or other appropriate party to obtain aid for the animal, consistent with Mitigation Measure BR-7 (Ensure wildlife impact avoidance and minimization). At the end of each work day, biological monitors shall verify that excavations, open tanks, and trenches have been covered or have ramps installed to prevent wildlife entrapment and communicate with work crews to ensure these structures are installed and functioning properly. Biological monitors shall regularly inspect any wildlife exclusion fencing daily to ensure that it remains intact and functional. Any need for repairs to exclusion fencing shall be immediately communicated to the responsible party, and repairs shall be carried out in a timely manner, generally within one work day. **Reporting:** SCE shall prepare and implement a procedure for communication among biological monitors and construction crews, to ensure timely notification (i.e., daily or sooner, as needed) to crews of any resource issues or restrictions. SCE will notify the CPUC and BLM of the procedure and will maintain records of daily communication. SCE will provide CPUC and BLM on-line access to project resource management maps and GIS data. Monitoring activities shall be thoroughly and accurately documented on a daily basis. SCE shall prepare and submit daily, weekly, annual, and final monitoring reports to the CPUC and BLM. Prior to the start of monitoring activities, SCE shall provide proposed monitoring report formats, describing content and organization, for CPUC and BLM review and approval in consultation with CDFW and USFWS.
Timing	Pre-construction, Construction, and Post Construction Revegetation Phases
Plan/Reporting Requirements	SCE shall prepare and submit daily, weekly, annual, and final monitoring reports to the CPUC and BLM. Prior to the start of monitoring activities, SCE shall provide proposed monitoring report formats, describing content and organization, for CPUC and BLM review and approval in consultation with CDFW and USFWS.
Effectiveness Criteria	Impacts to biological resources are minimized
Verification Responsibility	Agencies or Agency Monitor will verify compliance
MITIGATION MEASURE	**MM BR-2: Prepare and implement a Worker Environmental Awareness Program (WEAP).** SCE shall prepare and implement a project-specific Worker Environmental Awareness Program (WEAP) to educate on-site workers about the Proposed Project's sensitive environmental issues. The WEAP shall be presented by the lead biologist or a biological monitor to all personnel on-site during the construction phase, including but not limited to surveyors, engineers, inspectors, contractors, subcontractors, supervisors, employees, monitors, visitors, and delivery drivers. If the WEAP presentation is recorded on video, it may be presented by any competent project personnel. Throughout the duration of construction, SCE shall be responsible for ensuring that all on-site project personnel receive this training prior to beginning work. A construction worker may work in the field along with a WEAP-trained crew for up to 5 days prior to attending the WEAP training. SCE shall maintain a list of all personnel who have completed the WEAP training. This list shall be provided to the CPUC and BLM upon request. The WEAP shall consist of a training presentation, with supporting written materials provided to all participants. At least 60 days prior to the start of ground-disturbing activities, SCE shall submit the WEAP presentation and associated materials to the CPUC and BLM for review and approval in consultation with the USFWS and CDFW.

Table 6-1. Mitigation Monitoring Program

The WEAP training shall include, at minimum:

- Overview of the project, the jurisdictions the project route passes through (e.g., San Bernardino County, CA; Clark County, Nevada; CSLC; BLM; NPS; BOR; DOD) and any special requirements of those jurisdictions.
- Overview of the federal and state Endangered Species Acts, Bald and Golden Eagle Protection Act, Migratory Bird Treaty Act, and the consequences of non-compliance with these acts.
- Overview of the project mitigation and biological permit requirements, and the consequences of non-compliance with these requirements.
- Sensitive biological resources on the project site and adjacent areas, including nesting birds, special-status plants and wildlife and sensitive habitats known or likely to occur on the project site, project requirements for protecting these resources, and the consequences of non-compliance.
- Construction restrictions such as limited operating periods, Environmentally Sensitive Areas (ESAs), and buffers and associated restrictions, and other restrictions such as no grading areas, flagging or signage designations, and consequences of non-compliance.
- Avoidance of invasive weed introductions onto the project site and surrounding areas, and description of the project's weed control plan and associated compliance requirements for workers on the site.
- Function, responsibilities, and authority of biological and environmental monitors and how they interact with construction crews.
- Requirement to remain within authorized work areas and on approved roads, with examples of the flagging and signage used to designate these areas and roads, and the consequences of non-compliance.
- Procedure for obtaining clearance from a biological monitor to enter a work site and begin work (including moving equipment), and the requirement to wait for that clearance.
- One-hour hold (or other method SCE will use to halt work when necessary to maintain compliance) and the requirement for compliance.
- Nest buffers and associated restrictions and the consequences of non-compliance. Procedure and time frame for halting work and removing equipment when a new buffer is established. Discussion of nest deterrents.
- Explanation that wildlife must not be harmed or harassed. Procedures for covering pipes, securing excavations, and installing ramps to prevent wildlife entrapment. What to do and who to contact if dead, injured, or entrapped animals are encountered.
- General safety protocols such as hazardous substance spill prevention, containment, and cleanup measures; fire prevention and protection measures; designated smoking areas (if any) and cigarette disposal; safety hazards that may be caused by plants and animals; and procedure for dealing with rattlesnakes in or near work areas or access roads.
- Project requirements that have resulted in repeated compliance issues on other recent transmission line projects, such as dust control, speed limits, track out (dirt or mud tracked from access roads or work sites onto paved public roads or other areas), personal protective equipment (PPE), work hours, working prior to clearance, and waste containment and disposal.
- Printed training materials, including photographs and brief descriptions of all special-status plants and animals that may be encountered on the project, including behavior, ecology, sensitivity to human activities, legal protection, penalties for violations, reporting requirements, and protection measures.
- Contact information for SCE, construction management, and contractor environmental personnel, and who to contact with questions.

Table 6-1. Mitigation Monitoring Program

	▪ Training acknowledgment form to be signed by each worker indicating that they understand and will abide by the guidelines, and a hardhat sticker so WEAP attendance may be easily verified in the field. **WEAP Lite.** An abbreviated version of WEAP training ("WEAP lite") may be used for individuals who are exclusively delivery drivers, concrete truck drivers, or visitors to the project site, and will be provided by a qualified project biologist, biological monitor, or environmental field staff prior to those individuals entering or working on the project. Short-term visitors (total of 5 days or less per year) to the project site who will be riding with and in the company of WEAP-trained project personnel for the entire duration of their visit(s) are not required to attend WEAP or WEAP lite training. WEAP lite presentations shall be tailored to delivery/concrete truck drivers and visitors as well as the situation and emphasize project requirements that are relevant to those individuals and that situation. **WEAP Refreshers.** Biological monitors or environmental field staff will periodically present brief WEAP refresher presentations at tailboards to help construction crews and other personnel maintain awareness of environmental sensitivities and requirements. A 5- to 10-minute informal talk will be presented at each of the project's main contractor/ subcontractor tailboards at least once a week. When a contractor or subcontractor resumes work after a long break, a biological monitor or environmental field staff will provide an extended WEAP refresher presentation (10-20 minutes) at each of the contractor/subcontractor tailboards on the first day back to work.
Timing	Pre-construction and Construction Phases
Plan/Reporting Requirements	At least 60 days prior to the start of ground-disturbing activities, SCE shall submit the WEAP presentation and associated materials to the CPUC and BLM for review and approval in consultation with the USFWS and CDFW
Effectiveness Criteria	All on-site project personnel receive this training prior to beginning work
Verification Responsibility	Agencies or Agency Monitor will verify compliance
MITIGATION MEASURE	**MM BR-3: Minimize native vegetation and habitat loss.** Final engineering of the project shall minimize the extent of disturbance and removal of native vegetation and habitat, to the extent safely possible. Work activities and roadways will avoid or minimize direct or indirect effects to sensitive habitat types or jurisdictional waters and provide buffer areas to minimize disturbance. Project access will utilize existing routes or bridges over jurisdictional waters wherever possible. Consistent with project safety and security protocols, landowner preferences, and any other applicable regulations or requirements, existing gates on project access roads will be closed and secured when project personnel enter or leave an area. Prior to beginning any ground-disturbing activities, SCE shall provide CPUC and BLM with final engineering GIS shapefiles depicting all temporary and permanent disturbance areas, as well as summary data on temporary and permanent disturbance for each vegetation or habitat type. On completion of project construction, SCE shall provide CPUC and BLM with GIS shapefiles of all actual temporary and permanent disturbance areas, and summary data of all discrepancies between final engineering and "as-built" conditions for each vegetation or habitat type. To the extent feasible and safe, vegetation removal within work areas will be minimized and construction activities will implement drive and crush access and site preparation rather than grading. Stockpiling of spoils and salvaged topsoil will be located in previously disturbed areas and/or will avoid native habitat areas. Prior to any construction, equipment or crew mobilization at each work site, work areas will be marked with staking or flagging to identify the limits of work and will be verified by project environmental staff and CPUC Environmental Monitor. Staking and flagging will

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	clearly indicate the work area boundaries. Where staking cannot be used, traffic cones, traffic delineators, or other markers shall be used. Staking and flagging or other markers shall be in place during construction activities at each work site and refreshed as needed. Coded flagging colors or color combinations will be consistent and uniform across the project. All work activities, vehicles, and equipment will be confined to approved roads and staked and flagged or marked work areas.
Timing	Pre-construction, Construction, and Post Construction Revegetation Phases
Plan/Reporting Requirements	None
Effectiveness Criteria	Native vegetation and habitat loss are minimized
Verification Responsibility	Agencies or Agency Monitor will verify compliance
MITIGATION MEASURE	**MM BR-4: Restore or revegetate temporary disturbance areas.** [Replaces APM BIO-01 to provide further specificity.] SCE will implement a restoration or revegetation plan for all temporarily disturbed sites. Given that temporary impacts to desert tortoise habitat is considered a permanent impact in this MND and under BLM's Programmatic Biological Opinion (BO) provides federal take authorization for the Project, SCE will mitigate for all desert tortoise habitat impacts as permanent impacts through compensatory mitigation. These temporarily disturbed sites will be subject to revegetation (i.e., re-establishment of vegetation to minimize long-term erosion, dust, and weed infestation) but habitat restoration will not be required. SCE will be required to implement habitat restoration at temporarily disturbed sites not mitigated through off-site compensation. SCE will provide a Habitat Restoration and Revegetation Plan (HRRP) to cover all temporarily disturbed sites, identifying sites to be subject to revegetation alone and those to be restored. The HRRP will describe, at a minimum, which revegetation or restoration method (e.g., natural revegetation, planting, or reseeding with native seed stock in compliance with the Proposed Project's SWPPPs) will be implemented at each temporarily disturbed site. It will include the plant species or habitats to be restored or revegetated, the restoration or revegetation methods and techniques, and the monitoring periods and success criteria. All temporarily disturbed areas will be subject to revegetation and site management activities and success criteria of the Proposed Project's SWPPP/Erosion Control Plan (HWQ-1) and the Integrated Weed Management Plan (BR-5) to ensure soil stabilization, vegetation cover, and weed prevention. In addition to those requirements, for any temporarily disturbed area not subject to compensatory mitigation (BR-8), the HRRP shall include: ▪ Restoration goals and objectives for each portion of the project area, based on vegetation type and jurisdictional status of each site. ▪ Quantitative success criteria for each restoration site, area, or category. ▪ Implementation details, including but not limited to topsoil stockpiling and handling; post-construction site preparation; soil decompaction and recontouring; planting and seeding palettes to include only native, locally sourced materials with confirmed availability from suppliers; fall or other suitable season planting or seeding dates (seeding outside the fall season may increase the risk of revegetation failure and need for subsequent remedial reseeding, irrigation, or other measures). ▪ Maintenance details, including but not limited to irrigation or hand-watering schedule and equipment, erosion control, and weed control measures. ▪ Monitoring and Reporting, specifying monitoring schedule and data collection methods throughout establishment of vegetation with key indicators of successful or unsuccessful progress, and quantitative criteria to objectively determine success or failure at the conclusion of the monitoring period. ▪ Contingency measures such as reseeding, replanting, drainage repairs, adjustments to irrigation or weeding schedule, and extension of maintenance beyond the original schedule, to repair or remediate sites not on track to meet success criteria, or not meeting the criteria at the close of the originally scheduled monitoring period.

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	▪ A Gantt Chart or similar exhibit identifying all components of the HRRP, including acquisition of plant materials, specifying site preparation and seeding or planting dates, identifying entity to perform each task (e.g., EPC contractor or restoration contractor) and indicating critical path activities. The Draft HRRP shall be submitted to CPUC and BLM review and approval prior to the beginning of ground-disturbing activities. SCE shall incorporate all requested revisions in coordination with the CPUC and BLM and finalize the HRRP within 12 months from the start of construction. For all restoration areas, if a fire, flood, or other disturbance beyond the control of SCE, CPUC, and BLM damages the area within the monitoring period, SCE shall be responsible for a one-time replacement. If a second event occurs, no replacement is required. For all revegetation (per SWPPP requirements) or restoration sites (per the HRRP), only seed or potted nursery stock of locally occurring native species will be used. Seeding and planting will be informed by Chapter 5 of *Rehabilitation of Disturbed Lands in California* (Newton and Claassen, 2003). The list of plants observed during botanical surveys of the project area will be used as a guide to site-specific plant selection. Monitoring of the restoration sites will continue annually for up to 5 years or until the defined success criteria in the HRRP are achieved. SCE will be responsible for implementing remediation measures as needed. Following remediation work, each site will still be subject to the success criteria required for the initial restoration. The monitoring period for remediation work will be concurrent with the monitoring period required for the initial restoration. **Reporting.** For all restoration areas, SCE will provide annual reports to the CPUC and BLM verifying the total vegetation acreage subject to temporary and permanent disturbance, identifying which items of the HRRP have been completed, and which items are still outstanding. The annual reports will also include a summary of the restoration activities for the year, a discussion of whether success criteria were met, any remedial actions conducted and recommendations for remedial action, if warranted, that are planned for the upcoming year. Each annual report will be submitted within 90 days after completion of each year of restoration work.
Timing	Construction and Post Construction Revegetation Phases
Plan/Reporting Requirements	SCE will submit a Habitat Restoration and Revegetation Plan (HRRP) to CPUC and BLM review and approval prior to the beginning of ground-disturbing activities. SCE will provide annual reports to the CPUC and BLM
Effectiveness Criteria	Temporarily disturbed areas are restored or revegetated
Verification Responsibility	Agencies or Agency Monitor will verify compliance
MITIGATION MEASURE	**MM BR-5: Prepare and Implement an Integrated Weed Management Plan.** [Supersedes APM BIO-03.] SCE shall prepare and implement an Integrated Weed Management Plan (IWMP) describing the proposed methods of preventing or controlling project-related spread or introduction of weeds. The IWMP also must meet BLM's requirements for NEPA disclosure and analysis if herbicide use is proposed for the project. A Draft IWMP shall be submitted to the CPUC and BLM for review and approval at least 60 days prior to SCE's application for Notice to Proceed, and no pre-construction activities (e.g., for geotechnical borings, hazardous waste evaluations, etc.), construction, equipment or crew mobilization, or project-related ground-disturbing activity shall proceed until the IWMP is approved. For the purpose of the IWMP, "weeds" shall include designated noxious weeds, as well as any other non-native weeds or pest plants identified on the weed lists of the California Department of Food and Agriculture, the California Invasive Plant Council, or identified by BLM as special concern. The IWMP will include the contents listed below. The IWMP will be implemented throughout project pre-construction, construction, and post-construction

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revegetation phases, including throughout implementation of the HRRP (Mitigation Measure BR-4). The IWMP will include the information defined in the following paragraphs.

Background. An assessment of the Proposed Project's potential to cause spread of invasive non-native weeds into new areas, or to introduce new non-native invasive weeds into the ROW. This section must list known and potential non-native and invasive weeds occurring on the ROW and in the project region and identify threat rankings and potential consequences of project-related occurrence or spread for each species. This section must also identify control goals for each species (e.g., eradication, suppression, or containment) likely to be found within the Proposed Project area.

Pre-construction weed inventory. SCE shall inventory weeds in all areas (both within and outside the ROW) subject to project-related vegetation removal/disturbance, "drive and crush," and ground-disturbing activity. The weed inventory shall also include vehicle and equipment access routes within the ROW and all project staging and storage yards. Weed occurrences shall be mapped and described according to density and area covered.

Pre-construction weed treatment. Weed infestations identified in the pre-construction weed inventory shall be evaluated to identify potential for project-related spread and potential benefits (if any) of pre-construction treatment, considering the specific weeds, potential seed banks, or other issues. The IWMP will identify any infestations to be controlled or eradicated prior to project construction, or other site-specific weed management requirements (e.g., avoidance of soil or transport and site-specific vehicle washing where threat or spread potential is high). Control and follow-up monitoring of pre-construction weed treatment sites will follow methods identified in appropriate sections of the IWMP.

Prevention. The IWMP shall specify methods to minimize potential transport of new weed seeds onto the ROW, or from one section of the ROW to another. The ROW may be divided into "weed zones," based on known or likely invasive weeds in any portion of the ROW. The IWMP will specify inspection procedures for construction materials and equipment entering the Proposed Project area. Vehicles and equipment may be inspected and cleaned at entry points to specified portions of the ROW, and before leaving work sites where weed occurrences must be contained locally. Construction equipment shall be cleaned of dirt and mud that could contain weed seeds, roots, or rhizomes. Equipment shall be inspected to ensure it is free of any dirt or mud that could contain weed seeds, and the tracks, outriggers, tires, and undercarriage will be carefully washed, with special attention being paid to axles, frame, cross members, motor mounts, underneath steps, running boards, and front bumper/brush guard assemblies. Other construction vehicles (e.g., pick-up trucks) that will be frequently entering and exiting the site will be inspected and washed on an as-needed basis. Tools such as chainsaws, hand clippers, pruners, etc., shall be cleaned of dirt and mud before entering project work areas.

All vehicles shall be washed off-site when possible. If off-site washing is infeasible, on-site cleaning stations will be set up at specified locations to clean equipment before it enters the work area. Wash stations will be located away from native habitat or special-status species occurrences. Wastewater from cleaning stations will not be allowed to run off the cleaning station site. When vehicles and equipment are washed, a daily log must be kept stating the location, date and time, types of equipment, methods used, and personnel present. The log shall contain the signature of the responsible crewmember. Written or electronic logs shall be available to BLM and CPUC monitors on request.

Erosion control materials (e.g., hay bales) must be certified free of weed seed before they are brought onto the site. The IWMP must prohibit on-site storage or disposal of mulch or green waste that may contain weed material. Mulch or green waste will be removed from the site in a covered vehicle to prevent seed dispersal and transported to a licensed landfill or composting facility.

The IWMP must specify guidelines for any soil, gravel, mulch, or fill material to be imported into the Proposed Project area, transported from site to site within the

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	Proposed Project area, or transported from the Proposed Project area to an off-site location, to prevent the introduction or spread of weeds to or from the Proposed Project area. **Monitoring.** The IWMP shall specify methods to survey for weeds during pre-construction, construction, and restoration phases; and shall specify qualifications of botanists responsible for weed monitoring and identification. It must include a monitoring schedule to ensure timely detection and immediate control of new weed infestations to prevent further spread. Surveying and monitoring for weed infestations shall occur at least two times per year through the close of the restoration phase, to coincide with the early detection period for early season and late season weeds (i.e., species germinating in winter and flowering in late winter or spring, and species germinating later in the season and flowering in summer or fall). It also must include methods for marking invasive weeds on the ROW and recording and communicating these locations to weed control staff. The map of weed locations (discussed above) shall be updated at least once a year. The monitoring section shall also describe methods for post-eradication monitoring to evaluate success of control efforts and any need for follow-up control. **Control.** The IWMP must specify manual and chemical weed control methods to be employed. The IWMP shall include only weed control measures with a demonstrated record of success for target weeds, based on the best available information. The plan shall describe proposed methods for promptly scheduling and implementing control activity when any project-related weed infestation is located (e.g., located on a project disturbance site), to ensure effective and timely weed control. Weed infestations must be controlled or eradicated upon discovery, and before they go to seed, to the extent feasible with the goal to prevent further spread. All proposed weed control methods must minimize the extent of any disturbance to native vegetation, limit ingress and egress to defined routes, and avoid damage from herbicide use or other control methods to any environmentally sensitive areas identified within or adjacent to the ROW. New weed infestations shall be treated at a minimum of once annually until eradication, suppression, or containment goals are met. For eradication, when no new occurrences are observed for three consecutive years, the weed occurrence can be considered eradicated and weed control efforts may cease for the site. Manual control shall specify well-timed removal of weeds or their seed heads with hand tools; seed heads and plants must be disposed of in accordance with guidelines from the San Bernardino County Agricultural Commissioner and Nevada Department of Agriculture, if such guidelines are available. The chemical control section must include specific and detailed plans for any herbicide use. It must indicate where herbicides will be used, which herbicides will be used, and specify techniques to be used to avoid drift or residual toxicity to wildlife and native vegetation or special-status plants, consistent with BLM's *Vegetation Treatments Using Herbicides on BLM Lands in 17 Western States* (BLM, 2007) and *National Invasive Species Management Plan* (NISC, 2008). Only state and BLM-approved herbicides may be used. Herbicide treatment will be implemented by a Licensed Qualified Applicator. Herbicides shall not be applied during or within 24 hours of predicted rain. Only water-safe herbicides shall be used in riparian areas or within channels (engineered or not) where they could run off into downstream areas. Herbicides shall not be applied when wind velocities exceed six (6) mph. All herbicide applications will follow U.S. Environmental Protection Agency label instructions and will be in accordance with federal, state, and local laws and regulations. **Reporting schedule and contents.** The IWMP shall specify the reporting schedule and contents of each report.
Timing	Pre-construction, Construction, and Post Construction Revegetation Phases

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Plan/Reporting Requirements	SCE shall prepare and implement an Integrated Weed Management Plan and submit CPUC and BLM for review and approval at least 60 days prior to SCE's application for Notice to Proceed The IWMP shall specify the reporting schedule and contents of each report
Effectiveness Criteria	The spread or introduction of non-native weeds is avoided
Verification Responsibility	Agencies or Agency Monitor will verify compliance
MITIGATION MEASURE	**MM BR-6: Minimize and mitigate impacts to special-status plants.** [Supersedes APM BIO-02.] **Pre-construction survey.** SCE shall conduct focused pre-construction surveys for federal- and state-listed and other special-status plants within suitable habitat. All special-status plant species (including listed threatened or endangered species, and CNPS California Rare Plant Rank (CRPR) 1 and 2 ranked species likely to be impacted by project activities shall be documented in pre-construction survey reports. Surveys shall be conducted by a qualified botanist during the appropriate season in all suitable habitat within 50 feet of disturbance areas. The field surveys and reporting must conform to current CDFW botanical field survey protocol (CDFG, 2018). Where any special-status plants may be discovered, the survey area will extend beyond the ROW to determine the extent of the local occurrence, to evaluate the significance of any project impacts. The reports will describe any conditions that may have prevented target species from being located or identified, even if they are present as dormant seed or below-ground rootstock. If pre-construction survey areas conducted in years of poor rainfall or following other extreme events (e.g., recent intense overgrazing or wildfire), then the project shall use data from 2016/2017 and 2019 surveys to define population area and maximum number of individuals (Note, the unusually high rainfall in 2017 and 2019 are likely to better define rare plant locations and have more accurate results than subsequent years with lower rainfall). For species not previously detected on surveys but for which have a high potential to occur, reference populations will be used to determine if the species is detectable for pre-construction surveys conducted in suitable habitat. Prior to initial ground disturbance at individual construction work areas, SCE shall submit pre-construction field survey reports along with maps showing locations of survey areas and special-status plants to the CPUC and BLM for review and approval in coordination with CDFW. **Native cactus and *Yucca*.** Most native cactus and shrubby *Yucca* species (Joshua tree and Mohave yucca) can be successfully salvaged and transplanted, and yuccas often provide an important vertical component to wildlife habitat. Therefore, native cactus (excluding chollas in the genus *Cylindropuntia*) and yuccas (including Joshua trees, *Y. brevifolia*), shall be avoided or salvaged as follows: SCE will prepare and implement a cacti and yucca salvage plan. The goal shall be maximum practicable survivorship of salvaged plants. The Plan will include at minimum: (a) species and locations of plants identified for salvage; (b) criteria for determining whether an individual plant is appropriate for salvage; (c) the appropriate season for salvage; (d) equipment and methods for collection, transport, and re-planting plants or seed banks, to retain intact soil conditions and maximize success; (e) a requirement to mark each plant to identify the north-facing side prior to transport, and replant it in the same orientation; (f) details regarding storage of plants or seed banks for each species; (g) location of the proposed recipient site, and detailed site preparation and plant introduction techniques for top soil storage, as applicable; (h) a description of the irrigation, weed control, and other maintenance activities; (i) success criteria, including specific timeframe for survivorship and reproduction of each species; and (j) a detailed monitoring program, commensurate with the Plan's goals. **Mitigation.** SCE shall mitigate impacts to any state or federally listed plants or CRPR 1 or Nevada ranked S1, S2, or S3 species that may be located on the project disturbance areas or surrounding buffer areas through one or a combination of the following strategies. Additionally, impacts to CRPR 2 ranked plants occurring in California will be similarly mitigated.

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Avoidance of special-status plants will be the preferred strategy wherever feasible. Where avoidance is not feasible, and the project would directly or indirectly affect more than 10 percent of a local occurrence,[1] by either number of plants (shrubs and trees) or extent of occupied habitat (annuals or perennial herbs), SCE shall prepare and implement a mitigation plan to consist of off-site compensation, salvage, horticultural propagation / off-site introduction, or a combination of these.

- **Avoidance.** Work areas shall be located to avoid or minimize impacts to special-status plants to the greatest extent possible. Effective avoidance through project design shall include a buffer area surrounding each avoided occurrence, where no project activities will take place. The buffer area will be clearly staked, flagged, and signed for avoidance prior to the beginning of ground-disturbing activities, and maintained throughout the construction phase. At minimum, the buffer for shrub species shall be equal to twice the drip line (i.e., two times the distance from the trunk to the canopy edge) to protect and preserve the root systems. The buffer for herbaceous species shall be a minimum of 50 feet from the perimeter of the occupied habitat or the individual(s). However, for locations in the mountains, a larger buffer may need to be applied to shrub and herbaceous species if the construction monitors determine there is a risk of indirect effects from erosion or inundation. If a smaller buffer is necessary due to other project constraints, SCE will develop and implement site-specific monitoring and put other measures in place to avoid the take of the species, with the approval of the CPUC and BLM, in coordination with CDFW.
- **Off-site compensation.** SCE shall provide compensation lands consisting of habitat occupied by the impacted CRPR 1 or 2 ranked plant populations at a 1:1 ratio of acreage and number of plants for any occupied habitat directly impacted (whether temporary or permanent) by the project. Occupied habitat will be calculated on the project site and on the compensation lands as including each special-status plant occurrence and a surrounding 50-foot buffer area. If compensation is selected as a means of mitigating special-status plant impacts, it may be accomplished by purchasing credit in an established mitigation bank, acquiring conservation easements, or direct purchase and preservation of compensation lands. Compensation for these impacts may be "nested" or "layered" with compensation for habitat loss described in Mitigation Measure BR-8.
- **Salvage.** SCE shall consult with a qualified restoration ecologist or horticulturist regarding the feasibility and likely success of salvage efforts for each species. If salvage is deemed to be feasible, based on prior success with similar species, then SCE shall prepare and implement a Special-status Plant Salvage and Relocation Plan, to be reviewed and approved by the CPUC and BLM, in consultation with CDFW and USFWS, prior to direct or indirect disturbance of any occupied habitat. For special-status plants, excluding cacti and Yuccas (see above), the goal shall be to improve existing populations or establish new populations. For cacti and yuccas, the goal shall be maximum practicable survivorship of salvaged plants. The Plan will include at minimum: (a) species and locations of plants identified for salvage; (b) criteria for determining whether an individual plant is appropriate for salvage; (c) the appropriate season for salvage; (d) equipment and methods for collection, transport, and re-planting plants or seed banks, to retain intact soil conditions and maximize success; (e) for shrubs, cacti, and yucca, a requirement to mark each plant to identify the north-facing side prior to transport, and replant it in the same orientation; (f) details regarding storage of plants or seed banks for each species; (g) location of the proposed recipient site, and detailed site preparation and plant introduction techniques for top soil storage, as applicable; (h) a description of the irrigation, weed control, and other maintenance activities; (i) success criteria, including specific timeframe for survivorship and reproduction of each species; and (j) a detailed monitoring program, commensurate with the Plan's goals.

[1] An occurrence for a plant is defined as any population or group of nearby populations located more than 0.25 miles from any other population (CDFW, 2009).

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	Annual monitoring reports shall be submitted to CPUC and BLM for five years or until the relocation effort is deemed successful on agreement of SCE and the CPUC. Reports shall include, but not be limited to, details of plants salvaged, stored, and transplanted (salvage and transplanting locations, species, number, size, condition, etc.); adaptive management efforts implemented (date, location, type of treatment, results, etc.); and evaluation of success of transplantation. ▪ **Horticultural propagation and off-site introduction.** If salvage and relocation is not believed feasible for special-status plants, then SCE shall consult with a qualified entity to develop an appropriate experimental propagation and relocation strategy, based on the life history of the species affected. The Plan will include at minimum: (a) collection and salvage measures for plant materials (e.g., cuttings), seed, or seed banks, to maximize success likelihood; (b) details regarding storage of plant, plant materials, or seed banks; (c) location of the proposed propagation facility, and proposed methods; (d); time of year that the salvage and other practices will occur; (e) success criteria; and (f) a detailed monitoring program, commensurate with the Plan's goals.
Timing	Pre-construction, Construction, and Post Construction Revegetation Phases
Plan/Reporting Requirements	Prior to initial ground disturbance at individual construction work areas, SCE shall submit pre-construction field survey reports along with maps showing locations of survey areas and special-status plants to the CPUC and BLM for review and approval in coordination with CDFW SCE will prepare and implement a cacti and yucca salvage plan Annual monitoring reports shall be submitted to CPUC and BLM for five years or until the relocation effort is deemed successful on agreement of SCE and the CPUC
Effectiveness Criteria	Impacts to special-status plants are minimized and mitigated
Verification Responsibility	Agencies or Agency Monitor will verify compliance
MITIGATION MEASURE	**MM BR-7: Ensure wildlife impact avoidance and minimization.** SCE shall undertake the following measures during the construction and revegetation phases to avoid or minimize impacts to wildlife resources. ▪ **Minimize traffic impacts.** SCE will specify and enforce a maximum 15 mile per hour vehicle speed limit on access roads within the ROW and project vicinity. No project-related pedestrian or vehicle traffic will be permitted outside defined work site or access route boundaries. ▪ **Minimize lighting impacts.** Night lighting, when in use, shall be designed, installed, and maintained to prevent side casting of light towards surrounding fish or wildlife habitat. ▪ **Avoid use of toxic substances.** Soil bonding and weighting agents used for dust suppression on unpaved surfaces shall be non-toxic to wildlife and plants. ▪ **Minimize noise and vibration impacts.** To minimize disturbance to wildlife nesting or breeding activities in surrounding habitat, project-related helicopter use shall be avoided or managed to the extent feasible from January 1 to August 31. Unnecessary noise (e.g., blaring radios) shall be avoided. ▪ **Water.** Potable and non-potable water sources such as tanks, ponds, and pipes shall be covered or otherwise secured to prevent animals (including birds) from entering. Prevention methods may include storing all water within closed tanks, covering open storage ponds or tanks with 2-centimeter netting, or other means as applicable. Water applied to roads and construction areas for dust abatement shall use the minimal amount needed to meet safety and air quality standards. Water sources (e.g., hydrants, tanks, etc.) shall be checked periodically by biological monitors to ensure they are not creating open water sources by leaking or consistently overfilling trucks. ▪ **Worker guidelines.** All trash and food-related waste shall be contained in vehicles or covered trash containers and removed from the site regularly. Workers shall not feed wildlife or bring animals or pets to the project site with the exception of ADA-compliant

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service animals. Except for law enforcement personnel, no workers or visitors to the site shall bring firearms or weapons.

- **Wildlife netting or exclusion fencing.** SCE may install temporary netting or permanent screening or fencing around equipment, work areas, or project facilities to prevent wildlife exposure to hazards such as toxic materials or vehicle strikes or prevent birds from nesting on equipment or facilities. Bird deterrent netting will be maintained free of holes and will be deployed and secured on the equipment in a manner that prevents wildlife from becoming trapped inside the netted area or within the excess netting. The biological monitor will inspect netting (if installed) twice daily, at the beginning and close of each work day, with the exception of netting installed in established material yards, which will be inspected at least once daily. The biological monitor will inspect exclusion fence (if installed) weekly and will inform SCE of any needed repairs; SCE shall promptly repair any damage to the exclusion fencing. Temporary netting shall be removed and properly disposed of following the completion of project activities.
- **Wildlife entrapment.** Project-related excavations shall be secured to prevent wildlife entry and entrapment. Holes and trenches shall be backfilled, securely covered, or fenced. Excavations that cannot be fully secured shall incorporate appropriate wildlife ramp(s) at a slope of no more than a 3:1 ratio, or other means to allow trapped animals to escape. Biological monitors shall provide guidance to construction crews to ensure that wildlife ramps or other means are sufficient to allow trapped animals to escape. At the end of each work day, a biological monitor shall ensure that excavations have been secured or provided with appropriate means for wildlife escape.

  All pipes or other construction materials or supplies that CPUC monitors determine to present a risk to wildlife will be covered or capped in storage or laydown areas. No pipes or tubing of the size and nature that may entrap wildlife will be left open either temporarily or permanently, except during use or installation. Any construction pipe, culvert, or other hollow materials will be inspected for wildlife before it is moved, buried, or capped.
- **Dead animals.** Dead animals (of non-special-status species) large enough to subsidize ravens found on unpaved project roads, work areas, or the ROW shall be reported to the appropriate local animal control agency within 24 hours, to minimize raven subsidies. A biological monitor shall safely move the carcass out of the road or work area as needed. Dead animals of special-status species found on unpaved project roads, work areas, or the ROW shall be reported to CDFW within one work day and the carcass handled as directed by CDFW.
- **Injured special-status wildlife.** SCE shall create and implement guidelines for dealing with injured or entrapped special-status wildlife found on or near project roads, work areas, or the ROW, and provide these guidelines to all biological monitors. If an animal is entrapped, a qualified biological monitor shall free the animal if feasible, or work with construction crews to free the animal, in compliance with applicable safety regulations and project requirements. If biological monitors cannot free the animal or the animal is too large or dangerous for monitors to handle, SCE shall contact and work with animal control, CDFW, or other qualified party to obtain assistance for the animal as soon as possible.

SCE shall ensure that one or more qualified biological monitors receive training in the safe and proper handling and transport of injured wildlife and are provided with the appropriate equipment. These trained and equipped monitors shall be available to capture and transport injured wildlife to a local wildlife rehabilitator or veterinarian as needed. If the injured animal is too large or dangerous for monitors to handle, or a trained and equipped monitor is not available, SCE shall contact and work with a local wildlife rehabilitator, animal control, CDFW, or other qualified party to obtain assistance for the animal as soon as possible. A list of qualified wildlife rehabilitators, veterinarians, and animal control agencies will be maintained to ensure a timely response to requests for support. SCE shall bear the costs of veterinary treatment and rehabilitation for any wildlife

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	injured by project-related activities and any injured wildlife found on or near project roads, work areas, or the ROW, unless the injuries are clearly not project-related, as determined by a qualified biologist. Additionally, any entrapped or injured special-status species found on project roads (with the exception of public roads), work areas, or the ROW shall be reported to the appropriate resource agency within one work day.
Timing	Construction and Post Construction Revegetation Phases
Plan/Reporting Requirements	None
Effectiveness Criteria	Impacts to wildlife are avoided or minimized
Verification Responsibility	Agencies or Agency Monitor will verify compliance
MITIGATION MEASURE	**MM BR-8: Compensate for desert tortoise habitat loss.** [Supersedes APM BIO-05.] SCE shall compensate for all desert tortoise habitat loss through off-site habitat acquisition and management, or through participation in an approved in-lieu fee compensatory mitigation bank, or other agency approved mitigation strategies. This mitigation measure will be applicable to all temporary and permanent project disturbance to natural habitat types, (i.e., all vegetation types identified in Table 5.4-2, excluding active agriculture, barren, and developed lands). This compensatory mitigation for desert tortoise will also mitigate for habitat impacts to other native wildlife species. Habitat compensation shall be accomplished by acquisition of mitigation land or conservation easements or by providing funding for specific land acquisition, endowment, restoration, and management actions. SCE shall prepare a Habitat Compensation Plan to be reviewed and approved by the CPUC- and, BLM, in coordination with the USFWS and CDFW. SCE shall acquire and protect, in perpetuity, compensation habitat to mitigate impacts to biological resources as detailed below. SCE shall be responsible for the acquisition, initial protection and or habitat improvement. SCE may convey title of the compensation lands to a public agency such as BLM, NPS, or CDFW or the lands may be held by a private conservation entity. If the land is conveyed to BLM, it shall be within a land use designation such as Area of Environmental Concern, wilderness, or similar designation consistent with long-term management for biological resource values and excluding incompatible land uses (e.g., energy development). If it is conveyed to CDFW, or retained under private ownership, it shall be covered by a conservation easement or other terms acceptable to CDFW. If there is any conflict between the requirements of this mitigation measure and requirements of any resource agency permit (e.g., USFWS Biological Opinion or CDFW Incidental Take Permit), the more stringent requirement shall apply. The acreages of compensation land shall be based upon final engineering calculation of impacted acreage for each resource and on ratios set forth in this measure, or a USFWS Biological Opinion, a CDFW Streambed Alteration Agreement, a CDFW Incidental Take Permit, or the Consistency Determination, whichever presents a higher ratio. Acreages will be adjusted as appropriate for other alternatives or future modifications during implementation. Compensation shall be provided for impacts to the following resources, at the ratios specified below (acres acquired and preserved to acres impacted). These ratios reflect multiple biological resource values, including habitat suitability for special-status species. ▪ Previously disturbed lands (agriculture, developed/disturbed) and open water: n/a (no habitat compensation required) ▪ Undisturbed land, including suitable desert tortoise habitat outside designated critical habitat: 1:1 ▪ Suitable desert tortoise habitat within designated critical habitat: 5:1 The Habitat Compensation Plan must specify compensation acreage for each habitat type, based on final engineering. Final compensation requirements may be adjusted to account

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	for any deviations in project disturbance, according to the as-built shapefiles aerial imagery. **Compensation Land Selection Criteria.** Criteria for the acquisition, initial protection and habitat improvement, and long-term maintenance and management of compensation lands for impacts to biological resources shall include all of the following: ▪ Compensation lands will provide habitat value that is equal to or better than the quality and function of the habitat impacted by the project, taking into consideration soils, vegetation, topography, human-related disturbance, wildlife movement opportunity, proximity to other protected lands, management feasibility, and other habitat values, subject to review and approval by CPUC and BLM; ▪ Potential compensation sites where creosote rings are found will be prioritized where feasible, and where consistent with the other selection criteria; ▪ To the extent that proposed compensation habitat may have been degraded by previous uses or activities, the site quality and nature of degradation must support the expectation that it will regenerate naturally when disturbances are removed and SCE will receive appropriate ratio credits for restoration; ▪ Be near larger blocks of lands that are either already protected or planned for protection, or which could feasibly be protected long-term by a public resource agency or a non-governmental organization dedicated to habitat preservation; ▪ Not have a history of intensive recreational use or other disturbance that might cause future erosion or other habitat damage, and make habitat recovery and restoration infeasible; ▪ Not be characterized by high densities of invasive species, either on or immediately adjacent to the parcels under consideration, that might jeopardize habitat recovery and restoration; ▪ Not contain hazardous wastes that cannot be removed to the extent that the site could not provide suitable habitat; ▪ Have water and mineral rights included as part of the acquisition, unless the CPUC and BLM, in consultation with CDFW and USFWS, agree in writing to the acceptability of land without these rights. **Review and Approval of Compensation Lands Prior to Acquisition.** SCE shall submit a Draft Habitat Compensation Plan for review and approval by the CPUC and BLM describing the parcel(s) intended for protection. This Plan will discuss the suitability of the proposed parcel(s) as compensation lands in relation to the selection criteria listed above. **Management Plan.** If the compensation land is held by a private entity, SCE or approved third party shall prepare a management plan for the compensation lands in consultation with the entity that will be managing the lands. The goal of the management plan will be to support and enhance the long-term viability of the biological resources. The Management Plan must be submitted for review and approval to the CPUC and BLM, in consultation with CDFW and USFWS. If the land is conveyed to a public agency, SCE will coordinate with the agency as needed to identify management planning needs (if any). **Compensation Lands Acquisition Requirements.** Compensation land parcels, management planning and funding mechanism, management entities, habitat protection and improvement measures, title conveyance, conservation easement language and easement holder, all will be subject to review and approval by CPUC and BLM in coordination with CDFW and USFWS.
Timing	Pre-construction, Construction, and Post Construction Revegetation Phases
Plan/Reporting Requirements	SCE shall submit a Draft Habitat Compensation Plan for review and approval by the CPUC and BLM

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	If the compensation land is held by a private entity, SCE or approved third party shall prepare a management plan to be submitted for review and approval by CPUC and BLM, in consultation with CDFW and USFWS
Effectiveness Criteria	Impacts for all loss of desert tortoise habitats are compensated
Verification Responsibility	Agencies or Agency Monitor will verify compliance
MITIGATION MEASURE	**BR-9: Conduct surveys and avoidance for special-status reptiles.** [This measure incorporates and supersedes APM BIO-04]. ▪ Pre-activity Surveys: No more than seven days prior to the onset of ground-disturbing activities, an agency-approved biologist — with experience monitoring and handling desert tortoise — will conduct a pre-activity survey in all work areas within potential desert tortoise, banded Gila monster, desert rosy boa, or Mojave fringe-toed lizard habitat, plus an approximately 300-foot buffer. If potentially suitable burrows, sand fields, or rock piles are found, they shall be checked for occupancy. All desert tortoise burrows within the pre-activity survey area (including desert tortoise pallets) must be flagged or marked using an alternate method with minimal potential risk of cuing predators, to be developed in coordination with CDFW so that they may be avoided during work activities. Proposed actions will avoid disturbing desert tortoise burrows to the extent possible. However, burrows may be excavated if they can't be avoided and would be impacted by construction activities. If a tortoise must be handled or a potential tortoise burrow must be excavated, the biologist shall proceed according to the Desert Tortoise (Mojave Population) Field Manual (USFWS 2009) or any requirements of the USFWS and CDFW incidental take authorizations. No desert tortoise may be handled except under explicit authorization from USFWS and CDFW. ▪ Monitoring: The approved tortoise biologist shall be available on site to monitor any work areas for desert tortoise, banded Gila monster, desert rosy boa, and Mojave fringe-toed lizard as needed. The approved tortoise biologist shall also be responsible for performing surveys prior to Proposed Project activities in suitable habitat for all three species. The approved tortoise biologist will have the authority to halt all non-emergency actions (as soon as safely possible) that may result in harm to desert tortoise, and will assist in the overall implementation of all adopted protection measures for special-status reptiles. As an alternative to full-time on-site monitoring, selected work areas (e.g., the series capacitors) may be enclosed by desert tortoise exclusion fencing and then covered by two complete 100 percent coverage clearance surveys. If exclusion fencing is installed, the agency-approved tortoise biologist shall monitor installation. ▪ Desert Tortoise in Work Area: In the event that a desert tortoise is encountered in the work area, all work shall cease and the approved biologist must be contacted. Work shall not recommence until the animal has voluntarily moved to a safe distance away from the work area unless incidental take permits have been obtained to allow handling. Desert tortoises may be moved by an agency-approved biologist as authorized by state and federal incidental take permits if necessary to move them out of harm's way. Encounters with special-status herpetofauna will be reported to an approved biologist. Encounters with desert tortoise will be documented and provided to the California Department of Fish and Wildlife (CDFW), BLM, and U.S. Fish and Wildlife Service (USFWS). In the event that a dead or injured desert tortoise is observed, the approved biologist shall notify SCE's herpetologist and report the incident to the CDFW, BLM, and USFWS. ▪ Under Vehicle Checks: Desert tortoises and other wildlife commonly seek shade during the hottest times of the day. All employees shall be required to check under their equipment or vehicles before they are moved. If special-status wildlife is encountered, the vehicle shall not be moved until the animal(s) have voluntarily moved to a safe distance away from the parked vehicle. Desert tortoises and special-status species may be moved by the approved biologist, if necessary, to move them out of harm's way.

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	▪ Handling Desert Tortoise: Only an agency-approved biologist may move or handle desert tortoises as authorized by state and federal incidental take permits. When a desert tortoise is moved, the approved biologist will be responsible for taking appropriate measures to ensure that the animal is not exposed to harmful temperature extremes. The approved biologist shall follow the appropriate protocols outlined in the Desert Tortoise (Mojave Population) Field Manual (USFWS 2009) when handling desert tortoises or excavating their burrows as described in the state and federal take authorizations. ▪ Excavation of Desert Tortoise Burrows: Should it prove necessary to excavate a desert tortoise from its burrow to move it out of harm's way, excavation shall be done using hand tools, either by or under the direct supervision of an approved biologist. Excavation of desert tortoise burrows will occur no more than seven days before the onset of construction activities at any given site. All desert tortoises removed from burrows must be placed in an unoccupied burrow that is approximately the same size as the one from which it was removed. If an existing burrow is unavailable, the approved biologist shall construct or direct the construction of a burrow of similar shape, size, depth, and orientation as the original burrow following guidelines in the Desert Tortoise (Mojave Population) Field Manual (USFWS 2009). To ensure their safety, desert tortoises moved during inactive periods must be monitored for at least two days after placement in the new burrows or until the end of the construction activity. If desert tortoises need to be moved at a time of day when ambient temperatures could harm them (i.e., at temperatures lower than 40 degrees Fahrenheit (°F) or higher than 90°F), they must be held overnight in a clean cardboard box. These desert tortoises shall be kept in the care of the approved biologist under appropriate controlled temperatures and released the following day when temperatures are favorable. All cardboard boxes shall be appropriately discarded after one use. ▪ Vehicle Travel: Motor vehicles shall be limited to maintained roads and designated routes. If additional routes are needed, they must first be surveyed and approved by the approved biologist. ▪ Raven Management: SCE shall prepare (for CPUC review and wildlife agency approval) and implement a Raven Management Plan (RMP) to minimize avian predation of desert tortoise for the Proposed Project. The purpose of the RMP is to utilize methods that deter raven depredation of juvenile desert tortoises, and other wildlife species. The RMP is not intended to eliminate or control raven populations, but will target offending ravens that have been found to prey upon desert tortoises. The RMP will incorporate an adaptive management strategy for immediate implementation following construction of the Proposed Project. The RMP will be evaluated after three years of implementation, or as needed, if avian predation becomes apparent. The following activities may be implemented as part of the RMP: 1) Common raven nest/power line monitoring, 2) Funding of offending raven control via contract with the U.S. Department of Agriculture, and 3) Alternative control strategies developed in coordination with USFWS (e.g. egg-oiling, laser deterrents, etc.). Mutual and timely cooperation between SCE and the BLM, USFWS, and CDFW is central to effective implementation of the RMP.
Timing	Pre-construction, Construction, and Post Construction Revegetation Phases
Plan/Reporting Requirements	SCE shall prepare (for CPUC review and wildlife agency approval) a Raven Management Plan (RMP)
Effectiveness Criteria	Impacts to special-status reptiles are minimized
Verification Responsibility	Pre-construction surveys are submitted to the CPUC
MITIGATION MEASURE	**MM BR-10: Prepare and implement a Nesting Bird Management Plan.** [Supersedes APM BIO-06.] SCE shall prepare and implement a Nesting Bird Management Plan (NBMP) in coordination with CPUC, BLM, CDFW, and USFWS. The NBMP shall describe methods to minimize potential project effects to nesting birds and avoid any potential for unauthorized

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take. Where scheduling allows SCE will endeavor to conduct clearing of any vegetation, site preparation in open or barren areas, or other project-related activities that may adversely affect breeding birds outside the nesting season. Project-related disturbance including construction and pre-construction activities shall not proceed within 300 feet of active nests of common bird species or 500 feet of active nests of raptors or special-status bird species (except for golden eagle) until approval of the NBMP by CPUC and BLM in consultation with CDFW and USFWS.

NBMP Content. The NBMP shall include: (1) definitions of default nest avoidance buffers for each species or group of species, depending on characteristics and conservation status for each species and the nature of planned Project activities in the vicinity; (2) a notification procedure for buffer distance reductions should they become necessary; (4) a pre-construction survey protocol (surveys no longer than 7 days prior to starting work activity at any site); (5) a monitoring protocol, to be implemented until adjacent construction activities are completed or the nest is no longer active, including qualifications of monitors, monitoring schedule, and field methods, to ensure that any project-related effects to nesting birds will be minimized; and (6) a protocol for documenting and reporting any inadvertent contact with or effects to birds or nests. The NBMP will be applicable throughout the nesting season (beginning January 1 for raptors, February 1 for most other birds, and continuing through the end of August).

Golden eagles. SCE shall review all available USFWS data to identify known golden eagle nest sites or territories in the vicinity of the Project route. SCE shall either assume that known nest sites are occupied or at its discretion conduct nesting season surveys within a 1 mile radius of the portions of the project area where suitable nesting habitat may exist and where work will occur during the breeding season (December 1 through July 31). If a potentially occupied nest (based either on assumption or field data) is detected within 1 mile of the project, SCE shall implement a one-mile line-of-sight and one-half mile no line-of-sight buffer to ensure that project construction activities do not result in injury or disturbance to golden eagles.

Nest deterrents. The NBMP shall describe any proposed measures or deterrents to prevent or reduce bird nesting activity on project equipment or facilities, such as buoys, visual or auditory hazing devices, bird repellents, securing of materials, and netting of materials, vehicles, and equipment. It shall also include timing for installation of nest deterrents and field confirmation to prevent effects to any active nest; guidance for the contractor to install, maintain, and remove nest deterrents according to product specifications; and periodic monitoring of nest deterrents to ensure proper installation and functioning and prevent injury or entrapment of birds or other animals. In the event that an active nest is located on project facilities, materials or equipment, SCE will avoid disturbance or use of the facilities, materials or equipment (e.g., by red-tag) until the nest is no longer active.

Communication. The NBMP shall specify the responsibilities of construction monitors with regard to nests and nest issues and specify a direct communication protocol to ensure that nest information and potential adverse impacts to nesting birds can be promptly communicated from nest monitors to construction monitors, so that any needed actions can be taken immediately.

The NBMP shall specify a procedure to be implemented following accidental disturbance of nests, including wildlife rehabilitation options. It also shall describe any proposed measures, and applicable circumstances, to prevent take of precocial young of ground-nesting birds such as killdeer or quail. For example, chick fences may be used to prevent them from entering work areas and access roads. Finally, the NBMP will specify a procedure for removal of inactive nests, including verification that the nest is inactive and a notification/approval process.

Reporting. Throughout the construction phase of the project, nest locations, project activities in the vicinity of nests (including helicopter traces), and any adjustments to buffer areas shall be updated and available to CPUC monitors on a daily basis. All buffer

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	reduction notifications and prompt notifications of nest-related non-compliance and corrective actions will be made via email to CPUC monitors. The draft NBMP shall include a proposed format for daily and weekly reporting (e.g., spreadsheet available online, tracking each nest). In addition, the NBMP shall specify the format and content of nest data to be provided in regular monitoring and compliance reports. At the end of each year's nest season, SCE will submit an annual NBMP report to the CPUC, BLM, CDFW, and USFWS. Specific contents and format of the annual report will be reviewed and approved by the CPUC and BLM in consultation with CDFW and USFWS.
Timing	Pre-construction, Construction, and Post Construction Revegetation Phases
Plan/Reporting Requirements	SCE shall prepare and implement a Nesting Bird Management Plan (NBMP) for approval by CPUC and BLM in consultation with CDFW and USFWS The draft NBMP shall include a proposed format for daily and weekly reporting At the end of each year's nest season, SCE will submit an annual NBMP report to the CPUC, BLM, CDFW, and USFWS
Effectiveness Criteria	Compliance with Nesting Bird Management Plan
Verification Responsibility	Agencies or Agency Monitor will verify compliance, pre-construction surveys are submitted to the CPUC
MITIGATION MEASURE	**MM BR-11: Conduct surveys and avoidance for burrowing owl.** [Supersedes APM BIO-07.] Burrowing owl surveys shall be conducted in accordance with the most current CDFW guidelines in Appendix D of the Staff Report on Burrowing Owl Mitigation (CDFG, 2012; or updated guidelines as they become available) in all potential habitat, regardless whether or not the previous assessment identified burrows. SCE shall take measures to avoid impacts to any active burrowing owl burrow within or adjacent to a work area. The default buffer for a burrowing owl burrow is 300 feet for ground construction, and 300 feet horizontal and 200 feet vertical for helicopter construction. Effectiveness of the buffer area will be monitored, and adjustments will be made if necessary. The Nesting Bird Management Plan (Mitigation Measure BR-10) will specify a procedure for adjusting this buffer, if needed. Binocular surveys may be substituted for protocol field surveys on private lands adjacent to the project site only when SCE has made reasonable attempts to obtain permission to enter the property for survey work but was unable to obtain such permission. If active burrowing owl burrows are located within project work areas, SCE may passively relocate the owls by preparing and implementing a Burrowing Owl Passive Relocation Plan, as described below. SCE shall prepare a draft Burrowing Owl Passive Relocation Plan for review and approval by CPUC and BLM in consultation with CDFW and USFWS prior to the start of any ground-disturbing activities. SCE may not initiate burrowing owl passive relocation prior to finalization of the Plan and approval by CPUC and BLM. No active relocation shall be permitted. No passive relocation of burrowing owls shall be permitted during breeding season, unless a qualified biologist verifies through non-invasive methods that an occupied burrow is not occupied by a mated pair, and only upon authorization by CDFW. The Plan shall include, but not be limited to, the following elements: ▪ **Assessment of Suitable Burrow Availability.** The Plan shall include an inventory of existing, suitable, and unoccupied burrow sites within 500 feet of the affected project work site. Suitable burrows will include inactive desert kit fox, ground squirrel, or desert tortoise burrows that are deep enough to provide suitable burrowing owl nesting sites, as determined by a qualified biologist. If two or more suitable and unoccupied burrows are present in the area for each burrowing owl that will be passively relocated, then no replacement burrows will need to be built. ▪ **Replacement Burrows.** For each burrowing owl that will be passively relocated, if fewer than two suitable unoccupied burrows are available within 500 feet of the affected project work site, then SCE shall construct at least two replacement burrows within 500 feet of the affected project work site. Burrow replacement sites shall be in areas of

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	suitable habitat for burrowing owl nesting, and subject to minimal human disturbance and access. The Plan shall describe measures to ensure that burrow installation or improvements would not affect sensitive species habitat or any burrowing owls already present in the relocation area. The Plan shall provide guidelines for creation or enhancement of at least two natural or artificial burrows for each active burrow within the project disturbance area, including a discussion of timing of burrow improvements, specific location of burrow installation, and burrow design. Design of the artificial burrows shall be consistent with CDFW guidelines (CDFG, 2012; or more current guidance as it becomes available) and shall be approved by the CPUC, BLM, CDFW, and USFWS. ▪ **Methods.** Provide detailed methods and guidance for passive relocation of burrowing owls, outside the breeding season. An occupied burrow may not be disturbed during the nesting season (generally, but not limited to, February 1 to August 31), unless a qualified biologist determines, by non-invasive methods, that it is not occupied by a mated pair. Passive relocation would include installation of one-way doors on burrow entrances that would let owls out of the burrow but would not let them back in. Once owls have been passively relocated, burrows will be carefully excavated by hand and collapsed by, or under the direct supervision, of a qualified biologist. ▪ **Monitoring and Reporting.** Describe monitoring and management of the replacement burrow site(s) and provide a reporting plan. The objective shall be to manage the relocation area for the benefit of burrowing owls, with the specific goal of maintaining the functionality of the burrows for a minimum of two years. Monitoring reports shall be available to the CPUC and BLM on a weekly basis.
Timing	Pre-construction, Construction, and Post Construction Revegetation
Plan/Reporting Requirements	SCE shall prepare a draft Burrowing Owl Passive Relocation Plan for review and approval by CPUC and BLM in consultation with CDFW and USFWS Monitoring reports shall be available to the CPUC and BLM on a weekly basis
Effectiveness Criteria	Impacts to Burrowing Owl are avoided or minimized
Verification Responsibility	Pre-construction surveys are submitted to the CPUC
MITIGATION MEASURE	**MM BR-12: Conduct surveys and avoidance for bats.** SCE shall conduct surveys for roosting bats within 200 feet of project work areas within 14 days prior to any grading of rocky outcrops or removal of large trees (12 inches in diameter or greater at 4.5 feet above grade) with loose bark or other cavities, foliage, and palm fronds. Surveys shall be conducted during the breeding season (1 March to 31 July) and the non-breeding season. Surveys shall be performed by a qualified bat biologist (i.e., a biologist holding a CDFW collection permit and a Memorandum of Understanding or equivalent agreement with CDFW allowing the biologist to handle bats). The resume of the biologist shall be provided to the CPUC and BLM for concurrence in consultation with CDFW and USFWS prior to the biologist beginning field duties on the project. Surveys shall include a minimum of one day and one evening. Any active bat roosts, including occupied day roosts, maternity roosts, and hibernacula, must be identified and clearly marked. An exclusion area will be established 165 feet from any active roost, and these areas will be avoided during construction activities. Ingress and egress along established routes will be permitted in those areas, and additional buffer reductions may be considered in coordination with the qualified bat biologist, CPUC, and CDFW. If active roosts are found, then SCE will either (1) delay construction activities at these sites until the roost is no longer active, or (2) conduct follow-up focused surveys to determine if the sites support special-status bat species. If the roost is occupied by common species, then work activities may proceed. SCE shall consult with a bat specialist in order to determine when the breeding cycle for the special-status bats is completed. SCE shall consult with CDFW regarding eviction of non-breeding bats.

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	SCE shall submit documentation providing pre-construction survey results and any avoidance of roosting and nursery sites to the CPUC and BLM for review and approval.
Timing	Pre-construction, Construction, and Post Construction Revegetation Phases
Plan/Reporting Requirements	SCE shall submit documentation providing pre-construction survey results and any avoidance of roosting and nursery sites to the CPUC and BLM for review and approval
Effectiveness Criteria	Impacts to bats are avoided or minimized
Verification Responsibility	Pre-construction surveys are submitted to the CPUC
MITIGATION MEASURE	**MM BR-13: Conduct surveys and avoidance for American badger, ringtail, and desert kit fox.** SCE shall conduct pre-construction surveys for desert kit fox, ringtail, and American badger no more than 30 days prior to initiation of construction activities. Surveys shall be conducted in areas that contain habitat for this these species and shall include project disturbance areas and access roads plus a 200-foot buffer surrounding these areas. SCE shall submit documentation providing pre-construction survey results to the CPUC and BLM for review and approval. If dens are detected, each den shall be classified as inactive, potentially active, active non-natal, or active natal. Inactive dens located in project disturbance areas may be excavated by hand and backfilled to prevent reuse, only upon confirmation that they are inactive. Active or potentially active dens shall be flagged and project activities, with exceptions as listed below, within 100 feet (non-natal dens) or 200 feet (natal dens, or any active den during the breeding season) shall be avoided. Ingress/egress of construction vehicles and equipment through buffers and low intensity activities such as inspections and BMP maintenance within buffers is allowed, provided a qualified biologist determines that these activities will not impact dens or denning animals. Buffers may be modified with concurrence of CPUC and BLM, in consultation with CDFW and USFWS. If active dens are found within project disturbance areas and avoidance is not possible, SCE shall take action as specified below, after notifying and obtaining concurrence from CPUC, BLM, and CDFW. **Active and potentially active non-natal dens.** Outside the breeding season, any potentially active dens that would be directly impacted by construction activities shall be monitored by a qualified mammologist or biologist for three consecutive nights using a tracking medium (such as diatomaceous earth or fire clay) or infrared camera stations at the entrance. If no tracks are observed in the tracking medium or no photos of the target species are captured after three nights, the den may be excavated and backfilled by hand. If tracks are observed, the den may be progressively blocked with natural materials (rocks, dirt, sticks, and vegetation piled in front of the entrance) for the next three to five nights to discourage continued use. After verification that the den is no longer active, the den may be excavated and backfilled by hand. **Active natal dens.** Active natal dens (any den with cubs or pups) or any den active during the breeding season will not be excavated or passively relocated. The cub or pup-rearing season is generally from January 15 through mid-September. A 200-foot no-disturbance buffer shall be maintained around all active natal dens. Discovery of an active natal den that could be impacted by the project shall be reported to the CPUC, BLM, and CDFW within 24 hours of the discovery along with a map of the den location and a copy of the survey results. A qualified biologist shall monitor the natal den until he or she determines that the pups have dispersed. Any disturbance to denning animals or activities that might disturb denning activities shall be prohibited within the buffer zone. Once the pups have dispersed, methods listed above for non-natal dens may be used to discourage den reuse. After verification that the den is unoccupied, it shall then be excavated by hand and backfilled to ensure that no animals are trapped in the den. If canine distemper is reported in desert kit fox on the site or surrounding areas, then SCE shall coordinate with CPUC, BLM, and CDFW to identify appropriate actions prior to continuing implementation of this mitigation measure in respect to desert kit fox. Any obser-

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	vations of a kit fox that appears sick or any kit fox mortality shall be reported to CPUC, CDFW, and BLM within one work day. In the event that passive relocation techniques fail, SCE shall contact the CPUC, BLM, and CDFW to explore other relocation options. All den monitoring and excavation activities and passive relocations shall be documented and reported to the CDFW, BLM, and CPUC in weekly monitoring reports, and a written summary will be included in each annual monitoring report.
Timing	Pre-construction, Construction, and Post Construction Revegetation Phases
Plan/Reporting Requirements	SCE shall submit documentation providing pre-construction survey results to the CPUC and BLM for review and approval All den monitoring and excavation activities and passive relocations shall be documented and reported to the CDFW, BLM, and CPUC in weekly monitoring reports, and a written summary will be included in each annual monitoring report
Effectiveness Criteria	Impacts to American badger, ringtail, and desert kit fox are avoided or minimized
Verification Responsibility	Pre-construction surveys are submitted to the CPUC
Cultural Resources	
MITIGATION MEASURE	**APM-CUL-02: Cultural Resources Survey.** SCE would perform surveys prior to construction for any Proposed Project areas not yet surveyed (e.g., new or modified staging areas, pull sites, or other work areas).
Timing	Pre-construction and Construction Phases
Plan/Reporting Requirements	As required by CRMP
Effectiveness Criteria	Impacts to cultural resources are minimized
Verification Responsibility	Agencies or Agency Monitor will verify compliance
MITIGATION MEASURE	**MM CR-1: Retain a Cultural Resources Specialist.** Prior to the start of construction, a project Cultural Resources Specialist (CRS) whose training and background conforms to the U.S. Secretary of Interior's Professional Qualifications Standards, as published in Title 36, Code of Federal Regulations, part 61 (36 C.F.R., part 61) shall be retained by SCE to supervise monitoring of construction excavations and to prepare a Cultural Resources Management Plan (CRMP) for the approved project. Their qualifications shall be appropriate to the needs of the project, specifically an archaeologist with demonstrated prior experience in the southern California desert and previous experience working with Southern California Tribal Nations. A copy of their qualifications shall be provided to the CPUC for review and approval. The project Cultural Resources Specialist shall use the services of Cultural Resources Monitors, tribal monitors and Field Crew as needed, to assist in mitigation, monitoring, and curation activities, as outlined in the CRMP. A copy of all proposed cultural staff qualifications shall be provided to the CPUC for review and approval prior to beginning work.
Timing	Pre-construction
Plan/Reporting Requirements	None
Effectiveness Criteria	Retention of a cultural resources specialist
Verification Responsibility	Agencies or Agency Monitor will verify compliance
MITIGATION MEASURE	**MM CR-2: Cultural resources environmental awareness training.** Project personnel, including cultural resources monitors and tribal monitors, shall receive training that includes sensitivity training provided through participating tribes in video format regarding the appropriate work practices necessary to effectively implement the APMs and mitigation measures related to cultural resources and tribal cultural resources, including human remains. Training shall be required for all personnel before they begin

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	work on a project site and repeated as needed for all new personnel before they begin work on the Project. This training program shall be submitted to the CPUC for approval at least 30 days before the start of construction and include procedures to be followed upon the discovery or suspected discovery of archaeological materials, tribal cultural resources, and human remains, consistent with the procedures set forth in the CRMP. This training may be integrated with a broader Worker Environmental Awareness Training program. Documentation of the training will be provided to the BLM and CPUC. The CPUC will provide documentation to the consulting tribes.
Timing	Pre-construction, Construction, and Post Construction Revegetation Phases
Plan/Reporting Requirements	See MM BR-2
Effectiveness Criteria	All on-site project personnel receive this training prior to beginning work
Verification Responsibility	Agencies or Agency Monitor will verify compliance
MITIGATION MEASURE	**MM CR-3: Prepare and implement a Cultural Resources Management Plan.** Prior to the beginning of construction, SCE shall submit at least 90 days before construction a Cultural Resources Management Plan (CRMP) for the project to the BLM and CPUC for review. The CPUC will submit the CRMP to representatives of consulting tribes for a 30-day review and comment period prior to approving the CRMP. The CPUC will in good faith consider any comments received from consulting tribes and incorporate such comments into the CRMP as deemed feasible. A single plan document that meets the requirements of both BLM and CPUC is acceptable. The CRMP shall be implemented under the direction of the SCE and the project Cultural Resources Specialist. The CRMP shall be prepared at the sole expense of the project proponent and shall meet all regulatory requirements. At a minimum the CRMP must address the following: ▪ The duties of the project Cultural Resources Specialist and associated staff shall be fully explained, including oversight/management, monitoring, and reporting duties with respect to known cultural resources and tribal cultural resources as well as site evaluation, data collection, and reporting for any newly identified resources discovered during project activities. The professional standards and ethical guidelines for all cultural resource personnel will be clearly outlined in the CRMP. ▪ No collection of artifacts is authorized or planned for this project. If an unanticipated discovery requires evaluation via excavation and artifact collection, the retention/disposal, and permanent and temporary curation policies shall be specified. The decision-making process for identifying which artifacts are curated or reburied, where they are reburied and the individuals, including tribal participants, making these decisions shall be described. These policies shall apply to cultural resources materials and documentation resulting from evaluation and treatment of cultural resources and tribal cultural resources discovered during project activities. ▪ The CRMP shall define and map all known prehistoric and historic resources eligible to the NRHP and CRHR within 100 feet of proposed work areas. How these resources will be avoided and protected during construction will be described. Avoidance measures to be used will be described, including where and when they will be implemented. How avoidance measures and enforcement of Environment Sensitive Areas (ESAs) will be coordinated with construction personnel will be included. ▪ The implementation sequence and the estimated time frames needed to accomplish all project-related tasks (i.e., evaluation of new resources resulting in work stoppage, time to complete reports, etc.) during the project activities and any post-project analysis phases of the project, if necessary, shall be specified. The intensity of monitoring proposed for each resource that may be impacted by project activities shall be outlined in the CRMP. ▪ Person(s) expected to perform each monitoring and, if necessary, treatment task, their responsibilities, and the reporting relationships between project construction management and the monitoring and treatment team shall be outlined in the CRMP.

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	▪ Tribal Monitors shall be retained to monitor ground disturbing activities within 100 feet of prehistoric and protohistoric resources. Tribal Monitors shall be retained for data recovery within prehistoric and protohistoric resources identified for data recovery. The ELM Project area spans multiple Tribal areas. The Tribe affiliated with a specific area will be considered first to provide Tribal Monitors. If multiple Tribes or Tribal Organizations are affiliated with a specific area, Tribal Monitors will be selected on a rotating basis. The CRMP will describe the roles and responsibilities of the monitors. Tribal monitors will be compensated. All impact-avoidance measures (such as the presence of monitors) to prohibit or otherwise restrict access to sensitive resource areas that are to be avoided during ground disturbance, construction, and/or operation shall be described. Areas where these measures are to be implemented shall be identified. The description shall address how these measures would be implemented prior to the start of ground disturbance and how long they would be needed to protect the resources from project-related impacts. ▪ The commitment to record resources on Department of Parks and Recreation (DPR) 523 forms, to map, and to photograph all newly identified cultural resources over 50 years of age shall be stated. Participating tribes may offer their perspective regarding the newly identified cultural resource. Comments by tribes may be documented on the DPR 523c, parts A13 (Interpretation) and A14 (Remarks). ▪ The commitment to curate all artifacts retained as a result of any archaeological investigations in accordance with the appropriate requirements and the California State Historical Resources Commission's Guidelines for the Curation of Archaeological Collections, into a retrievable storage collection in a public repository, museum, or reburial at the request of tribal representatives shall be stated. The different curation policies for archaeological material collected on BLM land as opposed to private or state land, shall be clearly articulated. ▪ The commitment of SCE to pay all curation or reburial fees for artifacts recovered and for related documentation produced during cultural resources investigations conducted for the project shall be stated. Should consulting tribes request that artifacts not be reburied, the CRMP shall identify a curation facility that could accept cultural resources materials resulting from project cultural resources investigations on private or state land. Tribal monitors shall be present for any reburials. ▪ A final report shall be prepared presenting the results of the monitoring efforts. The contents, format, and review and approval process of the final report shall meet appropriate federal, state, and local guidelines.
Timing	Pre-construction, Construction, and Post Construction Revegetation Phases
Plan/Reporting Requirements	SCE shall prepare and submit for approval a Cultural Resource Management Plan (CRMP) to the BLM and the CPUC for review and approval at least 60 days prior to the start of construction. In addition, the CRMP will be submitted to Native American interested parties for review The CRMP shall detail reporting of results within one year of completion of field studies
Effectiveness Criteria	Compliance with the CRMP
Verification Responsibility	Agencies or Agency Monitor will verify compliance
MITIGATION MEASURE	**MM CR-4: Inadvertent discovery of cultural or tribal cultural resources.** If previously undiscovered resources are identified during project activities all activities within 100 feet (30 meters) of the resource shall halt. The onsite construction supervisor and SCE shall be notified. SCE will notify the CPUC and BLM of the discovery. The monitoring team shall flag-off the area. SCE and its cultural resource specialist will coordinate with the CPUC, BLM, NPS and tribal representatives as appropriate, on avoidance measures. If the resource cannot be avoided, methods of resource evaluation, and methods of mitigation will be discussed with all appropriate parties. Work may be temporarily diverted to activities that are outside of 100 feet (30 meters) of the discovered or suspected resource. The resource shall be evaluated to determine whether it is eligible for the NRHP,

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	CRHR, a unique archaeological resource, a tribal cultural resource, or part of a larger culturally sensitive landscape area or traditional cultural property. If the resource is determined not to be significant, work may recommence in the area. If the resource is determined significant work shall remain halted within 100 feet (30 meters) of the area of the find, SCE shall consult with the BLM, CPUC, and representatives of the consulting tribes as appropriate regarding methods to ensure that no adverse effect and no substantial adverse change would occur to the significance of the resource. Preservation in place (i.e., avoidance) is the preferred method of mitigation for impacts to cultural resources. Other methods of mitigation, described below, shall only be used if it is determined the method would provide equivalent or superior mitigation of the impacts to the resource. The alternative methods of mitigation may include data recovery and documentation of the information contained in the resource to answer questions about local prehistory or history. The methods and results of the evaluation or data recovery work at an archaeological find shall be documented in a professional-level technical report to be filed with the California Historical Resources Information System (CHRIS). Work in the area may commence upon completion of treatment, as approved by the BLM and CPUC. If data recovery of resources is necessary, additional archaeologists shall perform the excavation while the monitoring team(s) continues to monitor construction. Additionally, the tribes shall be offered the opportunity to monitor data recovery efforts at prehistoric sites in addition to construction efforts, under the same contract terms. This opportunity shall be additionally be extended to tribes that consulted on this project, but for which a tribal monitor was not provided for construction efforts.
Timing	Pre-construction, Construction, and Post Construction Phases
Plan/Reporting Requirements	SCE shall report the discovery of any cultural resources
Effectiveness Criteria	Compliance with the CRMP and mitigation measure
Verification Responsibility	Agencies or Agency Monitor will verify compliance.
MITIGATION MEASURE	**MM CR-5: Avoidance of cultural and tribal cultural resources.** When project work is planned within 100 feet of a known prehistoric-era cultural resource or a tribal cultural resource, or any resources that are eligible for the CRHR and/or NRHP, avoidance areas shall be established and monitors shall be present as outlined in the CRMP. ESAs shall be established with a 50 foot buffer around each resource prior to project activities, except where the 50-foot buffer would encroach on a work area, in which event the ESA buffer shall be the near edge of the identified work area. Monitoring teams shall include one qualified cultural resources monitor and one Native American monitor at prehistoric sites. ESAs shall be established by a qualified cultural resources monitor. The timing and intensity of the monitoring may vary according to the type of resource and the nature of the work planned and shall be determined in consultation with consulting tribes, as appropriate.
Timing	Pre-construction, Construction, and Post Construction Phases
Plan/Reporting Requirements	SCE shall implement required avoidance requirements, including buffers
Effectiveness Criteria	Compliance with the CRMP and mitigation measure
Verification Responsibility	Agencies or Agency Monitor will verify compliance
MITIGATION MEASURE	**MM CR-6: Prepare monitoring reports.** Upon completion of cultural resources and tribal cultural resources monitoring, SCE shall prepare a single report that summarize the monitoring efforts and the results, analyses, and conclusions of the monitoring program. Individual volumes per land ownership will be included and provide additional details. Copies of the report shall be submitted to both the CPUC and BLM within 60 days of the close of construction. Thereafter, consistent with individual agency policy, each agency will disseminate to the consulting tribes the report applicable to land under that agency's jurisdiction. Draft reports under CPUC jurisdiction will be submitted to consulting tribes for a 30-day review and comment period concurrent with agency review. If no new

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	resources were discovered during construction, a letter report shall be submitted to the CPUC and BLM summarizing monitoring efforts. If resources were identified during construction, the reports shall be consistent with the California Archaeological Resources Management Reports (ARMR) and commensurate with the nature and significance of the identified resource(s). If artifacts are collected, they shall be curated at a recognized curation facility unless consulting tribes request that the Native American artifacts be reburied on site. Documentation associated with any newly identified resources shall be filled with the CHRIS, if appropriate.
Timing	Post Construction
Plan/Reporting Requirements	SCE shall prepare and submit required report
Effectiveness Criteria	Delivery of draft/final report
Verification Responsibility	Agencies or Agency Monitor will verify compliance
MITIGATION MEASURE	**MM CR-7: Inadvertent discovery of human remains on state owned land or private property.** In the event that human remains or suspected human remains are identified, SCE shall comply with California law (Heath and Safety Code Section 7050.5; PRC Sections 5097.94, 5097.98, and 5097.99). The area shall be flagged off and all project activities within 200 feet (60 meters) of the find shall immediately cease. The CPUC-approved Cultural Resources Specialist and SCE shall be immediately notified. SCE shall immediately contact the Medical Examiner at the County Coroner's office, BLM, CPUC as well as representatives of consulting tribes. The CLSC will be notified if the remains are identified on state land. The Medical Examiner has two (2) working days to examine the remains. If the Medical Examiner believes the remains are Native American, they shall notify the California Native American Heritage Commission (NAHC) within 24 hours. If the remains are not believed to be Native American, the appropriate local law enforcement agency will be notified. The NAHC will immediately notify the person or tribe it believes to be the most likely descendant (MLD) of the remains, and the MLD has 48 hours to make recommendations to the landowner or representative for the respectful treatment or disposition of the human remains and any associated grave goods. If the MLD does not make recommendations within 48 hours, the remains shall be reinterred in the location they were discovered and the area of the property shall be secured from further disturbance. If there are disputes between the landowner and the MLD, the NAHC shall mediate the dispute and attempt to find a solution. If the mediation fails to provide measures acceptable to the landowner, the landowner or their representative shall reinter the remains and associated grave goods and funerary objects in an area of the property secure from further disturbance. The location of any reburial of Native American human remains shall not be disclosed to the public and shall not be governed by public disclosure requirements of the California Public Records Act, Cal. Govt. Code§ 6250 et seq., unless otherwise required by law. The Medical Examiner shall withhold public disclosure of information related to such reburial pursuant to the specific exemption set forth in California Government Code Section 6254(r).
Timing	Construction and Post Construction Revegetation Phases
Plan/Reporting Requirements	None
Effectiveness Criteria	Laws, statutes, and regulations are followed for the treatment of human remains
Verification Responsibility	Agencies or Agency Monitor will verify compliance
MITIGATION MEASURE	**MM CR-8: Inadvertent discovery of human remains on federal land.** If potential human remains are discovered during any Project activity on lands administered by federal agencies, all activities within 200 feet that will cease immediately. SCE will take appropriate steps to secure and protect human remains and any funerary objects from further disturbance. SCE will notify the BLM and the County Coroner (California Health and Safety Code 7050.5(b)) immediately. If the remains are determined to be Native American

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	or if Native American cultural items pursuant to the Native American Graves Protection and Repatriation Act (NAGPRA) are uncovered, the remains shall be treated in accordance with the provisions of NAGPRA (43 CFR 10) and the Archaeological Resources Protection Act (43 CFR 7). SCE shall assist and support the federal agency, as appropriate, in all required NAGPRA and Section 106 actions, government to-government and consultations with Native Americans, agencies, and consulting parties as requested by the federal agency. SCE shall comply with and implement all required actions and studies that result from such consultations.
Timing	Construction and Post Construction Revegetation Phases
Plan/Reporting Requirements	None
Effectiveness Criteria	Laws, statutes, and regulations are followed for the treatment of human remains
Verification Responsibility	Agencies or Agency Monitor will verify compliance
Geology and Soils	
MITIGATION MEASURE	**MM PAL-1: Retain qualified paleontological staff.** Project Paleontologist – Prior to the start of ground disturbance, a qualified paleontologist to serve as Project Paleontologist shall be retained by SCE. The qualifications of the Project Paleontologist shall be submitted to CPUC and BLM for approval. This individual shall retain a BLM paleontological resource use permit for the project and other appropriate permits. To do so this individual shall have the following qualifications as stipulated in BLM Manual 8270-1: ▪ Professional instruction in a field of paleontology relevant to the work proposed (vertebrate, invertebrate, trace, paleobotany, etc.), obtained through: – Formal education resulting in a graduate degree from an accredited institution in paleontology, or in geology, biology, botany, zoology or anthropology if the major emphasis is in paleontology; or – Equivalent paleontological training and experience including at least 24 months under the guidance of a professional paleontologist who meets qualification above that provided increased responsibility leading to professional duties similar to those in qualification above; and ▪ Demonstrated experience in collecting, analyzing, and reporting paleontological data, similar to the type and scope of work proposed in the application; ▪ Demonstrated experience in planning, equipping, staffing, organizing, and supervising crews performing the work proposed in the application; ▪ Demonstrated experience in carrying paleontological projects to completion as evidenced by timely completion and/or publication of theses, research reports, scientific papers and similar documents. As described in BLM Instruction Manual (IM) 2009-011, the Project Paleontologist will serve as the Principal Investigator (PI) under the BLM permit and is responsible for all actions under the permit, for meeting all permit terms and conditions, and for the performance of all other personnel. This person is also the contact person for the project proponent, CPUC, and the BLM. Additional Paleontological Staff – The Project Paleontologist may obtain the services of Paleontological Field Agents, Field Monitors, and Field Assistants, if needed, to assist in mitigation, monitoring, and curation activities. These individuals must meet the qualifications described in BLM IM 2009-011.
Timing	Pre-construction
Plan/Reporting Requirements	None
Effectiveness Criteria	Qualified paleontological staff are retained
Verification Responsibility	Agencies or Agency Monitor will verify compliance

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MITIGATION MEASURE	**MM PAL-2: Provide paleontological environmental awareness training.** SCE will provide worker's environmental awareness training on paleontological resources protection as part of its WEAP required under Mitigation Measure BR-2, Prepare and implement a Worker Environmental Awareness Program. This training may be administered by the project paleontologist as a stand-alone training or included as part of the overall worker's environmental awareness training. At a minimum, the training would 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 followed in the event of a fossil discovery; and ▪ penalties for disturbing paleontological resources.
Timing	Pre-construction, Construction, and Post Construction Revegetation Phases
Plan/Reporting Requirements	See MM BR-2
Effectiveness Criteria	All on-site project personnel receive this training prior to beginning work
Verification Responsibility	Agencies or Agency Monitor will verify compliance
MITIGATION MEASURE	**MM PAL-3: Prepare and implement a Paleontological Resource Mitigation and Monitoring Plan (PRMMP).** [Supersedes APM CUL-04] Prior to the start of the project, SCE shall submit a Paleontological Mitigation and Monitoring Plan (PRMMP) for the project to the CPUC and BLM for review and approval. The PRMMP shall be prepared and implemented under the direction of the Project Paleontologist and shall address and incorporate mitigation measures PAL-1, PAL-3 and PAL-4. The PRMMP shall be based on Society of Vertebrate Paleontology (SVP) assessment and mitigation guidelines and meet all regulatory requirements. A monitoring plan indicates the avoidance or treatments recommended for the area of the proposed disturbance and must at a minimum address the following: ▪ Identification and mapping of impact areas of high sensitivity that will be monitored during construction; ▪ A coordination strategy to ensure that a qualified paleontologist will conduct monitoring at the appropriate locations at the appropriate intensity; ▪ The significance criteria to be used to determine which resources will be avoided or recovered for their data potential; ▪ Procedures for the discovery, recovery, preparation, and analysis of paleontological resources encountered during construction, in accordance with standards for recovery established by the SVP; ▪ Provisions for verification that the project proponent has an agreement with a recognized museum repository, for the disposition of recovered fossils and that the fossils shall be prepared prior to submittal to the repository as required by the repository (e.g., prepared, analyzed at a laboratory, curated, or cataloged); ▪ Specifications that all paleontological work undertaken by the project proponent shall be carried out by qualified paleontologists with appropriate current permits, including but not limited to a Paleontological Resources Use Permit (for work on public lands administered by BLM) and any other permits required by other jurisdictions; ▪ Description of monitoring reports that will be prepared which shall include daily logs, monthly reports, and a final monitoring report with an itemized list of specimens found to be submitted to the BLM, the CPUC, the project proponent and the designated repository within 90 days of the completion of monitoring; ▪ The implementation sequence and the estimated time frames needed to accomplish all project-related tasks during the ground-disturbance and post-ground-disturbance analysis phases of the project shall be specified; and

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	▪ Person(s) expected to perform each of the tasks, their responsibilities, and the reporting relationships between project construction management and the mitigation and monitoring team shall be identified. ▪ All impact-avoidance measures (such as flagging or fencing) to prohibit or otherwise restrict access to sensitive resource areas that are to be avoided during ground disturbance, construction, and/or operation shall be described. Any areas where these measures are to be implemented shall be identified. The description shall address how these measures would be implemented prior to the start of ground disturbance and how long they would be needed to protect the resources from project-related impacts.
Timing	Pre-construction, Construction, and Post Construction Revegetation Phases
Plan/Reporting Requirements	Prior to the start of the project, SCE shall submit a Paleontological Mitigation and Monitoring Plan (PRMMP) for the project to the CPUC and BLM for review and approval
Effectiveness Criteria	Compliance with PRMMP
Verification Responsibility	Agencies or Agency Monitor will verify compliance
MITIGATION MEASURE	**MM PAL-4: Conduct monitoring for paleontological resources.** The applicant shall continuously comply with the following during all ground disturbing activities during the project: ▪ All ground disturbing activity in Proposed Project work areas identified with unknown, high, or very high paleontological sensitivity (PFYC U, PFYC 4, or PFYC 5) should be monitored on a full-time basis by a BLM- approved Paleontological Field Agent who will work under the supervision of the BLM- permitted paleontologist and principal investigator. ▪ Ground disturbing activity that exceeds 5 feet in depth in work areas underlain by Holocene units shall be monitored part time. Spot-checking shall take place at least once a day and be conducted by a Qualified Paleontologist. ▪ The level of effort and intensity for monitoring shall be modified as needed by a Qualified Paleontologist, in consultation with the appropriate agency personnel, based on the sediment types, depths, and distributions observed during monitoring throughout the life of the project. ▪ Project activities shall be diverted when data recovery of significant fossils is warranted, as determined by the Project Paleontologist. Monitoring shall be conducted as follows: – Monitoring of ground disturbance shall consist of the surface collection of visible vertebrate and significant invertebrate fossils within the project site. Upon discovery of paleontological resources by paleontologists or construction personnel, work in the immediate area of the find shall be halted and diverted and the Project Paleontologist shall be notified. Once the find has been inspected and a preliminary assessment has been made, the Project Paleontologist will notify SCE. SCE will notify the CPUC, BLM, and MNP of the discovery within 24 hours. If recovery of a large or unusually productive fossil occurrence is warranted, earth-moving activities shall be diverted temporarily around the fossil locality, and a recovery crew shall be mobilized to remove the material as quickly as possible. The monitor shall be permitted to photograph and/or draw stratigraphic profiles of cut surfaces and take samples for analysis of microfossils, dating, or other specified purposes in accordance with the PMMP. – Recovered specimens shall be prepared to a point of identification, including washing of sediments to recover smaller fossil remains. Once excavation has reached specified depths, salvage of fossil material from the sidewalls of the cut shall resume. Specimens shall be identified and curated into a repository with retrievable storage. ▪ All significant fossil specimens recovered from the project site as a result of the paleontological monitoring and mitigation program shall be treated (prepared, identified, curated, and catalogued) in accordance with the designated repository requirements.

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	Samples shall be submitted to a laboratory, acceptable to the designated repository, for identification, dating, and microfossil and pollen analysis.
Timing	Construction and Post Construction Revegetation Phases
Plan/Reporting Requirements	None
Effectiveness Criteria	Compliance with PRMMP
Verification Responsibility	Agencies or Agency Monitor will verify compliance
Hazards and Hazardous Materials	
MITIGATION MEASURE	**MM HH-1: Prepare and implement a Hazardous Materials and Waste Management Plan.** SCE shall prepare and implement a Project-specific Hazardous Materials and Waste Management Plan pursuant to Title 24, Part 9 of the California Code of Regulations (CCR) that identifies hazardous materials to be transported, used, and stored on site for the proposed construction activities — as well as hazardous wastes generated onsite as a result of the proposed construction activities — and appropriate management procedures according to the specifications outlined below. ▪ **Hazardous Materials and Hazardous Waste Handling:** The Plan will include the following components: (1) the program shall identify types of hazardous materials to be used during the project and the types of wastes that would be generated; (2) proper hazardous materials use, storage and disposal requirements as well as hazardous waste management procedures; and (3) all project personnel shall be provided with project-specific training to ensure that all hazardous materials and wastes associated with the project are handled in a safe and environmentally sound manner and disposed of according to applicable rules and regulations. Specifically, employees handling wastes shall have or receive hazardous materials training and shall be trained in hazardous waste procedures, spill contingencies, waste minimization procedures and treatment, storage and disposal facility (TSDF) training in accordance with current OSHA Hazard Communication Standard and Title 22 CCR. The Plan shall identify the landfill facilities that are authorized to accept the types of waste generated and hauled, and these landfills shall be used for hazardous waste disposal during construction. ▪ **Transport of Hazardous Materials:** Hazardous materials that would be transported by truck include fuel (diesel fuel and gasoline) and oil and lubricants for equipment. Containers used to store hazardous materials would be properly labeled and kept in good condition. The Plan shall include written procedures for the transport of hazardous materials used in accordance with U.S. Department of Transportation and Caltrans regulations. A qualified transporter would be selected to comply with U.S. Department of Transportation and Caltrans regulations. The Plan shall identify proposed trucking routes. ▪ **Fueling and Maintenance of Construction Equipment:** Written procedures for fueling and maintenance of construction equipment shall be included in the Plan. Refueling and maintenance procedures may require vehicles and equipment to be refueled on site or by tanker trucks. Procedures will require the use of drop cloths made of plastic, drip pans and trays to be placed under refilling areas to ensure that chemicals do not come into contact with the ground. Refueling would be located in areas where absorbent pad and trays would be available. The fuel tanks would also contain a lined area to ensure that accidental spillage does not occur. Drip pans or other collection devices would be placed under the equipment at night to capture drips or spills. Equipment would be inspected daily for potential leakage or failures. Hazardous materials such as paints, solvents, and penetrants would be kept in an approved locker or storage cabinet. ▪ **Fueling and Maintenance of Helicopters:** Written procedures for fueling and maintenance of helicopters shall be included in the Plan. Procedures may require helicopters be refueled at construction work areas, helicopter staging areas, or local airports. Procedures would include the use of drop cloths made of plastic, drip pans and trays to be placed under refilling areas to ensure that chemicals do not come into contact with the

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	ground. Refueling areas shall be identified in the Plan and necessary spill response materials shall be available within each refueling area. ▪ **Emergency Release Response Procedures:** The Plan shall include emergency response procedures in the event of a release of hazardous materials. The Plan must prescribe hazardous materials handling procedures for reducing the potential for a spill during construction and would include an emergency response program to ensure quick and safe cleanup of accidental spills. Hazardous materials shall not be stored near drains or waterways. Fueling shall not take place within 50 feet of drains or waterways with flowing water or within 75 feet of drains or waterways that are dry. All construction personnel, including environmental monitors, would be made aware of state and federal emergency response reporting guidelines for accidental spills. The Plan shall be submitted to CPUC and BLM 30 days prior to the start of construction for review and approval by the CPUC.
Timing	Pre-construction, Construction, and Post Construction Revegetation Phases
Plan/Reporting Requirements	SCE shall prepare a Project-specific Hazardous Materials and Waste Management Plan to be submitted to CPUC and BLM 30 days prior to the start of construction for review and approval by the CPUC
Effectiveness Criteria	Compliance with the Hazardous Materials and Waste Management Plan
Verification Responsibility	Agencies or Agency Monitor will verify compliance
MITIGATION MEASURE	**MM HH-2: Manage discovery of unanticipated contamination.** In the event that contaminated media are encountered during construction requiring excavation, SCE shall stop work, contact SCE's Safety and Environmental Specialist (SES), request a site assessment, and notify the proper authorities. The potentially contaminated soil should first be segregated into lined stockpiles, dump trucks, or roll-off containers. Samples are to be collected and analyzed to determine the appropriate handling, treatment, and disposal options. If the analytical results indicate that the soils are hazardous, the affected soils would be properly managed on location and transported to a Class I Landfill or other appropriate soil treatment or recycling facility using a Uniform Hazardous Waste Manifest. Work at the affected site would continue at that location only when given clearance by the SES.
Timing	During Construction and Post Construction Phases
Plan/Reporting Requirements	Manage contaminated media in accordance with mitigation measure requirements
Effectiveness Criteria	Compliance with applicable laws and regulations
Verification Responsibility	Agencies or Agency Monitor will verify compliance
Hydrology and Water Quality	
MITIGATION MEASURE	**MM HWQ-1: Implement an Erosion Control Plan.** SCE shall develop and submit an Erosion Control Plan to the CPUC and BLM for review at least 60 days prior to construction. The Erosion Control Plan may be part of the Stormwater Pollution Prevention Plan (SWPPP) and kept onsite and readily available on request. Soil disturbance at structures and access roads is to be minimized and designed to prevent long-term erosion. The Erosion Control Plan shall include: ▪ The location of all soil-disturbing activities, including but not limited to new and/or improved access and spur roads. ▪ The location of all streams and drainage structures that would be directly affected by soil-disturbing activities (such as stream crossings or public storm drains by the right-of-way and access roads). ▪ BMPs to protect drainage structures, such as public storm drains, downstream of soil disturbance activities.

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	▪ Design features to be implemented to minimize erosion during construction and during operation (if the project feature is to remain permanent after construction). ▪ If soil cement is proposed, the specific locations must be defined in the Plan, and evidence of approval by the appropriate jurisdiction shall be submitted to the CPUC and BLM prior to its use. ▪ The location and type of BMPs that would be installed to prevent off-site sedimentation and to protect aquatic resources. ▪ Specifications for the implementation and maintenance of erosion control measures and a description of the erosion control practices, including appropriate design and installation details. ▪ Proposed schedule for inspection of erosion control/SWPPP measures and schedule for corrective actions/repairs, if required. Erosion control/SWPPP inspection reports shall be provided to the CPUC EM. Locations requiring erosion control/SWPPP corrective actions/repairs shall be tracked, including dates of completion, and documented during inspections. Inspections and monitoring shall be performed in compliance with the Federal and California Construction General Permits. The inspection reports shall be maintained and kept with their respective SWPPP, kept on site as required by the Federal and State Construction General Permits, and made available upon request to the RWQCB, CPUC, BLM, and representatives of the traversed counties and cities. Additionally, an Annual Report shall be filed for each reporting period in compliance with Federal and California Construction General Permit reporting requirements. SCE shall submit Grading Plans to the CPUC and BLM for approval that define the locations of the specific features listed above. SCE shall submit to the CPUC and BLM evidence of possession of applicable required permits for the representative land disturbance prior to engaging in soil-disturbing construction/demolition activities. Such permits may include, but are not limited to, a CWA Section 402 NPDES California General Permit for Storm Water Discharges Associated with Construction Activities (General Permit) from the applicable Regional Water Quality Control Board(s) (RWQCBs), and the Federal General Permit for Storm Water Discharges Associated with Construction Activities on Tribal Land. Prior to any ground disturbance in stream channels or other waters jurisdictional to the State of California or the Federal Government, SCE shall obtain a Streambed Alteration Agreement from the California Department of Fish and Wildlife, a Section 404 permit from the USACE, and a CWA Section 401 certification from the SWRCB and submit to the CPUC and BLM evidence of possession of such Agreement/permits.
Timing	Pre-construction, Construction, and Post Construction Revegetation Phases
Plan/Reporting Requirements	SCE shall develop and submit an Erosion Control Plan to the CPUC and BLM for review at least 60 days prior to construction
Effectiveness Criteria	Compliance with the Erosion Control Plan
Verification Responsibility	Agencies or Agency Monitor will verify compliance
MITIGATION MEASURE	**MM HWQ-2: Prepare and implement an HDD Fluid Management Plan.** If Horizontal Directional Drilling (HDD) is required, an HHD Fluid Management Plan shall be prepared and implemented. The plan shall include, at a minimum, the following measures: ▪ Worst-case scenario development and response effort descriptions. ▪ Drilling pressure monitoring to ensure pressures do not exceed those needed to penetrate the formation. ▪ Monitoring by a minimum of two monitors (located both upstream and downstream) throughout drilling operations to ensure early detection and swift response in the event of a surface expression of drilling fluid.

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	▪ Site-specific contingency measures shall be developed for the drill site, taking into consideration terrain, access, resource sensitivities, and proximity of suitable areas for staging response equipment for the unanticipated surface expression of drilling fluid. ▪ Agency notification procedures. ▪ Training for responding personnel. ▪ Prevention, containment, clean up, and disposal of released drilling mud. Preventative measures shall include incorporation of the recommendations of a pre-construction geo-technical investigation to determine the most appropriate drilling depth and drilling mud mixture for the HDD bore site. Containment shall be accomplished through construction of temporary berms/dikes and use of silt fences, straw bales, absorbent pads, straw wattles, and plastic sheeting. Clean up shall be accomplished with plastic pails, shovels, portable pumps, and vacuum trucks. ▪ A copy of the Streambed Alteration Agreement (SAA) shall be provided in the Plan. If the SAA also requires development of a similar plan to address HDD fluid management, that plan, as approved by CDFW, may be used to satisfy this measure provided it adequately addresses the requirements identified herein, as determined by the CPUC and BLM.
Timing	Construction
Plan/Reporting Requirements	If Horizontal Directional Drilling (HDD) is required, an HHD Fluid Management Plan shall be prepared
Effectiveness Criteria	Compliance with the HDD Fluid Management Plan
Verification Responsibility	Agencies or Agency Monitor will verify compliance
Noise	
MITIGATION MEASURE	**MM N-1: Limit construction noise levels.** SCE shall ensure that all construction activities occur within the following hours, during which construction noise would be exempt from local ordinances: in San Bernardino County and City of Hesperia, between 7:00 a.m. to 7:00 p.m. Monday through Saturday, except Federal holidays, unless an alternate schedule is coordinated with the applicable local jurisdiction. Additionally, SCE shall implement the following construction noise reduction methods as precautionary measures, as identified in the Noise Technical Report (Appendix K to SCE's PEA (Eilar, 2017)): ▪ Turn off equipment when not in use. ▪ Limit the use of enunciators or public address systems, except for emergency notifications. ▪ Equipment used in construction should be maintained in proper operating condition, and all loads should be properly secured, to prevent rattling and banging. ▪ Schedule work to avoid simultaneous construction activities that both generate high noise levels. ▪ Use equipment with effective mufflers. ▪ Minimize the use of backup alarms.
Timing	Construction and Post Construction Revegetation Phases
Plan/Reporting Requirements	None
Effectiveness Criteria	Construction noise is limited
Verification Responsibility	Agencies or Agency Monitor will verify compliance
MITIGATION MEASURE	**MM N-2: Provide advance notification of construction noise.** Sixty days prior to construction, SCE shall prepare and submit a public notice mailer format to the CPUC for approval. The details of notification may be modified in consultation with CPUC as warranted by the circumstances.

Table 6-1. Mitigation Monitoring Program

	No less than 15 days prior to construction that would occur within 500 feet of residences, businesses, or other occupied structures, SCE shall distribute a public notice mailer. The notice shall state the type of construction activities that will be conducted, and the location and duration of construction. The notice shall identify, and SCE shall provide a public liaison person before and during construction to respond to concerns of residents about construction noise. SCE shall also establish a toll-free telephone number for receiving questions or complaints during construction and develop procedures for responding to callers. SCE shall address all complaints within one week of when the complaint is filed, and shall provide to the CPUC, within 15 days of the end of each month, a monthly report with records of all complaints and responses. SCE shall mail the notice to all residents or property owners within 500 feet of the right-of-way or within 1,000 feet of helicopter fly yards and flight paths.
Timing	Pre-construction, Construction, and Post Construction Revegetation Phases
Plan/Reporting Requirements	SCE shall provide to the CPUC, within 15 days of the end of each month, a monthly report with records of all complaints and responses
Effectiveness Criteria	Advance notification of construction activities is provided
Verification Responsibility	Agencies or Agency Monitor will verify compliance
Transportation	
MITIGATION MEASURE	**MM T-1: Prepare and implement a Construction Traffic Control Plan.** Prior to the start of construction of a project component that could affect traffic (e.g., OPGW reconductoring over public roadways), SCE shall submit a Construction Traffic Control Plan for review and approval by state and local agencies responsible for public roads that would be directly affected by the construction activities and/or would require permits and approvals. The Construction Traffic Control Plan shall include, but not be limited to: ▪ The locations and use of flaggers, warning signs, barricades, delineators, cones, arrow boards, etc. according to standard guidelines outlined in the Manual on Uniform Traffic Control Devices, the Standard Specifications for Public Works Construction, and/or the California Joint Utility Traffic Control Manual. ▪ The locations of all road or traffic lane segments that would need to be temporarily closed or disrupted due to construction activities. ▪ The locations where guard poles, netting, or similar means to protect transportation facilities for any construction work requiring the crossing of a local street, highway, or rail line are proposed. ▪ The use of continuous traffic breaks operated by the Highway Patrol on state highways (if necessary). ▪ Plans to coordinate in advance with emergency service providers to avoid restricting the movements of emergency vehicles. Police departments and fire departments shall be notified in advance by SCE of the proposed locations, nature, timing, and duration of any roadway disruptions, and shall be advised of any access restrictions that could impact their effectiveness. At locations where roads will be blocked, provisions shall be ready at all times to accommodate emergency vehicles, such as immediately stopping work for emergency vehicle passage, or providing short detours, or developing alternate routes in conjunction with the public agencies.
Timing	Pre-construction, Construction, and Post Construction Revegetation Phases
Plan/Reporting Requirements	Prior to the start of construction, SCE shall submit a Construction Traffic Control Plan for review and approval by state and local agencies responsible for public roads that would be directly affected by the construction activities and/or would require permits and approvals
Effectiveness Criteria	Compliance with Traffic Control Plans
Verification Responsibility	Agencies or Agency Monitor will verify compliance

Table 6-1. Mitigation Monitoring Program

MITIGATION MEASURE	**MM T-2: Repair roadways and transportation facilities damaged by construction activities.** If roadways, sidewalks, medians, curbs, shoulders, or other such transportation features are damaged by project construction activities, as determined by Caltrans or other public agency responsible for the transportation feature, such damage shall be repaired and restored to the pre-project condition by SCE. Prior to construction, SCE shall establish the pre-construction conditions of the roads within 500 feet in each direction of project access points (where heavy vehicles will leave public roads to reach unpaved access roads, yards, or other project sites) and confer with state and local agencies regarding roads in the agency's jurisdiction to be crossed by the project components. Establishment of existing conditions may include dated photographic or video documentation. At the end of major construction, SCE shall coordinate with each affected jurisdiction to confirm what repairs are required. Any damage demonstrable to the project is to be repaired to the pre-construction condition within 60 days from the end of all construction, or on a schedule mutually agreed to by SCE and the affected jurisdiction. If multiple projects or users access the same transportation features, SCE will pay its fair share of the required repairs. SCE shall provide CPUC and affected jurisdictions (as applicable) proof when any necessary repairs have been completed.
Timing	Construction and Post Construction Revegetation Phases
Plan/Reporting Requirements	None
Effectiveness Criteria	Roadways and transportation facilities damaged by construction are repaired
Verification Responsibility	Agencies or Agency Monitor will verify compliance
MITIGATION MEASURE	**MM T-3: Prepare and implement a final helicopter use plan.** SCE and its contractor shall prepare and obtain approval of a Final Helicopter Use Plan 30 days prior to using helicopters to transport personnel, materials, or equipment for the deconstruction of existing project facilities or construction of new or replacement project facilities. The plan shall identify the specific locations requiring deconstruction or construction work using helicopters. The Final Helicopter Use Plan shall draw upon protocols and methods used on previous transmission line projects and shall be submitted to CPUC and BLM for approval. The Federal Aviation Agency (FAA) has jurisdiction over U.S. airspace, aircraft, aircraft operations, airports, and pilots. To the extent that they do not conflict with any FAA requirements, the following shall apply to helicopter use and be incorporated in the Final Helicopter Use Plan. ▪ All aircraft and pilots shall be in full compliance with applicable FAA requirements and standards. ▪ On the day before a flight, helicopter flight information shall be provided by email to CPUC/BLM monitors regarding the specific sites to be used for helicopter retrieval of materials, equipment, or personnel and the destination of the materials, equipment, or personnel being transported. Information provided in the email shall include pilot name, contact number, aircraft type, aircraft registration number, aircraft color, work/flight area, anticipated beginning and completion times, and scope of work. ▪ The specific locations requiring deconstruction or construction work using helicopters shall be identified. ▪ Temporary staging of materials outside of approved yards or on access or spur roads shall not occur without prior approval of CPUC or BLM, as appropriate. ▪ The yards to and from which helicopters would fly (fly yards) shall be identified and shall be of sufficient size to ensure safe operations, given the other activities occurring at the yards and the vicinity. ▪ Fly yards shall be no closer than a horizontal distance of 475 feet from occupied residences to avoid unacceptable nuisances. ▪ Site-specific steps taken to avoid nuisances and ensure safe refueling shall be identified for each fly yard.

Table 6-1. Mitigation Monitoring Program

	▪ Flight paths that minimize flights in wilderness areas and near schools, hospitals, nursing homes, and other sensitive group receptors shall be identified and followed. ▪ Except in an emergency, helicopters shall land or hover near the ground only in areas previously approved for landing, and all dust control and biological and cultural resource protection requirements shall apply. ▪ External loads will be secured by appropriate rigging, including boxing, netting, choking, and cabling, or other suitable means. Only qualified riggers shall prepare and attach external loads to helicopters, and rigging shall be appropriate to the nature of the load, including the use of devices as necessary to prevent materials being lost in flight. Where appropriate to reduce load in-flight spinning and movement, drag chutes will be attached to loads. The need for drag chutes will be determined by the pilot and rigging personnel, where appropriate. At locations where rigging is to occur, a sufficient supply of appropriate rigging and containment materials in good repair shall be on hand at all times. ▪ All aircraft are to be configured with weight sensors such that, when preparing to haul external loads, the pilot is able to determine the weight of the load being lifted. ▪ Yards or landing zones shall have a designated qualified individual managing the movement of aircraft in and out of the yard or landing zone when flight activity is high. ▪ Appropriate protocols for communication among pilots and between pilots and the ground shall be developed and implemented. ▪ A GPS-based data system shall be installed in each aircraft. – The system shall identify for the pilot all project-approved project flight paths and those areas where overflights are restricted (such as seasonally restricted bird nesting areas and sensitive residential or institutional areas) and shall be updated as often as any flight restrictions are implemented or lifted. – The system shall automatically record and preserve flight data sufficient to identify the aircraft's flight path, including altitude above ground. The system shall be capable of providing the information required with regard to flight path and aircraft identifier and provide a location "ping" no less frequently the once every 3 seconds. These data shall be collected daily and maintained by SCE or its contractor for a period of no less than six months and made available to CPUC or BLM upon request. The Helicopter Use Plan shall be submitted to CPUC and BLM for review and approval at least 30 days prior to the use of helicopters on the project. Once the Helicopter Use Plan is made final, a copy shall be provided as a courtesy to each jurisdiction through which the Project passes.
Timing	Pre-Construction, with updates as needed during Construction Phase
Plan/Reporting Requirements	SCE and its contractor shall prepare a Final Helicopter Use Plan 30 days prior to using helicopters to transport personnel, materials, or equipment for the deconstruction of existing project facilities or construction of new or replacement project facilities. The Plan shall be submitted to CPUC and BLM for approval
Effectiveness Criteria	Compliance with Helicopter Use Plan
Verification Responsibility	Agencies or Agency Monitor will verify compliance
Tribal Cultural Resources	
MITIGATION MEASURE	**APM-TCR-1: Tribal Monitoring.** An archaeological monitor, and tribal monitor that is culturally affiliated with the project area, may be present for all ground-disturbing activities within or directly adjacent to previously identified TCR(s) and prehistoric resources as outlined in the CRMP. The archaeological and tribal monitors will consult the CRMP to determine when to increase or decrease the monitoring effort should the monitoring results indicate a change is warranted. Monitoring reports shall be prepared and submitted to the BLM and CPUC on a monthly basis.

Table 6-1. Mitigation Monitoring Program

Timing	Construction and Post Construction Revegetation Phases
Plan/Reporting Requirements	Monitoring reports shall be prepared and submitted to the BLM and CPUC on a monthly basis
Effectiveness Criteria	Archaeological and Tribal Monitoring consistent with CRMP
Verification Responsibility	Agencies or Agency Monitor will verify compliance
MITIGATION MEASURE	**APM-TCR-2: Tribal Engagement Plan.** A tribal engagement plan shall be prepared, which will detail how Native American tribes will be engaged and informed throughout the proposed project. The tribal engagement plan will be included in the CRMP.
Timing	Pre-construction, Construction, and Post Construction Revegetation Phases
Plan/Reporting Requirements	A tribal engagement plan shall be prepared, which will detail how Native American tribes will be engaged and informed throughout the proposed project
Effectiveness Criteria	Compliance with the CRMP
Verification Responsibility	Agencies or Agency Monitor will verify compliance
MITIGATION MEASURE	**MM CR-1: Retain a Cultural Resources Specialist.** Prior to the start of construction, a project Cultural Resources Specialist (CRS) whose training and background conforms to the U.S. Secretary of Interior's Professional Qualifications Standards, as published in Title 36, Code of Federal Regulations, part 61 (36 C.F.R., part 61) shall be retained by SCE to supervise monitoring of construction excavations and to prepare a Cultural Resources Management Plan (CRMP) for the approved project. Their qualifications shall be appropriate to the needs of the project, specifically an archaeologist with demonstrated prior experience in the southern California desert and previous experience working with Southern California Tribal Nations. A copy of their qualifications shall be provided to the CPUC for review and approval. The project Cultural Resources Specialist shall use the services of Cultural Resources Monitors, tribal monitors and Field Crew as needed, to assist in mitigation, monitoring, and curation activities, as outlined in the CRMP. A copy of all proposed cultural staff qualifications shall be provided to the CPUC for review and approval prior to beginning work.
Timing	Pre-construction
Plan/Reporting Requirements	None
Effectiveness Criteria	Retention of a cultural resources specialist
Verification Responsibility	Agencies or Agency Monitor will verify compliance
MITIGATION MEASURE	**MM CR-2: Cultural resources environmental awareness training.** Project personnel, including cultural resources monitors and tribal monitors, shall receive training that includes sensitivity training provided through participating tribes in video format regarding the appropriate work practices necessary to effectively implement the APMs and mitigation measures related to cultural resources and tribal cultural resources, including human remains. Training shall be required for all personnel before they begin work on a project site and repeated as needed for all new personnel before they begin work on the Project. This training program shall be submitted to the CPUC for approval at least 30 days before the start of construction and include procedures to be followed upon the discovery or suspected discovery of archaeological materials, tribal cultural resources, and human remains, consistent with the procedures set forth in the CRMP. This training may be integrated with a broader Worker Environmental Awareness Training program. Documentation of the training will be provided to the BLM and CPUC. The CPUC will provide documentation to the consulting tribes.
Timing	Pre-construction, Construction, and Post Construction Revegetation Phases
Plan/Reporting Requirements	See MM BR-2
Effectiveness Criteria	All on-site project personnel receive this training prior to beginning work

Table 6-1. Mitigation Monitoring Program

Verification Responsibility	Agencies or Agency Monitor will verify compliance
MITIGATION MEASURE	**MM CR-3: Prepare and implement a Cultural Resources Management Plan.** Prior to the beginning of construction, SCE shall submit at least 90 days before construction a Cultural Resources Management Plan (CRMP) for the project to the BLM and CPUC for review. The CPUC will submit the CRMP to representatives of consulting tribes for a 30-day review and comment period prior to approving the CRMP. The CPUC will in good faith consider any comments received from consulting tribes and incorporate such comments into the CRMP as deemed feasible. A single plan document that meets the requirements of both BLM and CPUC is acceptable. The CRMP shall be implemented under the direction of the SCE and the project Cultural Resources Specialist. The CRMP shall be prepared at the sole expense of the project proponent and shall meet all regulatory requirements. At a minimum the CRMP must address the following: ▪ The duties of the project Cultural Resources Specialist and associated staff shall be fully explained, including oversight/management, monitoring, and reporting duties with respect to known cultural resources and tribal cultural resources as well as site evaluation, data collection, and reporting for any newly identified resources discovered during project activities. The professional standards and ethical guidelines for all cultural resource personnel will be clearly outlined in the CRMP. ▪ No collection of artifacts is authorized or planned for this project. If an unanticipated discovery requires evaluation via excavation and artifact collection, the retention/disposal, and permanent and temporary curation policies shall be specified. The decision-making process for identifying which artifacts are curated or reburied, where they are reburied and the individuals, including tribal participants, making these decisions shall be described. These policies shall apply to cultural resources materials and documentation resulting from evaluation and treatment of cultural resources and tribal cultural resources discovered during project activities. ▪ The CRMP shall define and map all known prehistoric and historic resources eligible to the NRHP and CRHR within 100 feet of proposed work areas. How these resources will be avoided and protected during construction will be described. Avoidance measures to be used will be described, including where and when they will be implemented. How avoidance measures and enforcement of Environment Sensitive Areas (ESAs) will be coordinated with construction personnel will be included. ▪ The implementation sequence and the estimated time frames needed to accomplish all project-related tasks (i.e., evaluation of new resources resulting in work stoppage, time to complete reports, etc.) during the project activities and any post-project analysis phases of the project, if necessary, shall be specified. The intensity of monitoring proposed for each resource that may be impacted by project activities shall be outlined in the CRMP. ▪ Person(s) expected to perform each monitoring and, if necessary, treatment task, their responsibilities, and the reporting relationships between project construction management and the monitoring and treatment team shall be outlined in the CRMP. ▪ Tribal Monitors shall be retained to monitor ground disturbing activities within 100 feet of prehistoric and protohistoric resources. Tribal Monitors shall be retained for data recovery within prehistoric and protohistoric resources identified for data recovery. The ELM Project area spans multiple Tribal areas. The Tribe affiliated with a specific area will be considered first to provide Tribal Monitors. If multiple Tribes or Tribal Organizations are affiliated with a specific area, Tribal Monitors will be selected on a rotating basis. The CRMP will describe the roles and responsibilities of the monitors. Tribal monitors will be compensated. All impact-avoidance measures (such as the presence of monitors) to prohibit or otherwise restrict access to sensitive resource areas that are to be avoided during ground disturbance, construction, and/or operation shall be described. Areas where these measures are to be implemented shall be identified. The description shall address how these measures would be implemented prior to the start of ground disturbance and how long they would be needed to protect the resources from project-related impacts.

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	▪ The commitment to record resources on Department of Parks and Recreation (DPR) 523 forms, to map, and to photograph all newly identified cultural resources over 50 years of age shall be stated. Participating tribes may offer their perspective regarding the newly identified cultural resource. Comments by tribes may be documented on the DPR 523c, parts A13 (Interpretation) and A14 (Remarks). ▪ The commitment to curate all artifacts retained as a result of any archaeological investigations in accordance with the appropriate requirements and the California State Historical Resources Commission's Guidelines for the Curation of Archaeological Collections, into a retrievable storage collection in a public repository, museum, or reburial at the request of tribal representatives shall be stated. The different curation policies for archaeological material collected on BLM land as opposed to private or state land, shall be clearly articulated. ▪ The commitment of SCE to pay all curation or reburial fees for artifacts recovered and for related documentation produced during cultural resources investigations conducted for the project shall be stated. Should consulting tribes request that artifacts not be reburied, the CRMP shall identify a curation facility that could accept cultural resources materials resulting from project cultural resources investigations on private or state land. Tribal monitors shall be present for any reburials. ▪ A final report shall be prepared presenting the results of the monitoring efforts. The contents, format, and review and approval process of the final report shall meet appropriate federal, state, and local guidelines.
Timing	Pre-construction, Construction, and Post Construction Revegetation Phases
Plan/Reporting Requirements	SCE shall prepare and submit for approval a Cultural Resource Management Plan (CRMP) to the BLM and the CPUC for review and approval at least 60 days prior to the start of construction. In addition, the CRMP will be submitted to Native American interested parties for review The CRMP shall detail reporting of results within one year of completion of field studies
Effectiveness Criteria	Compliance with the CRMP
Verification Responsibility	Agencies or Agency Monitor will verify compliance
MITIGATION MEASURE	**MM CR-4: Inadvertent discovery of cultural or tribal cultural resources.** If previously undiscovered resources are identified during project activities all activities within 100 feet (30 meters) of the resource shall halt. The onsite construction supervisor and SCE shall be notified. SCE will notify the CPUC and BLM of the discovery. The monitoring team shall flag-off the area. SCE and its cultural resource specialist will coordinate with the CPUC, BLM, NPS and tribal representatives as appropriate, on avoidance measures. If the resource cannot be avoided, methods of resource evaluation, and methods of mitigation will be discussed with all appropriate parties. Work may be temporarily diverted to activities that are outside of 100 feet (30 meters) of the discovered or suspected resource. The resource shall be evaluated to determine whether it is eligible for the NRHP, CRHR, a unique archaeological resource, a tribal cultural resource, or part of a larger culturally sensitive landscape area or traditional cultural property. If the resource is determined not to be significant, work may recommence in the area. If the resource is determined significant work shall remain halted within 100 feet (30 meters) of the area of the find, SCE shall consult with the BLM, CPUC, and representatives of the consulting tribes as appropriate regarding methods to ensure that no adverse effect and no substantial adverse change would occur to the significance of the resource. Preservation in place (i.e., avoidance) is the preferred method of mitigation for impacts to cultural resources. Other methods of mitigation, described below, shall only be used if it is determined the method would provide equivalent or superior mitigation of the impacts to the resource. The alternative methods of mitigation may include data recovery and documentation of the information contained in the resource to answer questions about local prehistory or history. The methods and results of the evaluation or data recovery

Table 6-1. Mitigation Monitoring Program

	work at an archaeological find shall be documented in a professional-level technical report to be filed with the California Historical Resources Information System (CHRIS). Work in the area may commence upon completion of treatment, as approved by the BLM and CPUC. If data recovery of resources is necessary, additional archaeologists shall perform the excavation while the monitoring team(s) continues to monitor construction. Additionally, the tribes shall be offered the opportunity to monitor data recovery efforts at prehistoric sites in addition to construction efforts, under the same contract terms. This opportunity shall be additionally be extended to tribes that consulted on this project, but for which a tribal monitor was not provided for construction efforts.
Timing	Pre-construction, Construction, and Post Construction Revegetation Phases
Plan/Reporting Requirements	SCE shall report the discovery of any cultural resources
Effectiveness Criteria	Compliance with the CRMP and mitigation measure
Verification Responsibility	Agencies or Agency Monitor will verify compliance.
MITIGATION MEASURE	**MM CR-5: Avoidance of cultural and tribal cultural resources.** When project work is planned within 100 feet of a known prehistoric-era cultural resource or a tribal cultural resource, or any resources that are eligible for the CRHR and/or NRHP, avoidance areas shall be established and monitors shall be present as outlined in the CRMP. ESAs shall be established with a 50 foot buffer around each resource prior to project activities, except where the 50-foot buffer would encroach on a work area, in which event the ESA buffer shall be the near edge of the identified work area. Monitoring teams shall include one qualified cultural resources monitor and one Native American monitor at prehistoric sites. ESAs shall be established by a qualified cultural resources monitor. The timing and intensity of the monitoring may vary according to the type of resource and the nature of the work planned and shall be determined in consultation with consulting tribes, as appropriate.
Timing	Pre-construction, Construction, and Post Construction Revegetation Phases
Plan/Reporting Requirements	SCE shall implement required avoidance requirements, including buffers
Effectiveness Criteria	Compliance with the CRMP and mitigation measure
Verification Responsibility	Agencies or Agency Monitor will verify compliance.
MITIGATION MEASURE	**MM CR-6: Prepare monitoring reports.** Upon completion of cultural resources and tribal cultural resources monitoring, SCE shall prepare a single report that summarize the monitoring efforts and the results, analyses, and conclusions of the monitoring program. Individual volumes per land ownership will be included and provide additional details. Copies of the report shall be submitted to both the CPUC and BLM within 60 days of the close of construction. Thereafter, consistent with individual agency policy, each agency will disseminate to the consulting tribes the report applicable to land under that agency's jurisdiction. Draft reports under CPUC jurisdiction will be submitted to consulting tribes for a 30-day review and comment period concurrent with agency review. If no new resources were discovered during construction, a letter report shall be submitted to the CPUC and BLM summarizing monitoring efforts. If resources were identified during construction, the reports shall be consistent with the California Archaeological Resources Management Reports (ARMR) and commensurate with the nature and significance of the identified resource(s). If artifacts are collected, they shall be curated at a recognized curation facility unless consulting tribes request that the Native American artifacts be reburied on site. Documentation associated with any newly identified resources shall be filled with the CHRIS, if appropriate.
Timing	Post Construction
Plan/Reporting Requirements	SCE shall prepare and submit required report
Effectiveness Criteria	Delivery of draft/final report

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Verification Responsibility	Agencies or Agency Monitor will verify compliance
MITIGATION MEASURE	**MM CR-7: Inadvertent discovery of human remains on state owned land or private property.** In the event that human remains or suspected human remains are identified, SCE shall comply with California law (Heath and Safety Code Section 7050.5; PRC Sections 5097.94, 5097.98, and 5097.99). The area shall be flagged off and all project activities within 200 feet (60 meters) of the find shall immediately cease. The CPUC-approved Cultural Resources Specialist and SCE shall be immediately notified. SCE shall immediately contact the Medical Examiner at the County Coroner's office, BLM, CPUC as well as representatives of consulting tribes. The Medical Examiner has two (2) working days to examine the remains. If the Medical Examiner believes the remains are Native American, they shall notify the California Native American Heritage Commission (NAHC) within 24 hours. If the remains are not believed to be Native American, the appropriate local law enforcement agency will be notified. The NAHC will immediately notify the person or tribe it believes to be the most likely descendant (MLD) of the remains, and the MLD has 48 hours to make recommendations to the landowner or representative for the respectful treatment or disposition of the human remains and any associated grave goods. If the MLD does not make recommendations within 48 hours, the remains shall be reinterred in the location they were discovered and the area of the property shall be secured from further disturbance. If there are disputes between the landowner and the MLD, the NAHC shall mediate the dispute and attempt to find a solution. If the mediation fails to provide measures acceptable to the landowner, the landowner or their representative shall reinter the remains and associated grave goods and funerary objects in an area of the property secure from further disturbance. The location of any reburial of Native American human remains shall not be disclosed to the public and shall not be governed by public disclosure requirements of the California Public Records Act, Cal. Govt. Code§ 6250 et seq., unless otherwise required by law. The Medical Examiner shall withhold public disclosure of information related to such reburial pursuant to the specific exemption set forth in California Government Code Section 6254(r).
Timing	Construction and Post Construction Revegetation Phases
Plan/Reporting Requirements	None
Effectiveness Criteria	Laws, statutes, and regulations are followed for the treatment of human remains
Verification Responsibility	Agencies or Agency Monitor will verify compliance
MITIGATION MEASURE	**MM CR-8: Inadvertent discovery of human remains on federal land.** If potential human remains are discovered during any Project activity on lands administered by federal agencies, all activities within 200 feet that will cease immediately. SCE will take appropriate steps to secure and protect human remains and any funerary objects from further disturbance. SCE will notify the BLM and the County Coroner (California Health and Safety Code 7050.5(b)) immediately. If the remains are determined to be Native American or if Native American cultural items pursuant to the Native American Graves Protection and Repatriation Act (NAGPRA) are uncovered, the remains shall be treated in accordance with the provisions of NAGPRA (43 CFR 10) and the Archaeological Resources Protection Act (43 CFR 7). SCE shall assist and support the federal agency, as appropriate, in all required NAGPRA and Section 106 actions, government to-government and consultations with Native Americans, agencies, and consulting parties as requested by the federal agency. SCE shall comply with and implement all required actions and studies that result from such consultations.
Timing	Construction and Post Construction Revegetation Phases
Plan/Reporting Requirements	None
Effectiveness Criteria	Laws, statutes, and regulations are followed for the treatment of human remains
Verification Responsibility	Agencies or Agency Monitor will verify compliance

Table 6-1. Mitigation Monitoring Program

Utilities and Service Systems	
MITIGATION MEASURE	**MM UT-1: Provide cathodic protection.** Prior to commencing construction or as soon as such data are available, if it is not available before construction, SCE shall determine and report to CPUC and BLM the location of adjacent utilities and other metallic or conducting objects susceptible to induced voltages and currents. The scope of SCE's report shall include the results of an alternating current interference study by SoCalGas on the natural gas pipelines that parallel or cross portions of the Lugo-Mohave 500 kV Transmission Line. Prior to the in-service date of the Proposed Project series capacitors, SCE shall ensure that the necessary grounding or other appropriate measures to provide appropriate cathodic protection has been installed and shall confirm this to the CPUC and BLM. If SCE identifies other utilities near the 500 kV Transmission Lines that may be susceptible to increased risk of corrosion due to induced currents or voltages, SCE shall conduct or have conducted an alternating current interference study during construction of the ELM Project that evaluates the alternating current interference effects of the 500 kV transmission lines on such other utilities. The study shall include the development of a model using the maximum magnetic field levels for the transmission lines, including the conductor arrangement. For all utilities identified with a corrosion potential, SCE shall coordinate with the owner of the utility and use data gathered in the alternating current interference study to determine appropriate design measures to protect the utility from corrosion, such as ground mats or gradient control wires for cathodic protection of buried pipelines and other utilities. The study, summary of coordination with potentially affected utilities, and specifications of any design measures to be installed shall be submitted to the CPUC and BLM for review and approval at least 60 days prior to initiation of installation of such protection. All required protective and grounding work shall be completed prior to the in-service date of the Proposed Project series capacitors.
Timing	Pre-construction, Construction, and Post Construction Revegetation Phases
Plan/Reporting Requirements	The study, summary of coordination with potentially affected utilities, and specifications of any design measures to be installed shall be submitted to the CPUC and BLM for review and approval at least 60 days prior to initiation of installation of such protection
Effectiveness Criteria	Risk of corrosion is minimized
Verification Responsibility	Agencies or Agency Monitor will verify compliance
MITIGATION MEASURE	**MM UT-2: Implement mitigation measures during pipeline protection work.** Any agreement between SCE on the one hand and any party undertaking installation of pipeline protection measures required as a result of the ELM Project on the other hand shall include a requirement that applicable mitigation measures required during construction of the ELM Project also apply to and be implemented during any required pipeline-related work. At a minimum, and to the extent that they apply in the geographic area of the pipeline work, these will include mitigation measures for impacts to biological resources, cultural and tribal cultural resources, and hazards and hazardous materials. The BLM and NPS may substitute equally effective mitigation measures or may require additional measures be implemented. A copy of the agreement between SCE and any other party for the pipeline work shall be provided to CPUC, BLM, and NPS. Business confidential information may be redacted, but the general nature of any redaction shall be identified. Absent a binding agreement between SCE and any other party to implement the required mitigation measures, or equally effective measures imposed by BLM and/or NPS, SCE will not be authorized to fund any of the required pipeline work.
Timing	Pre-construction, Construction, and Post Construction Revegetation Phases
Plan/Reporting Requirements	A copy of the agreement between SCE and any other party for the pipeline work shall be provided to CPUC, BLM, and NPS
Effectiveness Criteria	Mitigation Measures are implemented during pipeline protection work
Verification Responsibility	Agencies or Agency Monitor will verify compliance

Table 6-1. Mitigation Monitoring Program

MITIGATION MEASURE	**MM UT-3: Provide safety features for induced currents on adjacent metallic objects.** Prior to commencing construction or as soon as such data are available, if it is not available before construction, SCE shall determine and report to CPUC and BLM the location of metallic or conducting objects that may present a shock hazard to the public due to induced voltages or currents. SCE shall prepare an Induced Current Touch study that evaluates the conductive and inductive interference effects of the 500 kV transmission lines and new overhead distribution lines on the identified conductive objects. The Induced Current Touch study, including the criteria and approach that were used to determine what objects could present a shock and the details of the grounding or other measures to be installed, shall be submitted to the CPUC and BLM for review and approval. Prior to the in-service date of the Proposed Project series capacitors, SCE shall install the necessary grounding or other appropriate measures to protect the public from hazardous shocks or arcing.
Timing	Pre-construction, Construction, and Post Construction Revegetation Phases
Plan/Reporting Requirements	SCE shall prepare an Induced Current Touch study to the CPUC and BLM for review and approval
Effectiveness Criteria	Safety features for induced currents are provided
Verification Responsibility	Agencies or Agency Monitor will verify compliance
Wildfire	
MITIGATION MEASURE	**MM WF-1: Prepare and implement a Fire Management Plan.** A project-specific **Fire Management Plan** for construction of the ELM project shall be prepared by SCE and submitted for review and approval by the CPUC prior to initiation of construction. The draft copy of the Plan must also be provided to each responsible fire agency at least 90 days before the start of construction activities in areas designated as Very High or High Fire Hazard Severity Zones with a request for comments on the Plan's adequacy within 30 days. Plan reviewers shall include CPUC, BLM, CAL FIRE, and San Bernardino County. Comments received on the draft Plan shall be provided to SCE from all other reviewers, and SCE shall resolve each comment in consultation with the commenting agency. CPUC shall approve the final Plan, which shall be provided to the Plan reviewing agencies at least 30 days prior to the initiation of construction activities in the Fire Hazard Severity Zones. SCE shall fully implement the Plan during all construction activities. A qualified project Fire Marshal or person of similar title and experience shall be established by SCE to implement and enforce all provisions of the approved Fire Management Plan as well as perform other duties related to fire detection, prevention, and suppression for the project. The Fire Marshal shall monitor construction activities to ensure implementation and effectiveness of the plan. The Plan shall cover: ▪ The purpose and applicability of the plan; ▪ Responsibilities and duties; ▪ Preparedness training and drills; ▪ Procedures for fire reporting, response, and prevention that include: – identification of daily site-specific risk conditions, – the appropriate tools and equipment needed on vehicles and to be on hand at sites, – reiteration of fire prevention and safety considerations during tailboard meetings, and – daily monitoring of the red-flag warning system with appropriate restrictions on types and levels of permissible activity; ▪ Coordination procedures with BLM and San Bernardino County fire officials; ▪ Crew training, including fire safety practices and restrictions; and ▪ Methods for verification that Plan protocols and requirements are being followed.
Timing	Pre-construction, Construction, and Post Construction Revegetation Phases

Table 6-1. Mitigation Monitoring Program

Plan/Reporting Requirements	A project-specific Fire Management Plan for construction of the ELM project shall be prepared by SCE and submitted for review and approval by the CPUC prior to initiation of construction
Effectiveness Criteria	Compliance with the Fire Management Plan
Verification Responsibility	Agencies or Agency Monitor will verify compliance

7. Response to Comments

Introduction

Public review of the Draft Initial Study/Mitigated Negative Declaration (Draft IS/MND) occurred from August 12, 2019 through September 13, 2019. Eleven comment letters were received; these are listed in Table 7-1, Comments Received on the Draft IS/MND. The individual letters and CPUC's response to comments in the letters are provided in the following pages. Each letter has been assigned a unique alphanumeric label (A1 …D1). Individual comments are indicated by a vertical line in the margin of the letter, indicating the extent of each comment and providing an identifying number for the comment (A1-1…D1-16). Responses to comments are provided following each comment letter. Where appropriate, the Draft IS/MND text has been edited for clarity. Changes in the Draft IS/MND text are shown in tracked changes format (underline and ~~strikeout~~).

The revised Draft IS/MND text, including this Response to Comments chapter, constitute the Final IS/MND.

Table 7-1. Comments Received on the Draft IS/MND

Comment Number	Date	From
A - Public Agencies		
A1	7/10/19	California Department of Transportation, District 8
A2	9/6/19	U.S. Bureau of Reclamation, Lower Colorado Regional Office
A3	9/6/19	California Department of Water Resources
A4	9/10/19	California State Lands Commission
A5	9/4/19	Nevada Department of Water Resources
A6	9/4/19	Nevada Division of State Lands
A7	9/13/19	California Public Utilities Commission, Public Advocates Office
B - Groups & Organizations & Companies		
B1	9/12/19	Natural Resources Defense Council
B2	9/13/19	Wild Tree Foundation
C - Tribal Governments		
C1	9/13/19	Colorado River Indian Tribes
D - The Applicant		
D1	9/13/19	Southern California Edison

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Comment Set A1 – California Department of Transportation, District 8

DEPARTMENT OF TRANSPORTATION
DISTRICT 8
PLANNING (MS 725)
464 WEST 4th STREET, 6th FLOOR
SAN BERNARDINO, CA 92401-1400
PHONE (909) 383-4557
FAX (909) 383-5936
TTY 711
www.dot.ca.gov/dist8

Serious drought.
Help save water!

July 10, 2019

File: 08-SBd-18-PM 79.824
08-SBd-40-PM 37.137
08-SBd-95-PM 71.57
08-SBd-247-PM 52.202

Billie Blanchard
California Public Utilities Commission
505 Van Ness Avenue
San Francisco, CA 94102

Subject: Eldorado-Lugo-Mohave Series Capacitator Project – Notice of Application for a Permit to Construct dated May 2, 2018

Dear Ms. Blanchard:

The California Department of Transportation (Caltrans) has reviewed the Notice of Application for a Permit to Construct for Eldorado-Lugo-Mohave Series Capacitator Project (project). The project is located at various locations within San Bernardino County. The proposed project consists of the relocation, replacement, or modification of new and existing transmission, sub-transmission, and distribution facilities.

As the owner and operator of the State Highway System (SHS), it is our responsibility to coordinate and consult with local jurisdictions when proposed development may impact our facilities. As the responsible agency under the California Environmental Quality Act, it is also our responsibility to make recommendations to offset associated impacts with the proposed project. Although the project is under the jurisdiction of the California Public Utilities Commission, due to the project's potential impact to the State facilities, it is also subject to the policies and regulations that govern the SHS.

We have reviewed the Notice of Application for a Permit to Construct. We have no comments at this time. **A1-1**

Please continue to keep us informed of the project and other future updates, which could potentially impact the SHS and interfacing transportation facilities. If you have any questions regarding this letter, please contact Ricky Rivers at (909) 806-3298 or myself at (909) 383-3923.

DRAFT

Comment Set A1 – California Department of Transportation, District 8 (cont.)

Ms. Blanchard
July 10, 2019
Page 2

Sincerely,

ROSA F. CLARK
Office Chief
Local Development - Intergovernmental Review (LD-IGR)

DRAFT

Responses to Comment Set A1 – California Department of Transportation, District 8

A1-1 **The commenter points out that the ELM Project will be subject to policies and regulations governing the State Highway System.**

This comment is noted and has been provided to SCE.

Comment Set A2 – Bureau of Reclamation, Lower Colorado Regional Office

United States Department of the Interior

BUREAU OF RECLAMATION
Lower Colorado Regional Office
P.O. Box 61470
Boulder City, NV 89006-1470

IN REPLY REFER TO:
LC-2620
2.1.4.17

SEP 06 2019

VIA ELECTRONIC MAIL

Ms. Billie Blanchard
California Public Utilities Commission
c/o Aspen Environmental Group
235 Montgomery Street, Suite 640
San Francisco, CA 92311
elm@aspeneg.com

Subject: Southern California Edison's (SCE) Eldorado-Lugo-Mohave Series Capacitor Project IS/MND (Application A.18-05-007) – Notice of Intent to Adopt, and Notice of Availability – IS-MND

Thank you for your memorandum dated August 2019 (Due Date September 13, 2019)

The Bureau of Reclamation (Reclamation) has received California Public Utilities Commission's Notice of Intent to Adopt and Notice of Availability for the Eldorado-Lugo-Mohave (ELM)/ Initial Study (IS)/Mitigated Negative Declaration (MND). In accordance with the National Environmental Policy Act, Reclamation is participating as a cooperating agency on the Environmental Assessment being prepared by the Bureau of Land Management (BLM) for the ELM project. Reclamation is participating because existing ELM transmission lines cross Reclamation land in Nevada. We have reviewed the ELM IS/MND and offer the following comments.

Section 1.5, Paragraph 2, Page 1-4

This paragraph states "…Therefore, the mitigation measures adopted as a condition of project approval and agreed to by the Applicant shall be implemented throughout the project except where federal agencies or agencies outside California with jurisdiction over lands or resources through which the project passes (collectively, "Other Agencies") impose equivalent or more effective measures, in which case such equivalent or more effective measures will be implemented." This statement appears to conflict with information given in Section 3.2.2, Paragraph 4 which states: "…The CPUC would also require that for actions on federal lands within California, SCE must implement the mitigation measures in this IS or equivalent or more effective measures, recognizing that the federal approval bodies may impose the same mitigation measures as identified in this document, or may instead formulate their own mitigation requirements." The information in Section 1.5 refers to federal agencies or agencies outside of California, while the information in Section 3.2.2 only refers to federal lands within California. Please clarify whether the equivalent or more effective measures requirement applies to federal lands outside of California.

A2-1

Comment Set A2 – Bureau of Reclamation, Lower Colorado Regional Office (cont.)

Section 4.3, Property Description, Paragraph 1, Page 4-9
We recommend that you add information about the Right of Use that SCE has requested from Reclamation. The transmission line on Reclamation land was originally authorized by the BLM; that authorization has expired. As part of the proposed action, Reclamation will directly authorize SCE to operate, maintain, and eventually decommission the components of the transmission line on Reclamation land. This includes removing existing overhead ground wire and installing overhead optical ground wire on approximately 0.60 linear miles of existing transmission line. Information about the width of the right-of-way on Reclamation land and other details can be obtained from SCE.

A2-2

Section 4.6 Right-of Way Requirements, Paragraph 1, Page 4.27
We recommend that information about the Use Authorization that SCE has requested from Reclamation be included in this section. See our comment on Section 4.3 above.

A2-3

Section 5.11 Land Use and Planning, Federal Land Use, Bureau of Reclamation, Page 5-259
This paragraph incorrectly states that local offices may implement Reclamation Manual Directives and Standards at their discretion. All requirements in the Reclamation Manual are mandatory for Reclamation. We recommend this paragraph be revised as follows: "Reclamation manages lands in accordance with applicable laws, regulations, orders, policies, and directives and standards. The Reclamation Manual, Directives and Standards, LND 08-01 - Land Use Authorizations, provides procedures for issuing use authorization documents for the use of Reclamation land, facilities, and waterbodies."

A2-4

Thank you for the opportunity to review the ELM IS/MND. Please maintain Reclamation on your mailing list for the project. Future correspondence should be sent to: Bureau of Reclamation, Attn: Ms. Mary J. Reece, Chief, Resource Management Office, LC-2000, P.O. Box 61470, Boulder City, NV 89006.

A2-5

If you have questions, please contact Ms. Faye Streier, National Environmental Policy Act Coordinator, at 702-293-8132 or fstreier@usbr.gov.

Sincerely,

Mary J. Reece, Chief
Resource Management Office

Responses to Comment Set A2 – Bureau of Reclamation, Lower Colorado Regional Office

A2-1 **The Bureau of Reclamation raises a potential conflict between statements in the Draft IS/MND in Section 1.5 (paragraph 2, page 1-4) and in Section 3.2.2 (paragraph 4) regarding the implementation of project mitigation measures on federal lands within California and lands outside of California and requests clarification.**

As described in Section 3.2.2, CEQA does not apply to the parts of the Proposed Project in Nevada because they are subject to environmental review under NEPA (which is being prepared by the Bureau of Land Management) and because the Public Utilities Commission of Nevada already completed project review under Nevada's Utility Environmental Protection Act (and found the project exempt therefrom).

Accordingly, if the Proposed Project is approved by the CPUC, the CPUC would impose as conditions of project approval and would monitor implementation of the mitigation measures in the IS/MND pertaining to actions on non-federal lands within California. The CPUC would also require that for actions on federal lands within California, SCE must implement the mitigation measures in this IS/MND or equivalent or more effective measures, recognizing that the federal approval bodies may impose the same mitigation measures as identified in the IS/MND, or may instead formulate their own mitigation measures as part of the NEPA review. The CPUC will ensure the implementation of mitigation measures over federal land within California by securing appropriate verification that the mitigation measures imposed by the CPUC are implemented or that the mitigation measures imposed by the federal agencies are (i) equivalent or more effective and (ii) implemented. In sum, Section 3.2.2 provides an accurate description of the CPUC's role as CEQA lead agency and its scope of CEQA review. To ensure clarity and to avoid any confusion, the second paragraph in Section 1.5 has been deleted.

A2-2 **The Bureau of Reclamation recommends the inclusion of information regarding the project right of way on Reclamation land.**

Draft IS/MND page 4-9 has been modified as follows:

> ***Property Description.*** *The majority of the Proposed Project would be constructed within existing SCE Rights-of-Way (ROWs), existing public ROWs where SCE has existing franchise agreements, or ROWs on federal lands that SCE is in the process of renewing. SCE's previous ROW Grant for lands currently and formerly under BLM administration has expired. The utility would need to renew the ROW Grant for lands still under BLM jurisdiction, ~~and~~ obtain a Special Use Permit from NPS on lands formerly under BLM jurisdiction but now administered by the NPS as the Mojave National Preserve, and obtain a Use Authorization from Reclamation that will authorize SCE to operate, maintain, and eventually decommission the components of SCE's facilities located on Reclamation-administered lands.*

Text has been added at Draft IS/MND page 4-10:

> *…ROW would be required for a distribution and telecommunication link between the Newberry Springs and Ludlow capacitor facilities. On the Mojave National Preserve, an NPS Special Use Permit would be needed for the ROW and a separate Special Use Permit would be required for construction. For the Special Use Permit for the ROW the widths would be the same as on BLM-administered land: 160 feet on the Lugo-Mohave Transmission Line and 180 feet on the Eldorado-Lugo Transmission Line.1 In addition, SCE would require an additional 20-foot ROW width adjacent*

[1] In the Mojave National Preserve, the only work on the Eldorado-Lugo 500 kV Transmission Line under the Proposed Project would be the raising of one tower adjacent to the Union Pacific Railroad line that demarks a portion of the western boundary of the Preserve. However, the Special Use Permit would be for the entire Eldorado-Lugo transmission line, as the original BLM ROW Grant has expired.

to the 160-foot Lugo-Mohave Transmission Line ROW within the Mojave National Preserve at the Kelbaker and Lanfair repeater sites to accommodate distribution lines between the nearby roads and the repeater sites. No additional ROW on Reclamation land would be required for capacitor or repeater facilities. Applications for the ROW Grant, ~~and~~ Special Use Permits, and Use Authorization have been submitted by SCE to the BLM, ~~and~~ the NPS, and Reclamation, respectively.

A2-3 **The commenter recommends inclusion of Use Authorization information.**

Right of way information regarding Bureau of Reclamation lands has been added at Draft IS/MND page 4-28. It reads:

A portion of the project would also be on Bureau of Reclamation lands where the previously authorized BLM ROW grant has expired and a new Use Authorization is required for the ROW. The ROW on 0.6-acres of Reclamation land would be unchanged from its current width of 160 feet.

A2-4 **This commenter notes that implementation of Bureau of Reclamation Manual Directives and Standards are mandatory.**

The text at Draft IS/MND page 5-259 has been revised to reflect this:

The Bureau of Reclamation Manual Directives and Standards provide policies for BOR-managed lands~~; however, local offices may implement these standards at their discretion~~. Land Use Authorizations Directives and Standards provides procedures for issuing use authorization documents for use of BOR lands.

A2-5 **The CPUC's project mailing list includes Mary Reece, Chief, Resource Management Office**.

The Chief, Resource Management Office is on the project mailing list.

Comment Set A3 – California Department of Water Resources

STATE OF CALIFORNIA – CALIFORNIA NATURAL RESOURCES AGENCY GAVIN NEWSOM, Governor

DEPARTMENT OF WATER RESOURCES
1416 NINTH STREET, P.O. BOX 942836
SACRAMENTO, CA 94236-0001
(916) 653-5791

September 6, 2019

VIA EMAIL

Billie Blanchard
Energy Division
California Public Utilities Commission
300 Capitol Mall, Room 4-21
Sacramento, California 95814

RE; SCH# 2019089033 SCE Eldorado-Lugo-Mohave Project (ELM Project)
Mitigated Negative Declaration

Dear Ms. Blanchard:

The California Department of Water Resources' Division of Operations and Maintenance has reviewed the proposed Southern California Edison Eldorado-Lugo-Mohave Series Capacitor Project and has the following comments.

The proposed project activities include modifying existing series capacitors and related facilities within the Lugo Substation and surrounding area. The proposed installation of optical ground wire and other improvements near the Lugo Substation are within the State Water Project (SWP) East Branch Aqueduct's right-of-way near Milepost 399.56 to the south of the city of Hesperia. The proposed project's use of any SWP right-of-way for any purpose requires an encroachment permit issued by DWR. Information regarding SWP encroachment permits can be found at: https://water.ca.gov/Work-With-Us/Real-Estate/Encroachment-Permits

A3-1

Please provide DWR with a copy of any subsequent project environmental or other documentation when it becomes available for public review by sending the document to:

A3-2

Leroy Ellinghouse, Chief
State Water Project Right-of-Way Management Section
Division of Operations and Maintenance
California Department of Water Resources
1416 Ninth Street, Room 641-1
Sacramento, California 95814

Comment Set A3 – California Department of Water Resources (cont.)

If you have any questions, please contact Jonathan Canuela at (916) 653-5095 or Leroy Ellinghouse at (916) 653-7168.

Sincerely,

Nancy Finch, Senior Attorney
Office of the Chief Counsel
Department of Water Resources
1416 Ninth Street, Room 1118
Sacramento, California 95814
Phone (916) 653-6840
Fax (916) 653-0952
Nancy.Finch@water.ca.gov

Responses to Comment Set A3 – California Department of Water Resources

A3-1 **The commenter notes that any use of State Water Project right-of-way would require an encroachment permit.**

This comment has been conveyed to SCE.

A3-2 **The commenter requests that any subsequent project documentation issued for public review be provided to Leroy Ellinghouse, Chief, State Water Project Right-of-Way Management Section.**

Mr. Ellinghouse has been added to the CPUC's project mailing list.

Comment Set A4 – California State Lands Commission

STATE OF CALIFORNIA — GAVIN NEWSOM, *Governor*

CALIFORNIA STATE LANDS COMMISSION
100 Howe Avenue, Suite 100-South
Sacramento, CA 95825-8202

Established in 1938

JENNIFER LUCCHESI, *Executive Officer*
(916) 574-1800 *Fax* **(916) 574-1810**
California Relay Service TDD Phone **1-800-735-2929**
from Voice Phone **1-800-735-2922**

Contact Phone: **(916) 574-1890**

September 10, 2019

File Ref: SCH #2019089033

Billie Blanchard, Project Manager
California Public Utilities Commission
c/o Aspen Environmental Group
235 Montgomery Street, Suite 640
San Francisco, CA 94104-2920

VIA REGULAR & ELECTRONIC MAIL: elm@aspeneg.com

Subject: Draft Initial Study/Mitigated Negative Declaration (IS/MND) for the Southern California Edison (SCE) Eldorado-Lugo-Mohave Series Capacitor Project, San Bernardino County

Dear Ms. Blanchard:

The California State Lands Commission (Commission) staff has reviewed the subject IS/MND for the SCE Eldorado-Lugo-Mohave Series Capacitor Project (Project), which is being prepared by the California Public Utilities Commission (CPUC). The CPUC, as the regulatory agency, is the lead agency under the California Environmental Quality Act (CEQA) (Pub. Resources Code, § 21000 et seq). The Commission may act as a responsible agency because of its duty as the trustee of school lands to monitor projects that could directly or indirectly impact these lands.

Commission Jurisdiction

In 1853, the United States Congress granted to California nearly 5.5 million acres of land for the specific purpose of supporting public schools. In 1984, the State Legislature passed the School Land Bank Act (Act), which established the School Land Bank Fund (SLBF) and appointed the Commission as its trustee (Pub. Resources Code, § 8700 et seq.). The Act directed the Commission to develop school lands into a permanent and productive resource base for revenue generating purposes. The Commission manages approximately 462,830 acres of school lands still held in fee ownership by the State and the reserved mineral interests on an additional 790,000 acres where the surfaces estates have been sold. Revenue from school lands is deposited in the State Treasury for the benefit of the Teachers' Retirement Fund (Pub. Resources Code, § 6217.5).

Comment Set A4 – California State Lands Commission (cont.)

The proposed Project involves a transmission line that crosses multiple school land parcels under the jurisdiction of the Commission. SCE has two right-of-way leases with the Commission at various locations along this transmission line (PRC 6346.2 and PRC 4024.2). These locations include portions of Section 36, Township 6 North, Range 1 East; Section 16, Township 6 North, Range 3 East; Section 36, Township 10 North, Range 13 East; Section 36, Township 10 North, Range 14 East; Section 36, Township 10 North, Range 15 East; and Section 36, Township 12 North, Range 20 East, SBM. Depending upon the nature and extent of the proposed improvements at these specific locations, SCE may be required to apply to the Commission for a lease amendment to one or both leases. SCE should consult with Commission staff to clarify these issues and determine whether it is necessary to obtain any lease amendments before commencing activities on these parcels (see Public Land Management Specialist contact information at end of letter).

Project Description

SCE proposes several improvements to its existing high-voltage transmission system to meet the agency's objectives and needs as follows:

- Meet the target in-service date of June 2021 to support the requirements as outlined and required by the California Renewables Portfolio Standard (RPS) including 33% by 2020 and the increased requirement of 60% by 2030 and ensure compliance with CPUC General Order 95 and the National Electrical Safety Code.
- Continue to provide safe and reliable electrical service.
- Maintain system reliability within the Los Angeles Basin as well as the entire California Independent System Operator gird, which is defined as the Electrical Needs Area (ENA).
- Increase power flow through the existing Eldorado-Lugo, Eldorado-Mohave, and Lugo-Mohave 500 kV Transmission Lines for the purpose of increasing the amount of power delivered from California, Nevada, and Arizona to the ENA through the SCE system in an effort to meet requirements associated with the California RPS.
- Reduce the SCE's current flow into the LADWP transmission system for the purpose of mitigating power overloads under abnormal system conditions.

From the Project Description and Project area map, Commission staff understands that the Project would include the following components within the Commission's jurisdiction:

- Project Component 4. Replaces approximately 235 miles of existing overhead ground wire with new optical ground wire between Eldorado, Mohave, and Lugo substations.
- Project Component 5. Other upgrades including underground telecommunications facilities, modifying existing series capacitors, and installing or replacing equipment at existing substations.

Comment Set A4 – California State Lands Commission (cont.)

Environmental Review

Commission staff requests that the CPUC consider the following comments on the Project's IS/MND.

General Comments

1. In regard to mitigation, the IS/MND text should be consistent with the Mitigation Monitoring Program (MMP) presented in Section 6. Throughout the IS/MND, various Applicant-Proposed Measures (APMs) are presented, even though the majority of those APMs are noted as having been "superseded" by Mitigation Measures (MMs). Although it is fine to acknowledge the Proponent's contribution to the resulting MMs, presenting the superseded APMs in the document is confusing to the reader. If the APMs have been "superseded," by definition they have been replaced or removed. CPUC appears to have added the MMs to improve upon the APMs and this amended text is reflected in the MMP.

   Commission staff suggests that a statement directing the reader to the MMP for the complete text of each MM precede the discussion of MMs in each *Project Impacts and Mitigation Measures* section, or preferably only the complete MMs (as presented in the MMP) be included in each *Project Impacts and Mitigation Measures* section, to better assure the public's clear understanding of the Project.

A4-1

Cultural Resources

2. MM CR-4: Inadvertent Discovery of Cultural or Tribal Cultural Resources. The IS/MND should also mention that the title to all archaeological sites and historic or cultural resources on lands of California is vested in the state and under the jurisdiction of the Commission (Pub. Resources Code, § 6313). Commission staff requests that the CPUC consult with Staff Attorney Jamie Garrett, whose contact information is provided below, should any cultural resources on state lands be discovered during construction of the proposed Project. In addition, Commission staff requests that the following statement be included in the IS/MND's MMP, "The final disposition of archaeological, historical, and paleontological resources recovered on state land under the jurisdiction of the California State Lands Commission must be approved by the Commission."

A4-2

3. MM CR-7: Inadvertent Discovery of Human Remains on State Owned Lands or Private Property. MM CR-7 states that "SCE shall immediately contact the Medical Examiner at the County Coroner's office, BLM, CPUC as well as representatives of consulting tribes." If human remains are discovered on state-owned land, the Commission must also be notified. Therefore, Commission staff requests that the following statement be added to MM CR-7, "Should human remains be discovered on state land, SCE shall also notify the California State Lands Commission within 24 hours of the discovery."

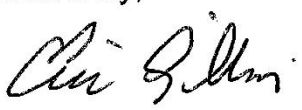
A4-3

Comment Set A4 – California State Lands Commission (cont.)

Thank you for the opportunity to comment on the IS/MND for the Project. As a trustee and potential responsible agency, the Commission may need to rely on the adopted IS/MND for the issuance of any amended lease as specified above and, therefore, we request that you consider our comments prior to adoption of the IS/MND.

Please send copies of future Project-related documents, including electronic copies of the adopted MND, MMP, Notice of Determination, and approving resolution when they become available. Please refer questions concerning the environmental review to Christine Day, Environmental Scientist, at (916) 562-0027 or christine.day@slc.ca.gov. For questions concerning archaeological or historic resources under Commission jurisdiction, please contact Staff Attorney Jamie Garrett at (916) 574-0398 or jamie.garrett@slc.ca.gov. For questions concerning Commission leasing jurisdiction, please contact Jim Porter, Public Land Management Specialist, at (916) 574-1865 or jim.porter@slc.ca.gov.

Sincerely,



Eric Gillies, Acting Chief
Division of Environmental Planning
and Management

cc: Office of Planning and Research
C. Day, Commission
J. Porter, Commission
P. Huber, Commission
J. Garrett, Commission

Responses to Comment Set A4 – California State Lands Commission

A4-1 **The commenter questions the inclusion in the IS/MND of Applicant Proposed Measures (APMs) proposed by SCE as part of the project when the APMs were superseded by Mitigation Measures in the IS/MND**.

The text of all proposed APMs is included because they were part of the original project proposal. For clarity, where APMs are superseded by Mitigation Measures, the reason(s) for their being superseded are noted. Often the reason for supersession is that the APM did not fully address an identified impact or was insufficiently clear. In many cases, the gist of an APM was included in a Mitigation Measure, which was written to provide more clarity and/or address impacts not fully addressed in the original APM. Rather than have both an APM and a Mitigation Measure address particular impacts, which would be confusing and possibly lead to conflicting interpretations, it was determined that an APM would be superseded in its entirety by a Mitigation Measure.

The commenter suggests that the Project Impacts and Mitigation Measures section of each analysis should include a reference to the Mitigation Monitoring Program (provided in Chapter 6) rather than include the complete text of the Mitigation Measures in each respective resource discussion.

Chapter 5 of the IS/MND analyzes impacts to 20 different categories of resources. The analysis in the IS/MND is organized by resource and each section includes the text of all Mitigation Measures applicable to that resource's impacts. Chapter 6 provides a compilation of the Mitigation Measures across all 20 resource topics. Having the full text of mitigation measures appear in their respective resource discussions allows the reader to understand the connection between impacts and the proposed mitigation without having to resort to looking at a different chapter for the Mitigation Measure text. Chapter 6, Mitigation Monitoring Plan, is designed to facilitate eventual environmental monitoring of the project, should it be approved, by having all applicable measures listed in on place in the document. No changes are needed as a result of this comment.

A4-2 **The commenter notes that title to all cultural resources on lands of California is vested in the state and under the jurisdiction of California State Land Commission and requests a revision of the text to reflect their ownership.**

Mitigation Measure CR-4 at Draft IS/MND page 5-146 and in Chapter 6 has been modified as follows to include CSLC:

> ***…****If previously undiscovered resources are identified during project activities all activities within 100 feet (30 meters) of the resource shall halt. The onsite construction supervisor and SCE shall be notified. SCE will notify the CPUC and BLM of the discovery. The CSLC will also be notified if the discovery is on state land. The monitoring team shall flag-off the area. SCE and its cultural resource specialist will coordinate with the CPUC, BLM, NPS, CSLC, and tribal representatives as appropriate, on avoidance measures.*
>
> *… If the resource is determined not to be significant, work may recommence in the area. If the resource is determined significant work shall remain halted within 100 feet (30 meters) of the area of the find, SCE shall consult with the BLM, CPUC, CSLC and representatives of the consulting tribes as appropriate regarding methods to ensure that no adverse effect and no substantial adverse change would occur to the significance of the resource. … Work in the area may commence upon completion of treatment, as approved by the BLM, ~~and~~ CPUC, and CSLC when appropriate.*

A4-3 **The commenter notes that if human remains are found on state land, the California State Land Commission must be notified.**

Draft IS/MND pages 5-148 and 5-149 and Chapter 6 have been modified as follows:

…In the event that human remains or suspected human remains are identified, SCE shall comply with California law (Heath and Safety Code Section 7050.5; PRC Sections 5097.94, 5097.98, and 5097.99). The area shall be flagged off and all project activities within 200 feet (60 meters) of the find shall immediately cease. The CPUC-approved Cultural Resources Specialist and SCE shall be immediately notified. SCE shall immediately contact the Medical Examiner at the County Coroner's office, BLM, CPUC as well as representatives of consulting tribes. The CSLC will be notified if the remains are identified on state land.

Comment Set A5 – Nevada Department of Water Resources

AGENCY COMMENTS:

Nevada State Clearinghouse
Department of Conservation and Natural Resources
901 South Stewart Street, Suite 5003
Carson City, NV 89701
775-684-2723
http://clearinghouse.nv.gov
www.lands.nv.gov

DATE: September 4, 2019
Division of Water Resources
Nevada SAI # E2020-043
Project: **NOI SCE Eldorado Lugo Mohave Series Capacitor - Clark County**

_____No comment on this project _____X_____Proposal supported as written

AGENCY COMMENTS:
General:

All waters of the State belong to the public and may be appropriated for beneficial use pursuant to the provisions of Nevada Revised Statutes (NRS) Chapters 533 and 534 and not otherwise.
No use of any water required in support of this project, from any source, is allowed without the benefit of a permit or waiver issued by the Nevada Division of Water Resources.

Water for Construction Projects
Ensure that any water used on a project for any use shall be provided by an established utility or under permit or temporary change application or waiver issued by the State Engineer's Office with a manner of use acceptable for suggested projects water needs.

Wells and Boreholes
All water sources used for exploration drilling, dust control, road construction, or for any other purpose must be permitted by the State Engineer.

A5-1

Responses to Comment Set A5 – Nevada Department of Water Resources

A5-1 **The Nevada State Clearinghouse provided comments from the Division of Water Resources that note that water used on a project is to be provided by an established utility or under a permit or waiver**.

This comment is noted and has been provided to SCE.

Comment Set A6 – Nevada Division of State Lands

RE: Nevada State Clearinghouse Notice E2020-43 (E2020-43 NOI SCE Eldorado Lugo Mohave Series Capacitor - Clark County)

Deann M. McKay

Wed 9/4/2019 2:35 PM

To:NevadaClearinghouse <NevadaClearinghouse@lands.nv.gov>;

Good Afternoon Andre,

Should any of the proposed utilities in the attached Capacitor project IS/MND (Application A.18-05-007) cross over land owned by the State of Nevada, an application along with supporting documentation will need to be submitted to the Nevada Division of State Lands.

The application can be found here:
http://lands.nv.gov/uploads/documents/APPLICATION_FORM_StateLands2019Fillable.pdf

Thank you for the opportunity to review and comment.

Deann McKay

Deann McKay
Supervisory Land Agent
901 S. Stewart Street, Suite 5003
Carson City, NV 89701-5246

p: 775.684.2729
f: 775.684.2721
dmckay@lands.nv.gov
Mon-Fri 7:30am-4:30pm

Nevada Division of
STATE LANDS

From: NevadaClearinghouse@lands.nv.gov <NevadaClearinghouse@lands.nv.gov>
Sent: Friday, August 30, 2019 4:51 PM
To: Alan Jenne <ajenne@ndow.org>; clytle@lincolnnv.com; Brad Hardenbrook <bhrdnbrk@ndow.org>; James Morefield <jdmore@heritage.nv.gov>; Mark Freese <markfreese@ndow.org>; Tod.oppenborn@nellis.af.mil; zip.upham@navy.mil; Shimi.Mathew@nellis.af.mil; craig.mortimore@wildnevada.org; Jennifer Crandell <jcrandell@crc.nv.gov>; 99abw.ccy@nellis.af.mil; whenderson@nvleague.org; ddavis@unr.edu; munteanj@unr.edu; jprice@unr.edu; Rebecca Palmer <rlpalmer@shpo.nv.gov>; srupert@govmail.state.nv.us; dmouat@dri.edu; Alisanne Maffei <awmaffei@admin.nv.gov>; mison@dot.state.nv.us; Warren Turkett <wturkett@crc.nv.gov>; Michael Visher <mvisher@minerals.nv.gov>; Jim R. Balderson <JBALDERSON@ndep.nv.gov>; Lindsey Lesmeister <llesmeister@ndow.org>; Richard M. Perry <rmperry@minerals.nv.gov>; jered.mcdonald@lcb.state.nv.us; Moira Kolada <mkolada@ndow.org>; rwarnold@hotmail.com; bob@intermountainrange.com; JEnglish@washoecounty.us; Valerie King <vking@ndep.nv.gov>; robert.turner.3@us.af.mil; Robert.rule@navy.mil; Alysa.Keller@lcb.state.nv.us; Cayenne Engel <cengel@forestry.nv.gov>; larry.m.cruz.civ@mail.mil; charles.r.king104.civ@mail.mil; Matt Maples <mmaples@ndow.org>; Tracy Kipke

Comment Set A6 – Nevada Division of State Lands (cont.)

<tkipke@ndow.org>; Jennifer Newmark <jnewmark@ndow.org>; Kristin Szabo <kszabo@heritage.nv.gov>; Paul.Ryan@nv.usda.gov; Shirley DeCrona <sdecrona@parks.nv.gov>; LStory@ag.nv.go v; Anna Higgins <ahiggins@forestry.nv.gov>; Gary Reese <greese@forestry.nv.gov>; Ian Kono <ikono@parks.nv.gov>; RBonner@dot.state.nv.us; mlanham@landercountynv.org; Meghan Brown <m.brown@agri.nv.gov>; lgroffman@dot.state.nv.us; tmueller@dot.state.nv.us; kverre@dot.state.nv.us; mcosta@dot.state.nv.us; Kacey KC <kaceykc@forestry.nv.gov>; Birgit Widegren <bwidegren@ndep.nv.gov>; Kim Rigdon <krigdon@ndep.nv.gov>; KHaukohl@dot.state.nv.us; Greg Lovato <glovato@ndep.nv.gov>; Peggy Roefer <proefer@crc.nv.gov>; andrea.randall@snwa.com; cerquiaga@trcp.org; eric Miskow <emiskow@heritage.nv.gov>; esmboc@gmail.com; Janice Keillor <jkeillor@parks.nv.gov>; Seth W. Johnson <swjohnson@puc.nv.gov>; Kelly McGowan <kmcgowan@sagebrusheco.nv.gov>; brian.r.hunsaker.mil@mail.mil; Garrett Wake <gwake@minerals.nv.gov>; Jasmine Kleiber <jkleiber@ndow.org>; tim@rubaldandassociates.com; mmiller@fallonnevada.gov; Caleb McAdoo <cmcadoo@ndow.org>; genevieve_skora@fws.gov; aevans@nvnaco.org; Bart Chambers <bchambers@dps.state.nv.us>; Christina Wilson <cswilson@dps.state.nv.us>; Ellery Stahler <estahler@lands.nv.gov>; Greg.e.mckay@gmail.com; tara_vogel@fws.gov; Clifford Banuelos <cbanuelos@ndep.nv.gov>; Mark Enders <menders@ndow.org>; Jenni Jeffers <jjeffers@ndow.org>; Kenny Pirkle <kpirkle@ndow.org>; lee_carranza@fws.gov; chad_mellison@fws.gov; Jason Salisbury <jsalisbury@ndow.org>; ann.bedlion@navy.mil; donna.w ithers@navy.mil; Kris Urquhart <kurquhart@ndow.org>; susan_e_cooper@fws.gov; Dan Huser <dhuser@sagebrusheco.nv.gov>; Bettina Scherer <bscherer@dcnr.nv.gov>; Sandy Quilici <squilici@dcnr.nv.gov>; Samantha Thompson <SThompson@dcnr.nv.gov>; Catherine Erskine <c.erskine@dcnr.nv.gov>; John Christopherson <jchrist@forestry.nv.gov>; Ryan S. Shane <rshane@forestry.nv.gov>; Chris Thorson <cthorson@water.nv.gov>; EQuaglieri@carson.org; tyler@nevadadc.org; ckincheloe@carson.org; Deann M. McKay <dmckay@lands.nv.gov>; cgiesinger@washoecounty.us; Zach E. Ormsby <zormsby@parks.nv.gov>; Kelly Thomas <kelly.thomas@ndep.nv.gov>; Sarah Hills <shills@ndep.nv.gov>; Stephanie Simpson <s.simpson@ndep.nv.gov>; Micheline Fairbank <mfairbank@water.nv.gov>; Andre Emme <aemme@lands.nv.gov>; Samatha R. Essig <sessig@parks.nv.gov>; David Bobzien <dbobzien@energy.nv.gov>; Kelli Anderson <kanderson@dps.state.nv.us>; Meredith Gosejohan <mgosejohan@lands.nv.gov>; SERC <SERC@dps.state.nv.us>; Karen Beckley <KBeckley@health.nv.gov>; bthompson@dot.state.nv.us; Richard Ewell <rewell@tax.state.nv.us>; Cynthia Turiczek <cturiczek@puc.nv.gov>; Bob J. Halstead <bhalstead@nuc.state.nv.us>; hdrake@tax.state.nv.us; Lowell Price <lprice@minerals.nv.gov>; mstewart@lcb.state.nv.us; sscholley@lcb.state.nv.us; Adam Roney <aroney@puc.nv.gov>
Subject: Nevada State Clearinghouse Notice E2020-43 (E2020-43 NOI SCE Eldorado Lugo Mohave Series Capacitor - Clark County)

NEVADA STATE CLEARINGHOUSE
Department of Conservation and Natural Resources, Division of State Lands
901 S. Stewart St., Ste. 5003, Carson City, Nevada 89701-5246
(775) 684-2723 Fax (775) 684-2721

TRANSMISSION DATE: 08/30/2019

U.S. Bureau of Land Management

Nevada State Clearinghouse Notice E2020-43
Project: E2020-43 NOI SCE Eldorado Lugo Mohave Series Capacitor - Clark County

Follow the link below to find information concerning the above-mentioned project for your review and comment.
E2020-43 - http://clearinghouse.nv.gov/public/Notice/2020/E2020-43.pdf

- **Please evaluate this project's effects on your agency's plans and programs and any other issues that**

Comment Set A6 – Nevada Division of State Lands (cont.)

you are aware of that might be pertinent to applicable laws and regulations.

- **Please reply directly from this e-mail and attach your comments.**
- **Please submit your comments no later than Thursday September 12th, 2019.**

Clearinghouse project archive

Questions? Andre Emme, Program Manager, (775) 684-2733 or nevadaclearinghouse@state.nv.us

____No comment on this project ____Proposal supported as written
AGENCY COMMENTS:

Signature:

Date:

Requested By:

Distribution:
- 99ABW Nellis
- Department of Conservation & Natural Resources
- Intermountain Range
Adam Roney - Public Utilities Commission
Alan Jenne - Department of Wildlife, Elko
Alisanne Maffei - Department of Administration
Alysa Keller - Legislative Counsel Bureau
Amanda Evans - NACO
Andre Emme - Nevada Division of State Lands
Andrea Randall - Southern Nevada Water Authority
Ann Bedlion - NAS Fallon
Anna Higgins - Nevada Division of Forestry
Bart Chambers - State Fire Marshall Office
Bettina Scherer - Conservation Districts
Bill Thompson - Department of Transportation, Aviation
Birgit Henson - NDEP
Bob Turner - Nellis AFB
Caleb McAdoo - NDOW

Comment Set A6 – Nevada Division of State Lands (cont.)

Carl Erquiaga - Theodore Roosevelt Conservation Partnership
Cathy Erskine - Dept of Conservation and Natural Resources
Cayenne Engel - Nevada Division of Forestry
Chad Giesinger - Washoe County
Chad Mellison - U.S. Fish and Wildlife Service
Chelsea Kincheloe - Carson City Parks, Recreation and Open Spaces Department
Chris Thorson - Division of Water Resources
Christina Wilson - Fire Marshal Office
Christina Wilson - State Fire Marshall Office
Chuck King - Hawthorne Army Depot
Clifford Banuelos - Inter-Tribal Council of Nevada, Inc.
Cory Lytle - Lincoln County
Craig Mortimore - Wild Nevada
Cynthia Turiczek - Public Utilities Commission
D. Bradford Hardenbrook - Department of Wildlife, Las Vegas
Dan Huser - Sagebrush Ecosystem Technical Team
David Bobzien - Nevada State Energy Office
David David - UNR Bureau of Mines
David Mouat - Desert Research Institute
Deann McKay - State Land Office
Donna Withers - NAS Fallon
Ed Ryan - Smith and Mason Valleys Conservation District
Eddy Quaglieri P.E. - Carson City Public Works Department
Ellery Stahler - Nevada Division of State Lands
Eric Miskow - Nevada Natural Heritage Program
Garrett Wake - Nevada Division of Minerals
Gary Reese - Nevada Division of Forestry
Genevieve A. Skora - US Fish and Wildlife Service
Greg Lovato - NDEP
Greg McKay - NV OHV Commission
Heather Drake - Nevada Department of Taxation, Local Government, Centrally Assessed Property
Ian Kono - Nevada Division of Water Resources
J Crandell - Colorado River Commission of Nevada
James D. Morefield - Natural Heritage Program
Janice Keillor - Nevada Division of State Parks
Jasmine Kleiber - NDOW
Jason Salisbury - Nevada Department of Wildlife
Jenni Jeffers - Nevada Department of Wildlife
Jennifer Newmark - NDOW - Wildlife Diversity
Jered McDonald - Legislative Counsel Bureau
Jim Balderson - NDEP
Jim English - Washoe County
John Christopherson - Nevada Division of Forestry
John Muntean - UNR Bureau of Mines
Jon Price - UNR Bureau of Mines
Kacey KC - Nevada Division of Forestry
Karen Beckley - State Health Division
Kelli Anderson - Division of Emergency Management
Kelly Eagan - Esmeralda County
Kelly McGowan - Sagebrush Ecosystem Technical Team
Kelly Thomas - NDEP
Kenny Pirkle - Nevada Department of Wildlife
Kevin Verre - NDOT
Kim Borgzinner - NDEP

Comment Set A6 – Nevada Division of State Lands (cont.)

Kris Urquhart - Nevada Department of Wildlife
Kristin Szabo - Nevada Natural Heritage Program
Kurt Haukohl - NDOT
Larry Cruz - Hawthorne Army Depot
Lee Ann Carranza - U.S. Fish and Wildlife Service
Lee Bonner - NDOT
Lindsey Lesmeister - NDOW
Lori M. Story - Attorney General
Louis Groffman - Nevada Department of Transportation
Lowell Price - Commission on Minerals
Major Brian Hunsaker - Nevada National Guard
Mark Costa - NDOT
Mark Enders - NDOW
Mark Freese - Department of Wildlife
Matt Maples - NDOW
Meghan Brown - Dept of Agriculture
Meredith Gosejohan - Tahoe Resource Team - Division of State Lands
Michael J. Stewart - Legislative Counsel Bureau
Michael Visher - Division of Minerals
Micheline Fairbank - Nevada Division of Water Water Resources
Mike Miller - City of Fallon Public Works
Mitch Ison - NDOT
Miteshell Lanham - Lander County
Moira Kolada - NDOW
Peggy Roefer - Colorado River Commission
Rebecca Palmer - State Historic Preservation Office
Rich Perry - Nevada Division of Minerals
Richard Arnold - Nevada Indian Commission
Robert Halstead - Nevada Agency for Nuclear Project
Robert Rule - NAS Fallon
Ryan Shane - Nevada Division of Forestry
Samantha R. Essig -
Samantha Thompson - Dept of Conservation and Natural Resources
Sandy Quilici - Department of Conservation & Natural Resources
Sarah Hills - NDEP
Seth Johnson - Public Utilities Commission
Sherry Rupert - Indian Commission
Shimi Mathew - Nellis AFB
Shirley DeCrona - Nevada Division of State Parks
Stephanie Simpson - NDEP
Susan Cooper - US Fish and Wildlife Service
Susan Scholley - Legislative Counsel Bureau
Tara Vogel - US Fish and Wildlife Service
Terry Rubald - Nevada Department of Taxation, Local Government, Centrally Assessed Property
Tim Mueller - Department of Transportation
Tim Rubald -
Tod Oppenborn - Nellis Air Force Base
Tracy Kipke - NDOW
Tyler Klimas - Washington Office
Valerie King - NDEP
Warren Turkett - Colorado River Commission of Nevada
Wes Henderson - Nevada League of Cities
Zach Ormsby -
Zip Upham - NAS Fallon

Responses to Comment Set A6 – Nevada Division of State Lands

A6-1 **The Nevada State Clearinghouse provided a list of agencies to which notice of the project was distributed.**

No response to this comment is required.

Comment Set A7 – CPUC Public Advocates Office

Public Advocates Office
California Public Utilities Commission

505 Van Ness Avenue
San Francisco, California 94102
Tel: 415-703-2381
Fax: 415-703-2057
http://publicadvocates.cpuc.ca.gov

9/13/2019

Billie Blanchard
California Public Utilities Commission
c/o Aspen Environmental Group
235 Montgomery Street, Suite 640
San Francisco, CA 94104-2920
elm@aspeneg.com

Subject: **Comments of the Public Advocates Office on the Initial Study/Mitigated Negative Declaration for Southern California Edison Company's Eldorado-Lugo-Mohave Series Capacitor Project – Application (A.) 18-05-007**

INTRODUCTION

The Public Advocates Office hereby submits these comments on the Initial Study/Mitigated Negative Declaration (MND) for Southern California Edison Company's (SCE's) Eldorado-Lugo-Mohave Series Capacitor Project (ELM). Based on the California Public Utilities Commission's (Commission) Energy Division's Initial Study, the Commission intends to adopt an MND under the California Environmental Quality Act (CEQA). The Public Advocates Office has reviewed the MND and recommends the following modifications to the MND:

- A specific in-service date should not be a project objective; and
- "Planned generation resources" should be more thoroughly defined to identify the resources for which the proponents are seeking to establish full capacity deliverability status (FCDS).[1]

[1] Full capacity deliverability status provides resources the opportunity to generate more revenue through other revenue streams such as resource adequacy credits.

Comment Set A7 – CPUC Public Advocates Office (cont.)

DISCUSSION

The Public Advocates Office recommends the following modifications to the MND:

A. A SPECIFIC IN-SERVICE DATE SHOULD NOT BE A PROJECT OBJECTIVE A7-1

Section 1.1 and Section 4.2.2 of the MND, both titled "Project Objectives," state that it is an objective to "meet the target in-service date of June 2021 in an effort to support the requirements as outlined and required by the California Renewables Portfolio Standard (RPS)…."[2] However, this appears to be a self-imposed deadline. The project proponent (SCE) claims the purpose of its requested online date is to help meet the 33% renewable target, but California's three large Investor Owned Utilities (IOUs) collectively already exceed this target because they serve 36% of their 2017 retail electricity sales with renewable power.[3] Furthermore, Decision 19-06-023[4] provides the latest requirements for RPS procurement and in the case of SCE, its 2021 target is 35.75% of retail load,[5] which it has already surpassed with 36.5% of its retail sales coming from RPS eligible resources in 2018.[6] Moreover, SCE states that it forecasts a net long position through the end of Compliance Period 6 (2028-2030) and beyond, and that SCE currently does not have a need for additional RPS-eligible energy.[7] This highlights that this project is not needed to meet SCE's 2021 RPS target.

It is a matter for the Commission to decide the need for, and relative contribution of, this project to SCE's RPS requirement. Therefore, the MND should not tie the hands of the Commission by imposing an in-service date. If the Commission should decide that the project is necessary, it will prescribe the necessary in-service date.

Another reason why a time objective is inappropriate is that the Initial Study, upon which the MND is based, has no aspect of time for the project that negatively affects the environment. Nor

[2] MND, pp. 1-1 and 4-7.

[3] See https://www.cpuc.ca.gov/rps/.

[4] Decision in Rulemaking 18-07-003: To Continue Implementation and Administration, and Consider Further Development of, California Renewables Portfolio Standard Program.

[5] D.19-06-023, pg. 7.

[6] Table IV-1: Percentage of SCE's Retail Sales from RPS-Eligible Resources, Southern California Edison Company's 2019 Draft Renewables Portfolio Standard Procurement Plan (SCE 2019 Draft RPS Plan), p. 9.

[7] SCE 2019 Draft RPS Plan, p. 14.

Comment Set A7 – CPUC Public Advocates Office (cont.)

was the review of environmental effects predicated on the timing of the project.[8] Therefore, for all the above reasons, the language "meet the target in-service date of June 2021 in an effort to…" should be removed from the MND.

A7-1 cont.

B. "PLANNED GENERATION RESOURCES" SHOULD BE MORE THOROUGHLY DEFINED TO IDENTIFY THE RESOURCES THAT ARE SEEKING FULL CAPACITY DELIVERABILITY STATUS

A7-2

Section 4.2.2 of the MND, "Project Objectives" states that it is an objective to "integrate planned generation resources in order for those facilities to become fully deliverable."[9] However, it is unclear what is meant by the use of the word "planned." "Planned" could mean projects with existing agreements, executed interconnection agreements, projects at an earlier stage of the California Independent System Operator's (CAISO's) interconnection process, or even projects that are in development. Table 2-1 of SCE's Proponent's Environmental Assessment (PEA) includes projects at various stages of development, from parked[10] to undergoing study to executing interconnection agreements.[11] Clearly stating at which point in the CAISO's interconnection process a project enters into the justification for the Eldorado-Lugo-Mohave Series Capacitor project will allow the Commission's permitting process to progress with more specific, quantifiable information and preemptively resolve any potential confusion. Therefore, the scope of projects that ELM aims to help in achieving FCDS should be narrowed by more thoroughly defining "planned generation resources" in the MND.

[8] "Mitigated negative declaration" means a negative declaration prepared for a project when the initial study has identified potentially significant effects on the environment…" 14 CCR § 15369.5.
[9] MND, p. 4-8.
[10] As used by SCE in its PEA, this term means that a project is stalled or on hold within the interconnection queue.
[11] Table 2-1: Interconnection Requests that Require Completion of the Proposed Project, Proponent's Environmental Assessment.

Comment Set A7 – CPUC Public Advocates Office (cont.)

CONCLUSION

For the above reasons, the Public Advocates Office recommends that the MND be modified to (1) not include specific in-service dates in the project objectives, and (2) establish a more specific definition for "planned generation resources".

Please contact Fidel Leon Diaz at Fidel.Leon.Diaz@cpuc.ca.gov or (415) 703-2043 with any questions regarding these comments.

/s/ Chloe Lukins

Chloe Lukins
Program Manager

Responses to Comment Set A7 – CPUC Public Advocates Office

A7-1 **The Draft IS/MND shows the Project Objectives set forth by SCE (in IS/MND Section 1.1 and Section 4.2.2), which presently include a target in-service date of June 2021. The Public Advocates Office recommends that a specific in-service date should not be a part of the Project Objectives**.

In general, the project objectives are important to the CEQA analysis for allowing proper development and consideration of project alternatives, if necessary to avoid or substantially lessen significant impacts to the environment. For the Proposed Project, the Draft IS/MND demonstrates that all project-related environmental impacts would be less than significant or reduced to a less than significant level with the incorporation of feasible mitigation measures (Section 1.2). As such, no EIR or consideration of project alternatives is required. The Draft IS/MND simply provides as information the objectives that SCE hopes to satisfy by undertaking the Proposed Project. There would be no need to redefine or reinterpret SCE's objectives to suit decision-making by the CPUC. The inclusion or exclusion of an in-service date objective in the IS/MND does not affect the environmental analysis or conclusions regarding environmental impacts.

The commenter also claims that the IS/MND "has no aspect of time" and is not "predicated on the timing of the project."

In these claims, the comment implicitly recognizes that SCE's targeted in-service date is not yet a certainty. For example, in 2018, SCE originally filed the application for this project with the expectation of commencing operation in June 2020 (page C-1 of A.18-05-007, filed May 2, 2018). Delays are not uncommon for transmission projects. The commenter is generally correct that the timing of the project would not alter its environmental impacts as analyzed in the IS/MND. However, select topics could be somewhat affected if SCE's proposed construction schedule (Section 4.7.9) were substantially delayed. For instance, the analysis shows that all construction-phase activities would occur within a planned duration of construction to span 2020 and 2021, and impacts to air quality are analyzed for emissions that would be emitted by the equipment fleets that exist at that time (in Section 5.3.5 and Appendix B, Air Quality/Greenhouse Gas Emissions Data Tables). Dramatic changes in the project schedule could alter the time and nature of the emissions and the fleets causing the emissions.

The impact analysis for Energy in Section 5.6.6 (Draft IS/MND page 5-156) notes that the project objectives center on delivering renewable energy to California's end-users of electricity, and that the Proposed Project would be consistent with California's plans and prior studies to accommodate greater access to renewable resources (Draft IS/MND page 5-157).

The CPUC will address the question of whether the Proposed Project serves a present or future convenience and necessity through a review of the testimony in the general proceeding (A.18-05-007) for this project, which may include consideration of the RPS program requirements facing SCE and other load serving entities.

A7-2 **The comment concerns clarifying terminology in SCE's Project Objectives (in Section 1.1 and Section 4.2.2). The commenter claims that use of the word "planned" is unclear in SCE's Project Objective to "integrate planned generation resources." The commenter notes that some generation projects will be further along in the process of development than others. The commenter requests "more thoroughly defining 'planned generation resources' in the MND" to help clarify the point at which a project may enter into the justification for the Proposed Project.**

Because the word "planned" has no special definition within the State CEQA Guidelines or the associated Public Resources Code, the environmental analysis follows a plain English meaning by treating "planned generation" as being designed or "decided on and arranged in advance." The analysis recognizes that generation facilities, including "future generation facilities" not yet built, but planned, may use the Proposed Project to transmit electricity (Draft IS/MND page 3-4, Section 3.2.3). The meaning

of what is "planned" needs no further refining or narrowing for the environmental analysis because it broadly captures any projects that might eventually use the Proposed Project facilities.

The impact analysis for Energy in Section 5.6.6 (Draft IS/MND page 5-157) points to prior CAISO approvals for the Proposed Project made in the 2012-2013 and 2013-2014 cycles of the CAISO Transmission Plan. The CAISO approvals were for the Proposed Project to provide deliverability of renewable resources, including certain specific generation facilities that sought to interconnect and also renewable resource portfolios of generic generating capacity in broad geographic zones. The portfolios were formally transmitted to CAISO by CPUC and California Energy Commission (CEC) as a representation of the most likely path of future renewable development. The future generation facilities are speculative (Draft IS/MND page 3-4, Section 3.2.3) because they could include specific proposed generation projects seeking to interconnect or other resources fitting the location and size characteristics of the portfolios developed by the CPUC and CEC for the annual CAISO Transmission Plan. The Draft IS/MND also notes that such facilities will themselves be subject to full CEQA and NEPA review processes (Draft IS/MND page 3-4, Section 3.2.3).

Issues surrounding the question of whether the Proposed Project serves a present or future convenience and necessity will be addressed by the CPUC within the testimony of the general proceeding (A.18-05-007) for this project.

Comment Set B1 – Natural Resources Defense Council

BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA

Application of Southern California Edison Company Eldorado-Lugo-Mohave Series Capacitor Project	Application A.18-05-007 (Submitted May 2, 2018)

COMMENTS OF THE NATURAL RESOURCES COUNCIL ON THE INITIAL STUDY/ MITIGATED NEGATIVE DECLARATION FOR THE EL DORADO-LUGO-MOHAVE SERIES CAPACITOR PROJECT

September 13, 2019

Carl Zichella
Natural Resources Defense Council
111 Sutter Street, 21st Floor
San Francisco, CA 94104
415-875-6100
czichella@nrdc.org

Comment Set B1 – Natural Resources Defense Council (cont.)

BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA

Application of Southern California Edison Company Eldorado-Lugo-Mohave Series Capacitor Project	Application A.18-05-007 Submitted May 2, 2018

COMMENTS OF THE NATURAL RESOURCES COUNCIL ON THE INITIAL STUDY/ MITIGATED NEGATIVE DECLARATION (ISMND) FOR THE EL DORADO-LUGO-MOHAVE SERIES CAPACITOR PROJECT

The Natural Resources Defense Council respectfully submits the following comments in support of the adoption of the IS/ MND for the E Dorado-Lugo-Mohave Series Conductor Project (ELM).

I. DESCRIPTION OF NRDC

NRDC is a non-profit membership organization with more than 95,000 California members who have an interest in receiving affordable energy services while reducing the environmental impact of California's energy consumption. We have participated in numerous California Public Utilities Commission proceedings over the last 40 years with a particular focus on representing our California members' interest in the utility industry's delivery of cost-effective energy efficiency programs, renewable energy resources, and other sustainable energy alternatives.

II. STATEMENT OF INTEREST

NRDC has long advocated for the more efficient use of the electrical delivery system to rapidly and reliably integrate the renewable energy resources needed to meet California's critical renewable energy and climate goals. We have strongly supported efforts to upgrade and modernize existing transmission resources to avoid having to build unnecessary rights of way (ROW) and to size new transmission resources to meet present and future needs. The ELM project will accomplish these goals by increasing the capacity of the existing transmission line,

Comment Set B1 – Natural Resources Defense Council (cont.)

increasing the ability to import renewable generation from neighboring resource areas, and integrating new transmission communications technology without substantially changing the existing footprint of the transmission line. The ELM project as described in the IS/MND will defer the need to construct and permit a new transmission line and ROW across environmentally sensitive California lands. It will increase reliability in both the Southern California Edison and LADWP service territories by improving power flows and reducing congestion between their systems and in the California ISO (CAISO system). NRDC strongly supports the ELM project as described in the IS/MND.

Specifically, the project would:

- Construct two 500 kV mid-line series capacitors near Interstate 40, approximately 18 miles southeast of Newberry Springs.
- Construct three new fiber optic repeater facilities within the Lugo-Mohave Transmission ROW.
- Address 16 potential overhead clearance discrepancies at 14 locations.
- Replace approximately 235 miles of existing overhead ground wire (OHGW) with new optical ground wire (OPGW) between Eldorado, Mohave, and Lugo substations.
- Include other upgrades including underground telecommunications facilities, modifying existing series capacitors, installing or replacing equipment at existing substations.
- Install cathodic protection on nearby pipelines as needed.

II. ADEQUACY OF THE IS/MND

B1-1

NRDC believes the mitigation measures as proposed by the applicant and augmented by the CPUC staff are sufficient to warrant an MND for the project. We commend both the applicant and the CPUC reviewing staff for comprehensively assessing and proposing mitigations to avoid and compensate for environmental damage these upgrades might cause.

NRDC concurs with the IS/ MND finding that: "Implementation of the mitigation measures, listed below (in the IS/ MND) by resource topic, would avoid or reduce to less than significant levels all potentially significant impacts identified in the Initial Study."[1]

[1] The full text of mitigation measures also is provided in the resource analysis sections of

Comment Set B1 – Natural Resources Defense Council (cont.)

B1-1 cont.

NRDC notes that Edison has agreed to incorporate all mitigation measures proposed by he CPUC staff into their project plan.

IV. CONCLUSION

NRDC's urges that the IS/MND for the ELM project be accepted as adequate for meeting the purposes of CEQA for the reasons stated above, NRDC respectfully requests the Commission so approve it.

September 13, 2019

Respectfully submitted,

Carl Zichella, Senior Policy Advocate
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Section 5, under Environmental Impacts and Mitigation Measures, as well as in Section 6. Mitigation Monitoring Plan.) In some instances, a mitigation measure for one resource is also applicable to a different resource and is cross referenced in the text.

Responses to Comment Set B1 – Natural Resources Defense Council

B1-1 **The Natural Resources Defense Council (NRDC) strongly supports the ELM project and expresses its belief that the mitigation measures are sufficient to warrant an MND. NRDC also concurrs with the IS/MND findings that impacts would be avoided or reduced to a less than significant level**.

Comment noted. No response is required.

Comment Set B2 – Wild Tree Foundation

Wild Tree Foundation

September 13, 2019

Billie Blanchard
California Public Utilties Commission
c/o Aspen Environmental Group
235 Montgomery Street, Suite 640
San Francisco, CA 94104

RE: A.18-05-007 Eldorado-Lugo-Mohave Series Capacitor Project, California Public Utilities Commission A.18-06-007 Draft Mitigated Negative Declaration

SENT VIA ELECTRONIC MAIL TO ELM@ASPENEG.COM

Dear Billie Blanchard:

These comments are submitted on behalf of the Wild Tree Foundation regarding the Draft Mitigated Negative Declaration ("DMND") for the Eldorado-Lugo-Mohave Series Capacitor Project, California Public Utilities Commission ("Commission") A.18-06-007 ("Project").

Wild Tree Foundation ("Wild Tree") is a 501(c)(3) non-profit organization dedicated to protection of our environment, climate, and wildlife. Wild Tree advocates that our future is dependent upon a transition away from fossil fueled and utility-scale electricity generation reliant upon lengthy transmission from for-profit, investor owned utilities to a system based upon local, distributed, publicly and cooperatively owned renewable resources. Wild Tree intervenes in Commission proceedings to further the interests of our environment, climate, wildlife, and ratepayers that are concerned about their protection. In furtherance of these interests, Wild Tree advocates for transparency, public participation, and compliance with the Rule of Law in government decision-making and against corruption by government agencies and officials and regulated entities.

Wild Tree is concerned about the significant impacts to sensitive and protected wildlife and habitat, sensitive and protected plant species and communities, desert pavement, and air

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Comment Set B2 – Wild Tree Foundation (cont.)

quality of the Project. In particular, this project would result in the take of federally and state endangered desert tortoises (Gopherus agassizii) as construction would occur where tortoises live and mate and would disturb large areas of desert tortoise designated critical habitat including parts of the Mojave National Preserve. Wild Tree is especially concerned about the harm this project will cause to the designated critical, in particular the Western Mojave population where the tortoises face extreme pressures and population losses. The Project will adversely modify and destroy federally designated critical habitat for the desert tortoise, a species listed as threatened under federal Endangered Species Act ("ESA"), and is thus adverse to the ESA.

This is a project which is not needed and should not be approved. The DMND provides no alternatives analysis. Such an analysis would show that a non-project alternatives is the preferable alternative because the project objectives are flawed and do not support a need for the Project. Nonetheless, at the very least, the project must comply with the clear directive of California Environmental Quality Act ("CEQA"), Public Resources Code section 21000 et seq. that an Environmental Impact Review ("EIR") be prepared for this Project because it will have potential significant impacts which are not mitigated by the DMND's woefully inadequate proposed "mitigation" measures that do not actually serve to alter the project in any way or to mitigate significant impacts. The DMND also fails to address cumulative impacts and growth-inducing impact.

The DMND fails to account for significant impact as a result of cumulative impacts and the growth inducing aspect of the Project. An EIR is needed to provide the required analysis of these significant impacts.

A. The Project Objectives Do Not Support a Need

B2-1

The DMND claims that the Project would meet an objective of "Meet the target in-service date of June 2021 in an effort to support the requirements as outlined and required by the California Renewables Portfolio Standard (RPS)1 including 33% by 2020 and the increased requirement of 60% by 2030." (DMND at p 1-1.) The claim that this project is needed to meet RPS 2020 requirements ignores the fact that SCE has already exceeded its 2020 RPS requirement and that the Commission has determined in the current Long Term Procurement Proceeding that SCE requires no procurement through 2030 and that no out of state resources need be procured through

Comment Set B2 – Wild Tree Foundation (cont.)

2030. The project objective that relies upon "the entire California Independent System Operator (CAISO) grid, which is defined as the Electrical Needs Area (ENA)" is outrageous. There is no precedent for defining the ENA as the entire state and for good reason; almost any project based upon a statewide ENA could argue a need based upon some far flung local reliability need. The claimed need to address any flow into LADWP has already been addressed by LADWP upgrades and SCE has no grounds under which it can justify un-realized "flow overloads under abnormal system conditions" especially where those abnormal system conditions can be addressed by load shedding. The project objective to "continue to provide safe and reliable electrical service" is so general as to be meaningless. There is no evidence put forth in the DMDN that safety and reliability will in any way be enhanced by this Project or that a no project alternative would not also be safe and reliable.

B2-1 cont.

B. There are Significant Impacts Identified in the DMND and An EIR Is Thus Required

1. An EIR Is Required Where There Is Substantial Evidence In The Whole Record Supporting A Fair Argument That A Project May Have A Significant Effect On The Environment

B2-2

This Project requires the preparation of an Environmental Impact Review ("EIR") because there are significant impacts; a mitigated negative declaration is insufficient under the California Environmental Quality Act ("CEQA"), Public Resources Code section 21000 et seq. "The foremost principle under CEQA is that the Legislature intended the act 'to be interpreted in such manner as to afford the fullest possible protection to the environment within the reasonable scope of the statutory language.'" (*The Pocket Protectors v. City of Sacramento* (2004) 21 Cal. Rptr. 3d 791, 926 quoting *Friends of Mammoth v. Board of Supervisors* (1972) 8 Cal.3d 247, 259.) The California Courts have long adhered to the proposition that, "'It is, of course, too late to argue for a grudging, miserly reading of CEQA.' (*Bozung v. Local Agency Formation Com.* (1975) 13 Cal.3d 263, 274.)" (*Laurel Heights Improvement Assn. v. Regents of University of California* (1988) 47 Cal.3d 376, 390.)

The California Courts "have repeatedly recognized that the EIR is the 'heart of CEQA.'" (*Citizens of Goleta Valley v. Board of Supervisors* (1990) 52 Cal.3d 553, 564; *Laurel Heights Improvement Assn. v. Regents of University of California, supra,* 47 Cal.3d at p. 392; see also

Comment Set B2 – Wild Tree Foundation (cont.)

Guidelines, § 15003, subd. (a)[1].) The purpose of an EIR is to inform the public and decision-makers of the environmental consequences of their decisions *before* they are made. "Thus, the EIR 'protects not only the environment but also informed self-government.'" (*Laurel Heights Improvement Assn. v. Regents of University of California, supra,* 47 Cal.3d at p. 392; *Citizens of Goleta Valley v. Board of Supervisors, supra,* 52 Cal.3d at p. 564.)

B2-2 cont.

"With certain limited exceptions, a public agency must prepare an EIR whenever substantial evidence supports a fair argument that a proposed project 'may have a significant effect on the environment.' (*The Pocket Protectors v. City of Sacramento, supra,* 21 Cal. Rptr. 3d at 926-28 citing Pub. Resources Code, §§ 21100, 21151, 21080, 21082.2; Guidelines, §§ 15002, subd. (f)(1), (2), 15063; *No Oil, Inc. v. City of Los Angeles* (1974) 13 Cal.3d 68, 75.) "CEQA requires a governmental agency [to] prepare an environmental impact report (EIR) whenever it considers approval of a proposed project that '*may* have a *significant* effect on the environment.' (§ 21100, italics added.) (*Quail Botanical Gardens v. City of Encinitas* (1994) 35 Cal. Rptr. 2d 470, 1601.) "'May' means a reasonable possibility. (*League for Protection of Oakland's etc. Historic Resources v. City of Oakland* (1997) 52 Cal.App.4th 896, 904-905 citing (Pub. Resources Code, §§ 21082.2, subd. (a), 21100, 21151, subd. (a).)

A negative declaration may be used if there is no substantial evidence a project may have a significant effect on the environment or the initial study identifies potential significant effects, but provides for mitigation revisions which make such effects insignificant. (Pub. Resources Code, §§ 21080, subd. (c), 21064.) "However, the Supreme Court has recognized that CEQA requires the preparation of an EIR 'whenever it can be fairly argued on the basis of substantial evidence that the project may have significant environmental impact.'" (*No Oil, Inc.* v. *City of Los Angeles, supra* 13 Cal.3d at p. 75; see also *Laurel Heights Improvement Assn.* v. *Regents of University of California* (1993) 6 Cal.4th 1112, 1123.) "Thus, if substantial evidence in the record supports a 'fair argument' significant impacts or effects may occur, an EIR is required and a negative declaration cannot be certified." (*Quail Botanical Gardens v. City of Encinita, supra,* 35 Cal. Rptr. 2d at p. 1601-2; *See also San Joaquin Raptor/Wildlife Rescue Center v. County of Stanislaus* (1996) 49 Cal. Rptr. 2d 494, 616-17.)

[1] All references to Guidelines are to the state CEQA Guidelines, which implement the provisions of CEQA. (Cal. Code Regs., tit. 14, § 15000 et seq.) The Guidelines state: "These Guidelines are binding on all public agencies in California." (Guidelines, § 15000.)

Comment Set B2 – Wild Tree Foundation (cont.)

B2-2 cont.

Where there is substantial evidence in the whole record supporting a fair argument that a project may have a significant effect on the environment, the lead agency shall prepare an EIR, "even though it may also be presented with other substantial evidence that the project will not have a significant effect." (Pub. Resources Code, § 21151, subd. (a); Guidelines, § 15064, subd. (f)(1), (2); *No Oil, supra,* 13 Cal.3d at p. 75; *Architectural Heritage Assn. v. County of Monterey* (2004) 122 Cal.App.4th 1095, 1109; *Communities for a Better Environment v. California Resources Agency* (2002) 103 Cal.App.4th 98, 111-112.) "Substantial evidence" means "enough relevant information and reasonable inferences from this information that a fair argument can be made to support a conclusion, even though other conclusions might also be reached." (Guidelines, § 15384, subd. (a).) Substantial evidence "shall include facts, reasonable assumptions predicated upon facts, and expert opinion supported by facts." (Guidelines, § 15384, subd. (b).)

The fair argument standard is a "low threshold" test for requiring the preparation of an EIR. (*No Oil, Inc.* v. *City of Los Angeles, supra,* 13 Cal.3d at p. 84; *League for Protection of Oakland's etc. Historic Resources v. City of Oakland, supra,* 12 Cal.App.4th at p. 905; *Sierra Club v. County of Sonoma* (1992) 6 Cal.App.4th 1307, 1316-1317; *Oro Fino Gold Mining Corp. v. County of El Dorado* (1990) 225 Cal.App.3d 872, 881.) "It is a question of law, not fact, whether a fair argument exists, and the courts owe no deference to the lead agency's determination. Review is de novo, *with a preference for resolving doubts in favor of environmental review." (The Pocket Protectors v. City of Sacramento, supra,* 21 Cal. Rptr. 3d at p. 928 citing *Architectural Heritage Assn. v. County of Monterey, supra,* 122 Cal.App.4th at p. 1110; *San Joaquin Raptor/Wildlife Rescue Center v. County of Stanislaus, supra,* 42 Cal.App.4th at pp. 617-618; *Stanislaus Audubon Society, Inc. v. County of Stanislaus* (1995) 33 Cal.App.4th 144, 151; *Quail Botanical Gardens Foundation, Inc. v. City of Encinitas, supra* 29 Cal.App.4th at pp. 1602-1603.)

Under the fair argument standard, "deference to the agency's determination is not appropriate and its decision not to require an EIR can be upheld only when there is no credible evidence to the contrary." *(Sierra Club v. County of Sonoma* (1992) 6 Cal App 4th 1307, 1318; Evidence supporting a fair argument need not be overwhelming, overpowering or uncontradicted. (*Friends of the Old Trees v. Department of Forestry and Fire Protection* (1997) 52 Cal.App.4th 1383, 1402.)

Comment Set B2 – Wild Tree Foundation (cont.)

2. An EIR is Required Where There is a Potential Impact on Endangered, Rare, or Threatened Species

B2-3

The California Supreme Court has made it clear that a "potential substantial impact on endangered, rare or threatened species is per se significant." (*Cit. for Resp. Growth v. City* (2007) 40 Cal. 4th 412, 449 *citing* CEQA Guidelines, § 15065, subd. (a)(1).) Pursuant to Guidelines section 15380 and the California Department of Fish and Wildlife, Special Animals List, Species of Special Concern are considered rare and must be considered during CEQA review (California Department of Fish and Wildlife, Natural Diversity Database Special Animals List (August 2019), available at: https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=109406&inline .) The Department explains:

> SSCs should be considered during the environmental review process. The California Environmental Quality Act (CEQA; California Public Resources Code §§ 21000-21177) requires State agencies, local governments, and special districts to evaluate and disclose impacts from "projects" in the State. Section 15380 of the CEQA Guidelines clearly indicates that species of special concern should be included in an analysis of project impacts if they can be shown to meet the criteria of sensitivity outlined therein.
>
> Sections 15063 and 15065 of the CEQA Guidelines, which address how an impact is identified as significant, are particularly relevant to SSCs. Project-level impacts to listed (rare, threatened, or endangered species) species are generally considered significant thus requiring lead agencies to prepare an Environmental Impact Report to fully analyze and evaluate the impacts. In assigning "impact significance" to populations of non-listed species, analysts usually consider factors such as population-level effects, proportion of the taxon's range affected by a project, regional effects, and impacts to habitat features.

(California Department of Fish and Wildlife, *Species of Special Concern*, https://www.wildlife.ca.gov/Conservation/SSC#394871319-how-are-sscs-addressed-under-the-california-environmental-quality-act, accessed September 13, 2019.)

Species that are listed as BLM Sensitive Species also meet the Guidelines Section 15380 definition of rare as either "although not presently threatened with extinction, the species is existing in such small numbers throughout all or a significant portion of its range that it may become endangered if its environment worsens; or the species is likely to become endangered within the foreseeable future throughout all or a significant portion of its range and may be considered "threatened" as that term is used in the Federal Endangered Species Act." (Guidelines section 15380, sudb. (b)(2), *see also* subd. (d) ("A species not included in any listing identified in subdivision (c) shall nevertheless be considered to be endangered, rare or threatened, if the

Comment Set B2 – Wild Tree Foundation (cont.)

species can be shown to meet the criteria in subdivision (b).") Species are designated as BLM Sensitive Species using the following criteria, which precisely correlate with the section 15380 definition of rare:

> 1. There is information that a species has recently undergone, is undergoing, or is predicted to undergo a downward trend such that the viability of the species or a distinct population segment of the species is at risk across all or a significant portion of the species range, or
>
> 2. The species depends on ecological refugia or specialized or unique habitats on BLM-administered lands, and there is evidence that such areas are threatened with alteration such that the continued viability of the species in that area would be at risk.

(United States Bureau of Land Management, Manual 6840, the Special Status Species Management Manual for the Bureau of Land Management, Rel.6-125 (2008). subd. (2)(a).)

B2-3 cont.

3. The Project May have a significant effect on the environment and thus requires an EIR

B2-4

By the DMND's own words, there are significant impacts from this Project. As the DMND states:

> The Proposed Project has the potential to temporarily and permanently affect sensitive natural communities, special-status plant and wildlife species, wildlife population and movement patterns, and jurisdictional waters. The project would temporarily disturb approximately 375 acres that would be restored and permanently occupy approximately 7 acres spread over 5 locations (2 series capacitor sites; 3 repeater sites). Cumulative impacts to biological resources could occur as a result of increased ground-disturbing activities by multiple cumulative scenario projects. These cumulative activities could increase the disruption of normal animal breeding, foraging, and migration behavior, the removal of suitable habitat for multiple special-status plant and wildlife species, and the degradation of jurisdictional water features.

(DMND at p. 5-412)

The proposed mitigations in regards to biological resources do not fully mitigate these impacts and are not proposed as project revisions. "A Mitigated Negative Declaration (MND) is a Negative Declaration prepared for a project when the initial study has identified potentially significant effects on the environment but the effects now pose no significant effect on the environment because the project was revised. The revisions to the project plans must mitigate the harmful effects to the environment and there must be no substantial evidence supporting that the revised project will have a negative effect on the environment." (Public Resources Code, §21064.5.)

Comment Set B2 – Wild Tree Foundation (cont.)

There have been no revisions to the project plans in the DMND. The proposed biological resources mitigation measures were all effectively proposed by the applicant. The measures in regards to wildlife are especially ill-conceived as these consist of vague instructions to conduct surveys and avoidance. Conducting surveys is not mitigation – this is work that should be done to inform the EIS. Surveying does not serve in any way to protect special status species, it serves to provide information upon which actual mitigation or project denial should be based. The proposed mitigation measures regarding avoidance are so lacking in detail for most species that the feasibility, enforceability, and effectiveness cannot be ensured. For example, as discussed further below the entire mitigation proposed for the Mojave fringe-toed lizard is survey and monitoring and the mitigation proposed for desert tortoise is not enforceable by the Commission.

B2-4 cont.

a. The Desert Tortoise (*Gopherus Agassizi*), A State And Federally Protected Endangered Species Will Suffer Significant Impacts

B2-5

Desert Tortoise Ecology

The desert tortoise, until recently thought to be a single species, is a large, herbivorous reptile occurring in the deserts of California, Arizona, Nevada, Utah, and Sonora and Sinaloa, Mexico. Recent research has identified three distinct species - the Agassiz's desert tortoise (*Gopherus agassizi*) that lives in California, southern Nevada and southwestern Utah, Morafka's desert tortoise (*G. morafkai*) that lives in Arizona and Sonora, Mexico and most recently, Evgood's desert tortoise (*G. evgoodei*) that resides in Sinaloa, Mexico. Agassiz's desert tortoise is the listed population and the affected species by the Project. Ideal habitat for Agassiz's desert tortoise includes areas of creosote bush scrub with high perennial plant diversity, high ephemeral plant production, annual precipitation levels of two to eight inches, and soils that support burrows. The species is most active in spring and early summer when annual plants are available for forage. Although desert tortoises are also active during the warm fall months and sporadically after summer rain storms, they spend most of the remainder of the year in burrows, protected from predators and excessive heat and cold.

Desert tortoises are long-lived and do not reach sexual maturity until they are 15 to 20 years old. Once they reach sexual maturity, females produce only one to three clutches of eggs per year and only in years when adequate food and water are available. Most clutches contain

Comment Set B2 – Wild Tree Foundation (cont.)

three to seven eggs. Although young desert tortoise survival rate estimates vary, research indicates that, at most, approximately twenty percent survive their first three years of life and only two percent of desert tortoises survive to sexual maturity.

B2-5 cont.

While desert tortoises will eat a variety of plants, climatic factors associated with desert environments often limit food availability. Non-native plants that have invaded their habitat do not provide adequate nutrition to tortoises which rely on protein-rich plants like wildflowers. Because of their diminutive size and high energy requirements, young tortoises are particularly reliant on small, protein-rich native plants. Relative to young desert tortoises, adults require less protein and may access larger plants, thereby increasing the range of acceptable forage species available to adults.

Due to a precipitous decline in desert tortoise populations throughout the species' range, FWS published an emergency rule listing the desert tortoise as endangered in 1989. (54 Fed. Reg. 32326.) The desert tortoise was also listed in 1989 under the California Endangered Species Act. The Mojave Desert distinct population segment ("DPS") of the desert tortoise, including all Agassiz's desert tortoises in California as well as southern Nevada and southwestern Utah, was listed as "threatened" in 1990. (55 Fed. Reg. 12178.) Critical habitat was designated in 1994. (59 Fed. Reg. 5820.)

A study published in 2007 shows significant divergence between various populations within the listed DPS of the desert tortoise. *(See* Murphy, Robert W., Berry, Kristin H., Edwards, Taylor, and McLuckie, Ann M., "A Genetic Assessment of the Recovery Units for the Mojave Population of the Desert Tortoise, *Gopherus agassizii*," Chelonian Conservation and Biology 2007, 6(2): 229-251.) Although scientists and FWS have in the past recognized some level of distinctness between desert tortoise populations based on habitat use, behavior, and other factors, this new information provides specific evidence of genetic divergence between these populations.

Most importantly, Murphy *et al.* found that tortoise populations in the West Mojave Desert are significantly distinct from other populations, including those in closest proximity, such as the Eastern Mojave, the Northeastern Mojave, and Eastern Colorado populations. They also found that the West Mojave population could be further distinguished into three subgroups. Given the extent of this genetic distinctness within the West Mojave population, genetic distinctness must be kept intact in order to maintain local adaptations to environmental

Comment Set B2 – Wild Tree Foundation (cont.)

B2-5 cont.

conditions.

U.S Fish and Wildlife Service published a Recovery Plan in 1994 for the Mojave population of the desert tortoise, and revised that Recovery Plan in 2011. (*See* U.S. Fish and Wildlife Service 2011. Revised Recovery Plan for the Mojave Population of the Desert Tortoise (Gopherus agassazii). Pgs 246. Available at http://www.fws.gov/Nevada/desert_tortoise/documents/recovery_plan/RRP_Mojave_Desert_TortoiseMay2011.pdf.) Both the original and updated Recovery Plan recognize a distinct West Mojave Recovery Unit. One goal of the Revised Recovery Plan includes "Maintain self-sustaining populations of desert tortoises within each recovery unit into the future." The unabated ongoing declines in the West Mojave recovery unit clearly are not meeting the Recovery plan goal, despite recovery actions being identified for over twenty years.

The research paper that initially established two different tortoise species - Agassiz's desert tortoise and Morafka's desert tortoise - effectively collapsed the range of the Agassiz's desert tortoise to only 30% of its original range, with 70% inhabited by the more widespread Morafka's desert tortoise. That same paper suggests that with the now limited range and drastic declines in the population, the Agassiz's desert tortoise might be endangered instead of threatened. (*See* Robert W. Murphy, Kristin H. Berry, Taylor Edwards, Alan E. Leviton, Amy Lathrop, and J. Daren Riedle 2011. The dazed and confused identity of Agassiz's land tortoise, *Gopherus agassizii* (Testudines, Testudinidae) with the description of a new species,and its consequences for conservation. ZooKeys 113: 39–71 available at http://zookeys.pensoft.net/articles.php?id=2586.)

Extreme Pressures on the Western Mojave Desert Tortoises

Unfortunately, the species' plight has only worsened since listing. Studies show that tortoise populations in the Mojave Desert are facing a near total collapse. One study plot showed an 84% decline between 1992 and 1999. In another study, surveys including 1,200 transects over a large area of the Western Mojave Desert, including the area where the translocations are proposed, failed to detect desert tortoises in areas where desert tortoises were previously considered to be common. The most recent data from the U.S. Fish and Wildlife Service's Desert Tortoise Recovery Office monitoring documents over a 50% decline in the western Mojave

Comment Set B2 – Wild Tree Foundation (cont.)

B2-5 cont.

Desert population between 2004 and 2014 – one of the worst declines in the species range. Within the western Mojave Desert population, the Ord-Rodman Tortoise Conservation Area Unit, the decline over the last 10 years alone has been estimated to be 57%. (*See* U.S. Fish and Wildlife Service, 2015. Range-wide Monitoring of the Mojave Desert Tortoise (Gopherus agassizii): 2013 and 2014 Annual Reporting. Pgs 46 available at http://www.fws.gov/Nevada/desert_tortoise/documents/reports/2013/201314_rangewide_mojave_desert_tortoise_monitoring.pdf.)

The desert tortoises in the western Mojave Desert are already facing extreme pressures. The California Department of Fish and Wildlife explains that "the desert tortoise is severely threatened by population losses due" and "the loss of habitat, mortality from increased traffic, reduced quality of habitat altered by human presence and activity, and fragmentation of populations pose a significant and increasing problem for the viability of tortoise populations within the Western Mojave Plan Area." California Department of Fish and Wildlife, California Rare & Endangered Reptiles Species Accounts, available at: https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=84014&inline .)

This population has been especially hit hard by a fatal upper respiratory tract disease where long-term study plots have found population declines of up to 90 percent. (*Ibid.*) Additional threats to this already strained population include illegal shooting and collecting, lack of genetic diversity, roads, raven predation, and invasive plants. "Many tortoises fall victim to road kills One survey found 115 tortoise carcasses along 18 miles of highway in the west Mojave Desert." (*Ibid.*) This figure represented a conservative estimate of tortoise mortality per mile per year and could not be applied to all roads and highways due to variation in traffic volume, speed, and sizes of tortoise populations near roads. An increase in the number of roads exposes a larger portion of the desert tortoise population to routine traffic and illegal OHV activity.

The numbers of common raven, which prey on juvenile tortoises, have increased with expanding human development and the proliferation of roads in the region. According to the USGS, the common raven has increased in numbers by 1,500 percent in the western Mojave Desert over the last several decades. (*Ibid.*) Another threat related to human development in the desert is the proliferation of non-native grasses, such as red brome, cheatgrass, and Mediterranean grass. Grazing, OHV use, and other types of ground disturbance facilitate the spread of these grasses, which are adapted to disturbance and outcompete the native grasses and

Comment Set B2 – Wild Tree Foundation (cont.)

forbs that constitute food plants of the desert tortoise. Non-native plants often do not provide the levels of protein and nutrients needed by the desert tortoise, thereby adversely affecting tortoise health and reproduction. The decrease in the availability of nutritionally-important and preferred foods for the tortoise has likely decreased its ability to combat diseases and, very possibly, its immune responses to disease pathogens. The increase in grass cover between desert shrubs has been linked to increased fire frequency and fire intensity in the desert. Fires cause direct mortality when tortoises are burned or inhale lethal amounts of smoke, which can occur both in and out of burrows. Fire changes the composition of vegetation by facilitating the establishment of non-native grasses and removing forage plants. Fires also fragment tortoise habitat by creating patches of unsuitable habitat. (*Ibid.*)

B2-5 cont.

Desert tortoises are suffering habitat loss and degradation and increased predation as a result of activities such as urbanization, agricultural development, grazing, off-road vehicle use, military training, recreational use, energy development and mining, and are at risk from diseases and collisions with vehicles. The special pressures on the western Mojave desert tortoise population must be taken into account in the CEQA review of a project that will pose danger to the tortoises from vehicles kills, increased illegal OHV activity, invasive plants, raven predation, and direct take by the destruction of burrows and moving of individual tortoises.

Significant Impacts

The Project will have significant impacts on the desert tortoise, not mitigated by proposals in the DMND. "Approximately 67 acres of the project footprint area are located in designated critical habitat for desert tortoises." (MND at p. 5-71.) This includes a large segment of the Mojave National Preserve and the Colorado Desert, Western Mojave, and Eastern Mojave Recovery Units. The DMND states:

> The ELM Project would temporarily impact approximately 45.8 acres and permanently impact 0.2 acres of suitable critical habitat for desert tortoise. Other proposed projects within 5 miles would impact large quantities of desert tortoise habitat (i.e., greater than 400 acres). In addition, the LVRAS Project could impact 95.1 acres of occupied desert tortoise habitat, including 44.7 acres of critical habitat. However, the impacts would be spread across 84 miles of the alignment. Cumulatively, these projects could contribute to habitat fragmentation and degradation, removal of food and shelter resources, changing normal behavior patterns, and attracting predator species such as ravens (Corvus corax) and coyotes (Canis latrans). However, all of these projects would be subject to permitting

Comment Set B2 – Wild Tree Foundation (cont.)

> and mitigation requirements under the Federal Endangered Species Act and California Endangered Species Act, which are intended to minimize and mitigate for impacts to species, both at the project level and in a regional context. The ELM Project would implement mitigation measures, including pre-activity surveys, monitoring, under vehicle checks, and excavation of desert tortoise burrows, and would restore disturbed land and/or compensate for permanent impacts as required by the USFWS. Other projects would be required to implement similar measures. These measures would reduce the ELM Project's contribution to cumulative impacts. Therefore, cumulative impacts to desert tortoise and its critical habitat are expected to not be cumulatively considerable after the required avoidance, minimization, and compensatory mitigation measures are implemented.

B2-5 cont.

The fact that the Project will destroy designated critical habitat for an endangered species and will require a take permit are evidence of a potential substantial impact which must be reviewed via an EIR, not evidence that there will be no cumulative impacts! The mitigation measures will not serve to mitigate harms especially as it permits excavation of burrows, moving of tortoises, and other activities that are take as defined by the ESA. The heart of the ESA is its prohibition of "take" of endangered species. Generally, a "person," which under the ESA includes individuals, private entities, and government agencies, may not take any listed species. 16 U.S.C. § 1538(a)(1). Unless specifically exempted, the take prohibition applies to threatened species. 50 C.F.R. § 17.31. "Take" is broadly defined as harming, harassing, trapping, capturing, wounding, or killing a listed species either directly or by habitat degradation. 16 U.S.C. § 1532(19). The prohibition also applies to the acts of third parties whose acts bring about the taking. 16 U.S.C. § 1538(g). Additionally, the adverse modification and destruction of critical habitat, as is proposed here, is prohibited by the Endangered Species Act. (See 16 U.S.C. § 1536(a)(2).)

As explained above, the western Mojave desert tortoise population segments are already facing extreme pressure from massive population losses and disease, predation, vehicle strikes and habitat fragmentation. This population is significantly distinct from other populations, including those in closest proximity, such as the Eastern Mojave, the Northeastern Mojave, and Eastern Colorado populations. Given the extent of this genetic distinctness within the West Mojave population, genetic distinctness must be kept intact in order to maintain local adaptations to environmental conditions. This is all the more important given the extreme pressures this population is already suffering. The proposed mitigation in the DMND that conservation land be purchased is not sufficient to address the significant impact to this population and is also

Comment Set B2 – Wild Tree Foundation (cont.)

something that the Commission can legally enforce since this is within the purview of the United States Fish and Wildlife Service. An EIR is needed to address the significant impact for the desert tortoise, in particular the western Mojave population.

B2-5 cont.

b. This Project Will Significantly Impact Many Other Special Status Species

B2-6

The DMND identifies several rare species which will be significantly impacted including "135 special-status plants potentially present in the BRSA." (DMND at p. 5-66.) The DMND provides insufficient factual basis on which it can base a finding that an EIR is not necessary because it has not conducted any study in regards to most of these species. It also provides no special mitigation or protection measures for these species. For plants, seasonal surveys were not performed, thus likely missing a majority of the highly seasonal special status desert plants.

The DMND states that desert bighorn sheep and desert tortoises were observed within or immediately adjacent to the BRSA during site visits for the Proposed Project and that the following "special-status species present or with a high potential to occur within or near the Project ROW or footprint include the following"

- Banded Gila monster (BLM Sensitive Species, CA Species of Special Concern, NV Protected Species)
- Desert rosy boa (NV Protected Species)
- Mojave fringe-toed lizard ([Not expected in NV] BLM Sensitive Species, CA Species of Special Concern)
- Golden eagle (Fully Protected, CA Fish and Game Code; federal Bald and Golden Eagle Protection Act)
- Swainson's hawk – migratory flyover (CA Threatened)
- Gray vireo (BLM Sensitive Species, CA Species of Special Concern)
- Western burrowing owl (CA Species of Special Concern)
- American badger ([Low potential in NV] CA Species of Special Concern)
- Desert bighorn sheep (BLM Sensitive Species, Fully Protected, CA Fish and Game Code)
- Pallid bat ([Not expected in NV] BLM Sensitive Species, CA Species of Special Concern)
- Western mastiff bat (BLM Sensitive Species, CA Species of Special Concern)

Comment Set B2 – Wild Tree Foundation (cont.)

B2-6 cont.

The DMND identified special-status species with a moderate potential to occur within or adjacent to the Project ROW or footprint to include:

- Bald eagle (CA Endangered, Fully Protected; federal Bald and Golden Eagle Protection Act)
- Peregrine falcon (Fully Protected, CA Fish and Game Code)
- Bendire's thrasher ([Low potential in NV] BLM Sensitive Species, DRECP, CA Species of Special Concern)
- Pallid San Diego pocket mouse ([Not expected in NV] CA Species of Special Concern)

As explained above, all of these species meet the definition of endangered, rare or threatened species. The Project will have potential substantial impact on these species and EIR must, therefore, be prepared. The DMND provides no specific mitigation or protection measures for all of these species other than generally "conducting surveys and avoidance." Conducting surveys is not a mitigation measure and is work that should have been done as part of the initial study. The DMND is deficient in that it is not based on an initial study that actually studied the environmental conditions of the Project and cannot, therefore, "Provide documentation of the factual basis for the finding in a Negative Declaration that a project will not have a significant effect on the environment. (Guidelines section 15063.)

Stating that special status species must be avoided is woefully inadequate and does not serve to mitigate the substantial impacts that these species will suffer from the Project. For example, the Mojave Fringe-toed lizard is addressed only as follows: "Pre-activity Surveys: No more than seven days prior to the onset of ground-disturbing activities, an agency-approved biologist – with experience monitoring and handling desert tortoise – will conduct a pre-activity survey in all work areas within potential desert tortoise, banded Gila monster, desert rosy boa, or Mojave fringe-toed lizard habitat, plus an approximately 300-foot buffer. If potentially suitable burrows, sand fields, or rock piles are found, they shall be checked for occupancy. . . Monitoring: The approved tortoise biologist shall be available on site to monitor any work areas for desert tortoise, banded Gila monster, desert rosy boa, and Mojave fringe-toed lizard as needed." (DMND at p. 1-24.) The rest of MM BR-9 addresses only desert tortoises.

This is despite the fact that "It has been documented in the CNDDB within 0.25 miles of the BRSA in California. Suitable habitat for Mojave fringe-toed lizard is located within the Project area in California, including large dune or sandfield systems at the Kelso Dunes. Additionally, suitable habitat is found in smaller, scattered areas of windblown sand and adjacent

Comment Set B2 – Wild Tree Foundation (cont.)

B2-6 cont.

shrublands where sand accumulates. Mojave fringe-toed lizard may occur in or near any suitable windblown sand habitat within its geographic range along the ELM route." (DMND at p. 5-69)

The DMND fail to address the fact that the sand habitat that the lizard depends upon will be significantly harmed by the Project, instead claiming that impacts to this habitat will be only temporary: "Note that most "temporary" habitat impacts would be long-term or permanent due to slow recovery of desert vegetation. One important exception to this generality is temporary impacts to active sandfield or dune habitat supporting Mojave fringetoed lizard, where returning windblown sand will naturally restore pre-disturbance conditions. The BLM, steward of this BLM special status species, explains why this analysis is wrong, "The loose wind-blown sand habitat, upon which the MFTL is dependent, is a fragile ecosystem requiring the protection against both direct and indirect disturbances (Weaver, 1981; Beatley, 1994; Barrows, 1996). Potential direct disturbances include habitat loss or damage from urban development, off-highway vehicles (OHV), and agriculture. Potential indirect disturbances are associated with the disruption of the dune ecosystem source sand, wind transport, and sand transport corridors." (BLM, Mojave Fringe Toed Lizard species report, available at : https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=6&ved=2ahUKEwj7y9b36c7kAhVQ_J4KHfeNBUAQFjAFegQIAhAI&url=https%3A%2F%2Fwww.ca.blm.gov%2Fpdfs%2Fcdd_pdfs%2Ffringe1.PDF&usg=AOvVaw3ufcQyHbRfJ1T6ATXgrOcM.)

The DMND also includes no specific measures to protect the desert bighorn sheep. As a fully protected species under California Fish and Game Code, desert bighorn sheep "may not be taken or possessed at any time. No provision of this code or any other law shall be construed to authorize the issuance of a permit or license to take a fully protected mammal, and no permit or license previously issued shall have any force or effect for that purpose." (Cal. Fish and Game Code, § 4700.) Fish and Game Code section 86 defines "take" as to "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill." This definition governs construction of the Fish and Game Code generally unless particular provisions or context require otherwise. (*Id.*, § 2.) The DMND describes take of desert bighorn sheep, "Direct impacts could include mortality from vehicle strikes" yet provides no specific measures to protect the sheep.

Comment Set B2 – Wild Tree Foundation (cont.)

C. The DMND Fails to Account for Cumulative Impacts

B2-7

A conclusion that the cumulative impact is "less than significant" must be supported by substantial evidence (Guidelines § 15130(a)(2)), not argument, speculation, unsubstantiated opinion or narrative, [or] evidence that is clearly inaccurate or erroneous . . . ." (Cal. Pub. Res. Code § 21080, subd. (e)(2).) Merely stating that compliance with statutes will reduce significant impacts to the "less than" level is mere speculation. Here, the DMND makes such a statement: "One or more of the cumulative scenario projects within 5 miles of the Proposed Project, or other projects in the region (e.g., residential development or renewable energy projects) may affect these species, and may lead to a cumulatively significant impact. However, due to the limited extent of any potential ELM Project impacts to special-status wildlife, these impacts would not contribute considerably to regional cumulative impacts." (DMND at p. 5-412)

The DMND thus concludes that the Project's contribution to cumulative impacts to biological resources would not be considerable and would be less than significant since the Project would implement mitigation measures. However, the mitigation measures are proposed to reduce or avoid Project impacts, and are not designed to alleviate *cumulative* impacts as they are required to under Section 15130(a)(3) of CEQA. A proposed project's incremental effects may be cumulatively considerable even when its individual effects are limited. (Guidelines §§ 15064(h)91), 15065(a)(3), 15355(b).) The critical question is whether any additional amount of effect is significant in the context of the existing cumulative effect. (*Communities for a Better Environment v. California Resources Agency*, 103 Cal.App.4th 98, 119 (2002).) The DMND does not answer this question and its cumulative impacts analysis is, therefore, inadequate and does not show that there will be no significant impacts.

D. The DMND Fails to Account for Growth Inducing Impacts

B2-8

The DMND provides no discussion regarding growth-inducing impact of a project. (Guidelines §§ 21100(b)(5); 21156.) This project, by design, will be growth inducing to the detriment of the lands and wildlife throughout the Southwest as its stated purpose is to increase "the amount of power delivered from Californian's Ivanpah Valley, Nevada, and Arizona." The growth inducing impacts will result in significant impacts to the environment especially biological resources and must be examined in an EIR.

Comment Set B2 – Wild Tree Foundation (cont.)

Wild Tree looks forward to working to assure that the Project and environmental review conforms to the requirements of state and federal law and to assure that all significant impacts to the environment are fully analyzed, mitigated or avoided. In light of many significant, unavoidable environmental impacts that will result from the Project, we strongly urge the Project not be approved in its current form and absent the preparation of an EIR.

Sincerely,

April Rose Maurath Sommer

April Rose Maurath Sommer
Executive & Legal Director
Wild Tree Foundation

Responses to Comment Set B2 – Wild Tree Foundation

B2-1 **The commenter disputes SCE's proposal for a specific in-service date as part of the Project Objectives (in Section 1.1 and Section 4.2.2) and states that "SCE requires no procurement through 2030." The commenter also takes issue with other project objectives**

The Draft IS/MND accurately identifies the Project Objectives set forth by SCE, which presently include a target in-service date of June 2021.

Regarding the "Electrical Needs Area (ENA)" that is set forth by SCE in the project objectives, the term "ENA" has no special definition in the regulations or statutes governing California's utilities. Objectives regarding "safe and reliable" service and "mitigating power flow overloads" into the LADWP system relate to how project components may upgrade California's high-voltage transmission system and are appropriate.

The commenter also asserts that the objectives do not support a need for the project.

Environmental impacts are not directly driven by project objectives. The environmental impacts described in the Draft IS/MND stem from the physical construction activities and facilities that would be installed and operated as a result of the Proposed Project. Accordingly, the analysis takes no position on whether the project is needed or whether it may provide benefits to the electrical system. The Draft IS/MND simply identifies the objectives that SCE hopes to satisfy with the Proposed Project. There would be no need to redefine or reinterpret SCE's objectives within the context of CEQA review to suit decision-making by the CPUC.

In general, the project objectives are important to the CEQA analysis for allowing proper development and consideration of project alternatives, if necessary to avoid or substantially lessen significant impacts to the environment. For the Proposed Project, the Draft IS/MND demonstrates that all project-related environmental impacts would be less than significant or reduced to a less than significant level with the incorporation of feasible mitigation measures (Section 1.2). As such, no EIR or consideration of project alternatives is required. The Draft IS/MND simply provides the objectives that SCE hopes to satisfy with the Proposed Project. There would be no need to redefine or reinterpret SCE's objectives to suit decision-making by the CPUC. The inclusion or exclusion of an in-service objective in the IS/MND does not affect the environmental analysis or conclusions regarding environmental impacts.

The CPUC will address the question of whether the Proposed Project serves a present or future convenience and necessity through a review of the testimony in the general proceeding (A.18-05-007) for this project, which may include consideration of the RPS program requirements facing SCE and other load serving entities.

B2-2 **The commenter claims that the Proposed Project requires preparation of an Environmental Impact Report (EIR) for CEQA compliance and provides summaries of and quotes from various published CEQA decisions regarding CEQA's EIR requirement and the "fair argument" standard of review applicable to MNDs.**

The commenter does not provide any argument or substantial evidence in the comment demonstrating that the IS/MND is inadequate or that the project's potential impacts will not be reduced to levels of insignificance through implementation of the identified mitigation measures.

The Draft IS/MND accurately identifies and analyzes the potential environmental effects resulting from implementation of the Proposed Project and evaluates the level of significance of these effects. Additionally, the Draft IS/MND finds no cumulative environmental impact beyond the geographic areas in which the Proposed Project activities would occur (Section 5.21, Draft IS/MND pages 5-408 to 5-409).

As stated in the Environmental Determination (Section 2.2), although the Proposed Project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by SCE that will reduce impacts to a less than significant level. Accordingly, the CPUC does not agree that an EIR is needed; the IS/MND clearly analyzes the project's environmental impacts and identifies mitigation measures that will effectively reduce all potentially significant impacts to a less than significant level. The applicant accepted and agreed to all of the IS/MND's mitigation measures before the proposed IS/MND was released for public review. Pursuant to the CEQA statute and Guidelines, an IS/MND, not an EIR, is the proper document in such situations. (*See* Pub. Res. Code §§ 21064.5, 21080(c)(2); 14 Cal. Code Regs. §§ 15064(f)(2), 15070(b).)

This commenter provides no substantial evidence to warrant reevaluation or reconsideration of the conclusions shown in the Draft IS/MND. No revision is necessary to the determination that adoption of an IS/MND would satisfy the requirements of CEQA.

B2-3 **The commenter asserts that an EIR is required based on claims concerning the project's potential impacts to CDFW-designated Species of Special Concern and BLM-designated Sensitive Species**.

As demonstrated in the responses to comments B2-2 and C1-1, a Mitigated Negative Declaration is appropriate here.

Section 15380 of the CEQA guidelines does not require treating non-listed special-status species as "rare, threatened, or endangered." Instead, Section 15380 (b) defines endangered and rare; Section 15380 (c) specifies that species listed under the California and federal Endangered Species Acts (CESA and ESA, respectively) are to be presumed endangered, rare, or threatened; and Section 15380 (d) requires that other special-status species "shall nevertheless be considered to be endangered, rare or threatened, if the species can be shown to meet the criteria in subdivision (b)." By contrast, most species identified as Species of Special Concern by the California Department of Fish and Wildlife (CDFW) "Special Animals" list or identified by the Bureau of Land Management (BLM) as Sensitive Species have not been shown to meet these criteria (some species, identified as candidates for state or federal listing, have been shown to meet the criteria, but no candidate species occur in the Project vicinity and none are expected to be affected by the Project). Nonetheless, the IS/MND broadly addresses all CDFW Species of Special Concern and BLM Sensitive Species potentially occurring within the Project area under impact a. of Section 5.4.6 (Biological Resources, Project Impacts and Mitigation Measures). The IS/MND properly identifies potential impacts to all CESA and ESA listed rare, threatened, or endangered species as required by the CEQA guidelines and further identifies potential impacts to all Species of Special Concern, Sensitive Species, and multiple other special-status species. Please refer to the bullet list under the subheading Special-status Plants and Animals in Section 5.4.1 (Biological Resources, Environmental Setting).

The CDFW's recommendations quoted by the commenter are consistent with the explanation above, stating that Species of Special Concern "… should be included in an analysis … if they can be shown to meet the criteria of sensitivity outlined therein [i.e., Section 15380, described above]." The IS/MND is consistent with CDFW's recommendations.

The commenter quotes additionally from CDFW recommendations regarding the types of biological considerations for evaluating potential impacts to non-listed species. Section 5.4.6 (Biological Resources, Project Impacts and Mitigation Measures) of the IS/MND properly takes these considerations into account in its evaluation of potential impacts to all species meeting the CEQA criteria as "rate, threatened or endangered" as well as all CDFW Species of Special Concern and BLM Sensitive Species and other special-status species identified in Section 5.4.1. All potential impacts are analyzed in terms of potential significance, according to criteria identified in Section 5.4.4 (Biological Resources, CEQA Significance Criteria).

The commenter states that the BLM's criteria for evaluating Sensitive Species "precisely correlate" with CEQA Guidelines Section 15380 (2) definition of "rare." Similarities between the two criteria are less than precise but the similarities are acknowledged. All BLM Sensitive Species potentially occurring on the Project site are properly addressed in the IS/MND.

B2-4 **The commenter quotes from the IS/MND that "[t]the Proposed Project has the potential…" to significantly affect various biological resources.**

Potential impacts are described in detail in Section 5.4.6 (Biological Resources, Project Impacts and Mitigation Measures) of the IS/MND.

Contrary to the commenter's assertion, CEQA does not require the IS/MND to "fully mitigate" impacts, but rather, CEQA requires that mitigation measures avoid or reduce potential impacts to levels of insignificance. For each potential impact, the IS/MND identifies mitigation measures to reduce the impact to less than significant, based on criteria identified in Section 5.4.4 (Biological Resources, CEQA Significance Criteria). Further and again, contrary to the commenter's claim, SCE has reviewed the mitigation measures put forth in the IS/MND and agreed to all of them, and the CPUC will impose all of the mitigation measures and ensure they are implemented if the project is approved.

The commenter states that "[t]he proposed biological resources mitigation measures were all effectively proposed by the applicant."

The comment is incorrect. In fact, the Applicant's proposed measures (APMs) identified in Section 5.4.3 (Applicant Proposed Measures) were found to be inadequate to reduce most potential impacts below significance and therefore most of the APMs were superseded by the additional mitigation measures identified in the IS/MND. The analysis in IS/MND Section 5.4.6 (Biological Resources, Project Impacts and Mitigation Measures) discusses in detail the necessity to supplement or replace the APMs and identifies new mitigation measures BR-1 through BR-13, most of which differ widely from the APMs. The complete suite of mitigation measures constitute the "project changes" that will avoid or reduce impacts to a less than significant level. They constitute changes to the project in that SCE has agreed to implement the measures. The Project, if approved, would mitigate all potential biological resources impacts to less than significant.

The commenter claims that surveys should be done to inform the environmental analysis.

Extensive surveys have been done for that express purpose of informing the environmental analysis. The Proponent's Environmental Assessment (PEA) and its appendices (online at: https://www.cpuc.ca.gov/environment/info/aspen/elm/toc-pea.htm) provide extensive field survey data for special-status plants and animals, which are cited and summarized in Section 5.4.1 (Biological Resources, Environmental Setting). However, wildlife are expected to move from place to place within their habitat and plants could germinate where they had not been recorded previously. The surveys that were completed to inform the environmental analysis cannot ensure that special-status species would not move onto a work site prior to the start of construction. Accordingly, the IS/MND's suite of biological mitigation measures appropriately includes additional pre-construction surveys.

Regarding the efficacy of the biological resource mitigation measures, the commenter states that "surveys are not mitigation."

The comment seems to misunderstand the purpose of pre-construction field surveys in mitigating potentially significant impacts. As noted above, pre-construction surveys are essential components for avoidance and minimization of special-status species impacts even for projects like this one that have already prepared extensive field surveys for special-status plants and animals.

CEQA Guidelines Section 15370 (a) identifies avoidance and Section 15370 (b) identifies minimization among the types of mitigation authorized by CEQA. In order to avoid a plant or animal at a work site, the applicant must first know if it is present and, if so, where. Therefore, to ensure avoidance or minimization of potential impacts to special-status species, the applicant's biological surveyors and monitors must survey each work site again prior to ground disturbance. Where special-status species are present, the applicant must implement avoidance as appropriate to the species and situation. These pre-construction surveys and avoidance are specified in Mitigation Measures BR-6 (Minimize and mitigate impacts to special-status plants), BR-9 (Conduct surveys and avoidance for special-status reptiles), BR-10 (Prepare and implement a Nesting Bird Management Plan), BR-11 (Conduct surveys and avoidance for burrowing owl), BR-12 (Conduct surveys and avoidance for bats), BR-13 (Conduct surveys and avoidance for American badger, ringtail, and desert kit fox). These pre-construction surveys and avoidance provisions are key to the IS/MND's conclusions that potential Project impacts to these species would be mitigated to less than significant.

B2-5 **The commenter summarizes several aspects of desert tortoise natural history, conservation status, species delimitation, and regional populations as recognized by the USFWS Recovery Plan and other publications cited in the comment**.

The analysis of potential desert tortoise impacts and recommended mitigation in IS/MND Section 5.4.6 (Biological Resources, Project Impacts and Mitigation Measures) is consistent with the commenter's summary. The commenter indicates that the desert tortoise may warrant listing as endangered rather than threatened. Neither CDFW nor USFWS has advanced a proposal to revise the desert tortoise's listing status under CESA or ESA; however, its status as a "rare, threatened, or endangered" species for CEQA consideration and the analysis in the IS/MND would not be affected if such a change were made. The comment further summarizes desert tortoise population status and threats in the west Mojave Desert. These considerations all were taken into account in the IS/MND's analysis of potential impacts to desert tortoise. The comment mentions population declines "…in the area where the translocations are proposed…." This phrase is not related to the proposed Project; the IS/MND does not propose desert tortoise translocation, except to move a tortoise from harm's way if needed and, in that instance, only by a biologist authorize by USFWS to handle a tortoise (please see Mitigation Measure BR-9, Conduct surveys and avoidance for special-status reptiles). There is no proposed off-site translocation area.

The commenter quotes from the IS/MND's cumulative impacts analysis and states that impacts to desert tortoise designated critical habitat are potentially substantial and recommends preparation of an EIR.

The commenter does not provide any substantial evidence that the Project as mitigated will not reduce potential desert tortoise impacts to a level of insignificance. Please refer to Response to Comment B2-2 regarding the appropriate CEQA document and to Response to Comment B2-7 regarding cumulative impacts.

The commenter notes that avoidance actions to protect desert tortoise including excavating desert tortoise burrows and physically moving desert tortoises (see Mitigation Measure BR-9, Conduct surveys and avoidance for special-status reptiles) would meet the ESA definition of "take." First, it is important to note that these actions may be necessary to protect tortoises that could be found within a Project work site and such actions are routinely implemented for many projects under specific direction and authorization from USFWS and CDFW. Second, the commenter states, incorrectly, that take of listed threatened or endangered species is prohibited by the ESA. Section 7 and Section 10 of the ESA expressly provide for incidental take of listed species under authorization from the USFWS through consultation conducted according to those two sections of the Act. Similarly, Section 2081 of CESA also provides for incidental take authorization through consultation with CDFW. Take authori-

zation, if any, would be granted to SCE by the CDFW and USFWS respectively under CESA and ESA. The CPUC's IS/MND does not authorize take of a listed species. No unauthorized take of desert tortoise (including burrow excavation or handling the animals) is proposed by the applicant and Mitigation Measure BR-9 (Conduct surveys and avoidance for special-status reptiles) specifies further that "[n]o desert tortoise may be handled except under explicit authorization from USFWS and CDFW." Nothing in the IS/MND conflicts with CESA or ESA take regulations.

The applicant anticipates obtaining ESA incidental take authorization under two existing Biological Opinions: the USFWS has authorized desert tortoise take under its programmatic Biological Opinion for Activities in the California Desert Conservation Area and Biological Opinion issued for critical habitat in Southern Nevada (see Section 5.4.6 (Biological Resources, Project Impacts and Mitigation Measures) under the subheadings Special-status Wildlife: Reptiles.

In addition to incidental take, the USFWS addresses potential adverse modification of designated critical habitat through ESA Section 7 consultation. The USFWS evaluates potential adverse modification "based on critical habitat as a whole, not just on the areas where the action takes place or has direct impacts" (Federal Register 81:7221, first paragraph of column 3 continuing through columns 1 and 2 of the following page). Based on this approach, impacts to critical habitat in one area may be offset by improvement or protection of critical habitat in another area.

The analysis of impacts and the mitigation measures identified in the IS/MND are consistent with the USFWS approach to evaluating adverse modification. The protection of critical habitat off-site at a 5:1 ratio is specified in Mitigation Measure BR-8 (Compensate for desert tortoise habitat loss). The analysis and mitigation in the IS/MND its consistent with ESA Section 7 (although take authorization and the adverse modification determination can only be made by the USFWS) and supports the CEQA conclusion that potential impacts would be less than significant with mitigation.

The comment claims that the CPUC cannot enforce habitat compensation and that "…this is within the purview of the [USFWS]." In fact, habitat compensation is routinely imposed by CEQA lead agencies, including the CPUC, to offset impacts to desert tortoise and other listed species habitat on project sites, including private and federal lands. In this case, the compensation specified in Mitigation Measure BR-8 applies for all desert tortoise habitat impacts on both federal and private lands. SCE, as a regulated utility, must comply with all conditions of approval imposed by the CPUC, including habitat compensation measures like this one. The Tehachapi Renewable Energy Project, Devers to Palo Verde II Project, and West of Devers Upgrade Project are recent examples of CPUC projects where the applicant, CPUC, USFWS, and CDFW successfully coordinated to preserve compensatory habitat to offset biological resources impacts.

Regarding genetic characteristics of the West Mojave desert tortoise population, the proposed Project would not alter the population's genetic composition. It would neither remove desert tortoises from the West Mojave population, nor introduce tortoises from other populations into the West Mojave population. It also would not affect the tortoises' ability to freely move from place to place within the West Mojave (or any other population) for breeding or other life history requirements.

The commenter states that preservation of habitat (see Mitigation Measure BR-8, Compensate for desert tortoise habitat loss) "is not sufficient to address the significant impact to this population…."

Habitat compensation (Mitigation Measure BR-8, Compensate for desert tortoise habitat loss) is one component of a suite of mitigation measures that, in combination, mitigate the potential impacts to desert tortoise to less than significant. The commenter has provided no substantial evidence to the contrary. Please refer to the analysis presented in IS/MND 5.4.6 (Biological Resources, Project Impacts and Mitigation Measures) under special-status wildlife. Mitigation Measures BR-1 through BR-5 and BR-7 through BR-9 all serve to mitigate overall potential Project impacts to desert tortoise.

B2-6 **The commenter indicates that other species could also be affected by the Project and claims that no study has been conducted on most of these species**.

The analysis in Section 5.4.6 (Biological Resources, Impacts and Mitigation Measures) is based on extensive field studies presented in the PEA and its appendices (see Response to Comment B2-2). These data are sufficient to support the conclusions presented in the IS/MND.

The commenter claims that "seasonal surveys were not performed" for plants and the IS/MND provides "no special mitigation or protection measures for these species."

Both statements are incorrect. Seasonal special-status plant surveys were performed and reported in the Special-Status Plant Survey Reports and maps in the Revised Biological Resources Technical Report (BRTR) (PEA Volume 6, Appendix G, cited). These data are cited and summarized in Section 5.4.1 (Biological Resources, Environmental Setting) under the subheading Special-status Plants. Please also refer to BRTR Attachment 5.4 A (Special-Status Plants that Could Occur in the Project Vicinity) and Appendix D (Biological Resources) of the IS/MND. All special-status species identified in the comment are addressed to the appropriate extent in the IS/MND. Where appropriate, mitigation measures are identified to reduce potential impacts to each species to less than significant. Specific measures to protect special-status plants and wildlife are listed below for each species cited in the comment. Regarding the commenter's concerns with "conducting surveys and avoidance," please refer to the discussion of pre-construction surveys in the Response to Comment B2-4 (contrary to the comment, surveys were conducted, the results were incorporated into this analysis, and pre-construction surveys are essential to avoidance and minimization, which are "mitigation" as defined in CEQA Guidelines Sections 15370 (a) and (b)).

- Special-status Plants: Please see Section 5.4.6 (Biological Resources, Project Impacts and Mitigation) under the subheading Special-status Plants. Mitigation Measures BR-1 through BR-6 would minimize Proposed Project impacts and would ensure that remaining potential impacts to special-status plants would be less than significant. The full text of each measure may be found in Section 5.4.6 under the subheading Mitigation Measures.
  - Mitigation Measure BR-1: Conduct biological monitoring and reporting
  - Mitigation Measure BR-2: Prepare and implement a Worker Environmental Awareness Program (WEAP)
  - Mitigation Measure BR-3: Minimize native vegetation and habitat loss
  - Mitigation Measure BR-4: Restore or revegetate temporary disturbance areas
  - Mitigation Measure BR-5: Prepare and implement an Integrated Weed Management Plan
  - Mitigation Measure BR-6: Minimize and mitigate impacts to special-status plants
- All wildlife, including all special-status wildlife. Regarding mitigation of potential impacts to all special-status wildlife species identified in the comment, please refer to the analysis and conclusion in Section 5.4.1 (Biological Resources, Environmental Setting) under the subheading Special-status Wildlife. Potential impacts to these species would be avoided, minimized, and mitigated in part by Mitigation Measures BR-1 through BR-5 (above) and BR-7 (Ensure wildlife impact avoidance and minimization), and BR-8 (Compensate for desert tortoise habitat loss [note that habitat compensation will benefit all species present in the compensation lands]). Additional measures for certain species or groups of species are also identified in the IS/MND and in the list below for each species named in the comment. The full text of each measure may be found in Section 5.4.6 under the subheading Mitigation Measures.
- Banded Gila monster and desert rosy boa. Mitigation Measure BR-9 is specifically applicable to reptiles. It specifies pre-construction surveys, monitoring, and avoidance measures for these species.

- Mojave fringe-toed lizard. As noted in the comment, and described in Section 5.4.6 (Biological Resources, Project Impacts and Mitigation Measures) under the subheadings Special-status Wildlife, Reptiles, Mojave fringe-toed lizard has been observed near the Project site and may occur within suitable habitat found on the Project site. (**The comment states that its habitat will be "significantly harmed by the Project," disagreeing with the IS/MND's conclusion that these impacts will be temporary. The comment goes on to summarize the IS/MND's discussion regarding temporary impacts to many desert habitat types, due to the long time period for successful restoration or recovery of native vegetation.)** However, as stated in the analysis, the characterization of temporary impacts to windblown sand habit is appropriate. The Mojave fringe-toed lizard is found in active and inactive windblown sand fields. Following temporary project activities, windblown sand will continue to move across the work areas and the temporary disturbance sites will return to their pre-project condition. The sites will recover within weeks or months of the conclusion of project activities and no restoration or revegetation would be needed. (**The comment quotes from other sources, identifying urban development, off-highway vehicles, and agriculture as direct threats to habitat and disruption of dune system sand source, wind transport, and sand transport corridors as potential indirect threats.)** None of these potential direct or indirect threats is applicable to the proposed Project. The only permanent impact to potential habitat is land use conversion at the series capacitor sites, which would be insubstantial in the context of more than 1.7 million acres of windblown sand within the California Desert Conservation Area (BLM 2015, Desert Renewable Energy Conservation Plan Proposed Land Use Plan Amendment and Final Environmental Impact Statement, Table III.7-7). The IS/MND correctly concludes that potential impacts to Mojave fringe-toed lizard would be less than significant with mitigation and the commenter does not provide any substantial evidence to the contrary.
- Golden eagle. Golden eagle is addressed in Section 5.4.6 (Biological Resources, Project Impacts and Mitigation Measures) under Special-status Wildlife: Birds. In addition to the minimization, avoidance, and compensation measures applicable to all wildlife (identified above), Mitigation Measure BR-10 (Prepare and implement a Nesting Bird Management Plan) specifies buffer distances (one mile for line-of sight, and 0.5 mile for non-line-of-sight) to prevent potential disturbance of nesting golden eagles. The IS/MND correctly concludes that potential impacts to golden eagle would be less than significant with mitigation.
- Swainson's hawk, peregrine falcon, and bald eagle. These wide-ranging birds may occasionally fly over the Project area, but they are not expected to nest in the vicinity and would only be foraging in the Project area during brief overflights. The following text has been added to IS/MND Section 5.4.1 (Biological Resources, Environmental Setting):

  Wide-ranging Raptors. In addition to golden eagle, several special-status wide-ranging or migratory raptors could occasionally fly over the Project area. These could include Swainson's hawk, peregrine falcon, and bald eagle. The site is outside the nesting range and/or provides no suitable nesting habitat for these species. They are not expected to nest in the Project vicinity and would be foraging in the vicinity only during brief seasonal overflights.

  And additional text has been added in Section 5.4.6 (Biological Resources, Project Impacts and Mitigation Measures) as follows:

  Wide-ranging Raptors. While Swainson's hawk, peregrine falcon, and bald eagle could briefly fly over the Project area during migration or seasonal dispersal, no impacts to these species are expected and no mitigation is necessary.

  These brief additions do not disclose a new or more severe impact and do not require recirculation of the IS/MND. Please refer to the Biological Resources Technical Report (PEA Appendix G, Table 11). The project is not expected to adversely impact these three bird species. Nonetheless, mitigation

measures protecting all wildlife and Mitigation Measure BR-10 (Prepare and implement a Nesting Bird Management Plan) provide suitable minimization, avoidance, compensation, and protection in the unlikely event that any of them may nest near the Project site.

- Gray vireo and Bendire's thrasher. Both species are addressed in Section 5.4.6 (Biological Resources, Project Impacts and Mitigation Measures) under Special-status Wildlife: Birds. In addition to the minimization, avoidance, and compensation measures applicable to all wildlife (identified above), Mitigation Measure BR-10 (Prepare and implement a Nesting Bird Management Plan) requires species pre-construction surveys and avoidance of active nests (i.e., buffer areas) for these and all birds potentially nesting in the Project area. The IS/MND correctly concludes that potential impacts to gray vireo and Bendire's thrasher would be less than significant with mitigation.
- Western burrowing owl. The burrowing owl is addressed in Section 5.4.6 (Biological Resources, Project Impacts and Mitigation Measures) under Special-status Wildlife: Birds. In addition to the minimization, avoidance, and compensation measures applicable to all wildlife (identified above), Mitigation Measure BR-11 (Conduct surveys and avoidance for burrowing owl) specifies detailed pre-construction surveys and avoidance measures including passive relocation and construction of replacement burrows if needed. The IS/MND correctly concludes that potential impacts to burrowing owl would be less than significant with mitigation.
- American badger. This species is addressed in Section 5.4.6 (Biological Resources, Project Impacts and Mitigation Measures) under Special-status Wildlife: Mammals. In addition to the minimization, avoidance, and compensation measures applicable to all wildlife (identified above), Mitigation Measure BR-13 (Conduct surveys and avoidance for American badger, ringtail, and desert kit fox) will ensure adequate protection of all three species, should they occur at a Project work site, through pre-construction surveys and avoidance. The IS/MND correctly concludes that potential impacts to burrowing owl would be less than significant with mitigation.
- Desert bighorn sheep**. (The commenter notes that no specific measure is identified to protect desert bighorn sheep, identifies its "fully protected" conservation status in California, and quotes from the California Fish and Game Code to define the word "take." The comment quotes from the IS/MND regarding vehicle strike as a potential direct impact to desert bighorn sheep).** This species is addressed in Section 5.4.6 (Biological Resources, Project Impacts and Mitigation Measures) under Special-status Wildlife: Mammals. The minimization, avoidance, and compensation measures applicable to all wildlife (identified above) also apply to and would benefit desert bighorn sheep. Nothing in the proposed Project description would result in "take" of desert bighorn sheep and nothing in the IS/MND would authorize "take." While vehicle strike is possible, it is unlikely and the Mitigation Measure BR-7 (Ensure wildlife impact avoidance and minimization) specifically identifies a 15 mph speed limit for project activities that would minimize any potential for inadvertent vehicle strike of this species or others (including desert tortoise, which are much slower and less conspicuous to vehicle operators than bighorn sheep). No additional mitigation is necessary and the IS/MND correctly concludes that potential impacts to desert bighorn sheep would be less than significant with mitigation.
- Pallid bat and western mastiff bat. Both species are addressed in Section 5.4.6 (Biological Resources, Project Impacts and Mitigation Measures) under Special-status Wildlife: Mammals. In addition to the minimization, avoidance, and compensation measures applicable to all wildlife (identified above), Mitigation Measure BR-12 would protect special-status bats by ensuring identification and avoidance of active special-status bat roosts. The IS/MND correctly concludes that potential impacts to these and other special-status bats would be less than significant with mitigation.
- Pallid San Diego pocket mouse. This species is addressed in Section 5.4.6 (Biological Resources, Project Impacts and Mitigation Measures) under Special-status Wildlife: Mammals. Potential Project impacts, if any, would be limited to small construction areas in the southwestern Mojave Desert

portion of the route. Within the southern Mojave Desert portion of its range, there is extensive acreage of suitable habitat in Los Angeles and San Bernardino Counties, well outside the project area (e.g., a broad area between Victorville and Barstow, extending 20 to 30 miles east and west). The potential impacts within its range are minimal. The IS/MND correctly concludes that this potential impact would be less than significant, and no mitigation is required.

The commenter states that "[t]he DMND is deficient in that it is not based on an initial study…." The commenter apparently misunderstands the document itself. The IS/MND *is* the Initial Study and *does* provide documentation of the factual basis for its findings in accordance with CEQA Guidelines Section 15063, cited by the commenter.

The commenter states that avoiding special-status species is inadequate to mitigate the Project's impacts. The IS/MND does not conclude that avoidance alone will mitigate the potential impacts. While avoidance will minimize or prevent potential incidental take of special-status species, the various potential direct and indirect habitat impacts are addressed through other measures. Instead, please refer to the extensive suite of mitigation measures identified in Section 5.4.6 (Biological Resources, Project Impacts and Mitigation Measures) which are summarized above.

B2-7 **The commenter says the IS/MND fails to account for cumulative impacts, and merely states that compliance with statutes will reduce significant [cumulative] impacts. The comment quotes from Section 5.21 (Mandatory Findings of Significance, Draft MND page 5-412) under the analysis of cumulative impacts to biological resources.**

Contrary to the comment, the IS/MND does not merely state that compliance with statutes will reduce significant impacts to less than significant. Instead, the IS/MND evaluates first whether there may be a cumulatively significant impact to biological resources and, second, if so, whether the Project would have a considerable contribution to the cumulative impact. The IS/MND properly recognizes that the projects identified in the cumulative scenario may, together, constitute a significant cumulative impact to biological resources in the Project vicinity. However, as stated in the IS/MND, the impacts of the proposed Project itself including incorporation of the Mitigation Measures identified in Section 5.4.6 (Biological Resources, Project Impacts and Mitigation Measures) would not have a considerable contribution to the overall cumulative impact.

The commenter indicates that the mitigation measures are "proposed to reduce or avoid Project impacts and are not designed to alleviate *cumulative* impacts…." [italics in original].

In fact, the measures are designed to reduce (or "alleviate") both the Project's individual impacts and its contribution to cumulative impacts. In the context of the cumulative impacts analysis, the mitigation measures identified in the IS/MND would mitigate the Project's potential contribution to cumulative impacts and ensure that its contribution to any potentially significant cumulative impacts are not cumulatively considerable.

The comment cites Section 15130(a)(3) of the CEQA Guidelines which relates to an EIR but can be applied to an IS/MND.

Section 15130 reads in full:

An EIR may determine that a project's contribution to a significant cumulative impact will be rendered less than cumulatively considerable and thus is not significant. A project's contribution is less than cumulatively considerable if the project is required to implement or fund its fair share of a mitigation measure or measures designed to alleviate the cumulative impact. The lead agency shall identify facts and analysis supporting its conclusion that the contribution will be rendered less than cumulatively considerable.

The mitigation measures identified in Section 5.4.6 (Biological Resources, Project Impacts and Mitigation Measures), particularly Mitigation Measure BR-8 (Compensate for desert tortoise habitat loss) are specifically designed to offset the Project's impacts and its contribution to cumulative impacts which, in this case, are equivalent to its "fair share" of cumulative impacts. The IS/MND correctly concludes that the Project's contribution to cumulative biological resources impacts are less than considerable.

B2-8 **This commenter asserts that the Draft IS/MND fails to address growth-inducing impacts, and the comment letter (at page 2) raises this concern within the context of potential cumulative impacts. The comment claims that increasing the amount of power flow on the transmission lines would result in significant impacts to the environment.**

The comment does not specify how power flows might relate to impacts that are not already disclosed in the Draft IS/MND.

The consideration of growth-inducing impacts appears in: Section 5.3, Air Quality; Section 5.14, Population and Housing; Section 5.15, Public Services; Section 5.16, Recreation; and Section 5.17, Transportation.

The requirement to consider growth-inducing impacts in CEQA applies to an EIR instead of the Initial Study and MND process. CEQA Guidelines Section 15126(d) and Section 15126.2(e) require an EIR to discuss the ways in which a proposed project may foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment. An EIR is not required for this project, as noted in the Draft IS/MND (page 1-2, Section 1.2).

Nonetheless, the IS/MND considers and discounts the project's potential growth inducing impacts as it is designed to assist growth that is already forecasted and planned and thus does not induce growth but rather, responds to it. As well, the IS/MND's analysis recognizes that generation facilities, including "future generation facilities" not yet built, but planned, may use the Proposed Project to transmit electricity (Draft IS/MND page 3-4, Section 3.2.3). The impact analysis for Energy in Section 5.6.6 (Draft IS/MND page 5-157) points to prior CAISO approvals for the Proposed Project as a way of providing deliverability of renewable resources including certain specific generation facilities and also renewable resource portfolios of generic generating capacity in broad geographic zones, developed by the CPUC and CEC. As such, the Proposed Project is in response to analyses by the CAISO, including CAISO's identification of proposed generation projects and CAISO's study of the likely path of future renewable generation across the geographic zones.

To clarify how growth-inducing impacts are considered in the Draft IS/MND, the following information is added to the Introduction in Section 3.2.3.

The Proposed Project is intended to supply power to serve the demand for energy in California and enable deliverability for generation projects that have plans or commitments pending to interconnect to California's loads through SCE's system. By increasing transmission line capacity, the project would allow increased power flow through the existing 500 kV lines and increase SCE's ability to provide transmission service to existing and future electric power generation facilities seeking to deliver power to California's load. The development and operation of future generation facilities would not result in substantial population growth, but is likely to result in the conversion of substantial land areas to a new type of land use. The Proposed Project would be growth inducing in that it could improve the viability of development of electric power generation projects covering potentially significant amounts of land. While transmission capacity is necessary for development of these projects, it alone is not growth-inducing. The projects would require approvals from the officials having jurisdiction over the land on which they would be built. The approval process would include environmental review, implementation of conditions of approval and mitigation measures,

and consideration of public policy objectives such as increasing the supply of renewable energy in lieu of using fossil fuels.

The Draft IS/MND finds that the environmental effects of future generation facilities would not be direct or indirect effects of the Proposed Project because such facilities are speculative and are not the result of, or made more likely by, the Proposed Project (Draft IS/MND page 3-4, Section 3.2.3). No additional analysis is necessary.

Comment Set C1 – Colorado River Indian Tribes

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September 13, 2019

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RE: **Comments of the Colorado River Indian Tribes on the Draft Initial Study/Mitigated Negative Declaration for Southern California Edison's Eldorado-Lugo-Mohave Series Capacitor Project**

To Whom It May Concern:

On behalf of the Colorado River Indian Tribes (CRIT or the Tribes), I write to respond to the California Public Utilities Commission's Draft Initial Study/Mitigated Negative Declaration (DIS/MND) for Southern California Edison's Eldorado-Lugo-Mohave Series Capacitor Project (Project). The Tribes oppose the issuance of a mitigated negative declaration given the various potentially significant impacts the Project will have within a landscape that the CPUC itself has acknowledged as a tribal cultural resource. Vague promises of future mitigation to be developed at a later date do not absolve the CPUC of its responsibility to fully examine potential impacts. CRIT therefore urges the CPUC to prepare a full EIR for the Project, before taking any steps to move the Project toward a final decision.

Numerous inadequacies and omissions in the DIS/MND render it insufficient as an environmental review document. In the absence of an enforceable and proven mitigation plan, particularly for impacts on tribal cultural resources, there is ample evidence in the record to support a fair argument that the Project will have significant environmental effects.

As a preliminary matter, the Colorado River Indian Tribes are a federally recognized Indian tribe comprised of over 4,440 members belonging to the Mohave, Chemehuevi, Hopi, and Navajo Tribes. The almost 300,000-acre Colorado River Indian Reservation sits astride the

Comment Set C1 – Colorado River Indian Tribes (cont.)

Colorado River between Blythe, California and Parker, Arizona. The ancestral homelands of the Tribes' members, however, extend far beyond the Reservation boundaries. Significant portions of public and private lands in California, Arizona, and Nevada were occupied by the ancestors of the Tribes' Mohave and Chemehuevi members since time immemorial. These landscapes remain imbued with substantial cultural, spiritual, and religious significance for the Tribes' current members and future generations. For this reason, we have a strong interest in ensuring that potential cultural resource and other environmental impacts associated with the proposed Eldorado-Lugo-Mohave Project are adequately considered and mitigated.

Despite the proposed mitigation measures, the Tribes remain troubled by the Project's potential to remove, damage, or destroy cultural resources and artifacts. These resources are sacred and finite, and together make up the cultural footprint of the Tribes' ancestors. According to the belief system of CRIT's Mohave members, the disturbance of any cultural resources affiliated with their ancestors is taboo, and thus considered a severe cultural harm. CRIT therefore cannot support any project that will likely result in the disturbance or destruction of cultural resources and artifacts. However, if the Project does move forward, it must be with appropriate analysis of potential effects under the California Environmental Quality Act (CEQA), as described below.

A Mitigated Negative Declaration is Inappropriate Given Potentially Significant Environmental Impacts. C1-1

CEQA establishes a "low threshold" for initial preparation of an EIR, especially in the face of conflicting assertions concerning the possible effects of a proposed project. *No Oil, Inc. v. City of Los Angeles*, 12 Cal. 3d 68, 84 (1974). This is because the EIR is the "heart" of CEQA review and the principal means of informing the public about potential environmental impacts. *Id.* A lead agency may adopt a mitigated declaration only when "revisions in the project plans or proposals made by, or agreed to by, the applicant before the proposed negative declaration and initial study are released for public review would avoid the effects or mitigate the effects to a point where *clearly* no significant effect on the environment would occur, and . . . there is *no substantial evidence*, in light of the whole record before the lead agency, that the project, as revised, may have a significant effect on the environment." Pub. Res. Code § 21080(c)(2) (emphasis added).

The CPUC cannot assert here that the proposed mitigation measures—such as preparing a Cultural Resources Management Plan (CRMP) and conducting later surveys to identify and avoid sensitive species in the area—meet the high bar of mitigating effects "to a point where clearly no significant effect on the environment would occur." This is, in part, because the agency has deferred several relevant surveys of the environmental setting itself—as detailed below—to future stages of the project, indicating that the CPUC has no idea what the scope of the effects will be, let alone the degree to which mitigation could reduce these effects. Therefore, the Tribes urge the CPUC to prepare a full EIR.

In particular, meaningful tribal consultation and further analysis of potentially significant impacts on tribal cultural resources and visual resources, as well as cumulative impacts more generally must be completed in an EIR.

Comment Set C1 – Colorado River Indian Tribes (cont.)

A. Government-to-Government Consultation

C1-2

California law provides for robust consultation with tribes "traditionally and culturally affiliated with the geographic area of [a] proposed project." Pub. Res. Code § 21080.3.1. In enacting these consultation requirements, the Legislature sought to "[r]ecognize that California Native American prehistoric, historic, archaeological, cultural, and sacred places are essential elements in tribal cultural traditions, heritages, and identities" and that "tribal knowledge about the land and tribal cultural resources at issue should be included in environmental assessments for projects that may have a significant impact on those resources." Assembly Bill No. 52 §§ 1(b)(1)-(4) (2014). CRIT has adopted a government-to-government consultation policy to clarify the requirements of adequate consultation. *See* Exhibit 1. In particular, adequate consultation requires an in-person meeting between a decisionmaker "prepared with sufficient details about the proposed project or action, the Tribes' history, culture, and government, and the Tribes' anticipated or specific concerns with respect to the proposed action." *Id.* at 3-4. While CPUC states that it contacted 23 tribes, including CRIT, by formal letter, *see* DIS/MND at 4-6, CRIT maintains that this does not constitute sufficient consultation.

The Tribes received Project applicant SCE's June 30 letter explaining the project. On July 20, 2017, well within the time frame in which SCE had requested a reply, CRIT requested formal government-to-government consultation. *See* Exhibit 2. Although SCE failed to follow through with a consultation meeting, CRIT clearly intended then and intends now to participate in government-to-government consultation that complies with the requirements of AB 52.

Because the CPUC limited consultation to just four tribes—the San Manuel Band of Mission Indians, the Morongo Band of Mission Indians, the Twenty-Nine Palms Band of Mission Indians, and the Fort Mojave Tribe—and ignored CRIT's consultation request, its analysis of potential impacts on tribal cultural resources is incomplete in scope. *See id.* at 5-362. CRIT respectfully requests consultation in the same manner granted to these four tribes, including site visits and provision with copies of all relevant cultural resource reports, which were not made publicly available. In addition, CRIT is concerned that the DIS/MND suggests that only "the four consulting tribes" will receive a copy of the draft Cultural Resources Management Plan once available. *Id.* at 4-7. The DIS/MND indicates in several places that the "tribes that consulted" will review and participate in the creation of the CRMP. *See, e.g.*, *id.* at 1-33, 1-47, 6-28 (MM-CR-4). Given the Tribes' affiliation with the area and outstanding consultation request, CRIT must be included in this group and provided an opportunity to comment and consult on any and all relevant documents and plans. More broadly, however, CRIT urges the CPUC to request and consider input from all traditionally and culturally affiliated area tribes, especially with respect to the forthcoming CRMP.

B. Tribal Cultural Resources

C1-3

CRIT appreciates the DIS/MND's description of consultation efforts with the four tribes above and general explanation of their concerns, but reiterates that because the consultation process did not take into account CRIT's and other affected tribes' input, the DIS's discussion of tribal cultural resources is necessarily incomplete. In addition, the analysis CPUC *does* provide is incomplete because it fails to adequately analyze the potential effects of ground-disturbing

Comment Set C1 – Colorado River Indian Tribes (cont.)

activities—a concern common to many tribes in the area—and fails to demonstrate how its forthcoming Cultural Resources Management Plan will fully mitigate for the potential impacts the initial study has brought to light.

C1-3 cont.

At the outset, the Tribes note that CPUC has identified the "Mojave Trails Landscape" as a tribal cultural resource (TCR) that extends from "the Colorado River in the east, Cajon Pass in the west, Granite Mountains to the north, and I-40 to the south." DIS/MND at 5-364. The DIS/MND states that this large landscape, which is a collection of trails and associated features that have both secular and spiritual significance for local tribes, encompasses "the CEQA Areas of Direct and Indirect Impacts for the entire project." *Id.* This language appears to recognize the entire Project site as a TCR. However, in subsequent discussions, the DIS/MND refers to restrictions or mitigation conditions for work near "a tribal cultural resource," as if those considerations were only relevant to part of the Project site. For example, "[w]hen project work is planned within 100 feet of a known prehistoric-era cultural resource or a tribal cultural resource, or any resources that are eligible for the CRHR and/or NRHP, avoidance areas shall be established and monitors shall be present as outlined in the CRMP." *Id.* at 6-29 (MM CR-5). The DIS/MND must make clear that the provisions about avoidance and monitoring will apply to *any and all* activity within the Project site, given that the entire site is part of a TCR. CRIT also requests further analysis showing how the CPUC has determined that, despite the fact that *the entire Project site* was recognized as a TCR, there is no fair argument that the Project could have a significant impact on tribal cultural resources.

The Tribes are particularly concerned about the large volume of ground-disturbing activities associated with the Project—over 23,000 feet of underground facilities. *Id.* at 4-20 (noting approximately 55 locations with underground structures, each 3 to 6 feet deep). Further, the DIS/MND equivocates on the method SCE will use to excavate, making it difficult to accurately evaluate the potential project impacts. The DIS/MND states that the Project would use open-cut trenching techniques "unless alternate methods are required" for sensitive resources, in which case it would use "horizontal directional drilling (HDD)." *Id.* at 4-44. It does not explain how these different techniques might affect the disturbance of cultural resources—either those underground resources yet to be discovered or the Mojave Trails Landscape that the DIS previously identified as a TCR. CRIT requests further clarification and analysis of the excavation alternatives to facilitate the development of appropriate mitigation measures. At minimum, the Tribes believe that these mitigation measures must include tribal monitoring for all ground-disturbing activities, avoidance of all newly discovered resources if feasible, including through Project modification, and in-situ or onsite reburial under the supervision of tribal monitors where avoidance of cultural resources is not possible. CRIT requests that the CPUC require SCE to contract with the Tribes to provide tribal monitors for this mitigation effort.

More broadly, while the DIS/MND makes some efforts at tribal cultural resource mitigation, such as CR-1, *id.* at 6-26 (requiring applicant to hire a specialist with experience working with "Southern California Tribal Nations" who will work with "tribal monitors and Field Crew as needed"), many of the cultural resource mitigation measures are underdeveloped. CRIT is concerned both with the deferral of preparation of a Cultural Resources Management Plan and with various aspects of the CRMP, as outlined in Table 6-1, MM-CR-3:

Comment Set C1 – Colorado River Indian Tribes (cont.)

- CR-3 makes clear that CPUC and SCE have not yet properly surveyed historic resources at the Project site: "The CRMP shall define and map all known prehistoric and historic resources eligible to the NRHP and CRHR within 100 feet of proposed work areas. How these resources will be avoided and protected during construction will be described. Avoidance measures to be used will be described, including where and when they will be implemented." *Id.* at 6-27. While the Tribes appreciate the commitment to map and avoid these cultural resources, surveying and development of clear avoidance measures is a prerequisite to any determination that the Project, as mitigated, will have a less-than-significant impact on tribal cultural resources.
- CR-3 requires the CRMP to address the fact that "[n]o collection of artifacts is authorized or planned for this project." *Id.* CRIT emphatically supports the principle of avoidance, but is concerned that the DIS/MND goes on to state vaguely that "[i]f an unanticipated discovery requires evaluation via excavation and artifact collection, the retention/disposal, and permanent and temporary curation policies shall be specified. The decision-making process for identifying which artifacts are curated or reburied, where they are reburied and the individuals, including tribal participants, making these decisions shall be described." *Id.* CRIT strongly opposes data collection and curation as mitigation measures and urges reburial in the event of accidental discovery.
- Similarly, the Tribes are concerned about CR-3's statement regarding "[t]he commitment to curate all artifacts retained as a result of any archaeological investigations" and encourages the CPUC to adopt an explicit preference for reburial in the presence of tribal monitors. *Id.* at 6-28. The Tribes are opposed to all activities that result in disturbance or removal of cultural resources, even if intended to serve "archaeological investigations."
- As discussed above, CRIT requests that the CPUC clarify that "consulting tribes" that will have the opportunity to review and comment on the proposed CRMP include any tribes "traditionally and culturally affiliated" with the Project site. *Id.* at 6-27.

C1-3 cont.

Finally, while CRIT appreciates the inclusion of sensitivity training for Project personnel as MM CR-2, the Tribes question whether modules "provided through participating tribes in video format" will be both effective in educating staff about appropriate work practices and respectful of the sacred significance of the tribal cultural resources associated with the Project area. *Id.* at 6-26. In addition, it is not clear whether *only* "cultural resources monitors and tribal monitors" will receive such training; CRIT urges the CPUC to clarify that this educational requirement would apply to anyone who will work at the Project site. *Id.* at 6-27.

C. Visual Resources

C1-4

The Tribes object to the DIS/MND's determination that the Project will have no significant impact on visual resources, a determination that relies heavily on the fact that there are already visible "infrastructure" facilities in or around the Project area. *See, e.g.*, DIS/MND at 5-18 ("In the context of surrounding visual elements (e.g., existing conductors, LSTs, distribution poles, and roads), most [project activities] were considered to represent minor changes in the visible landscape having a nominal and highly localized visual impact."). Further, the agency seems to take the position that as long as mountain views are still *visible* to those in the area, even if energy infrastructure is visible in the foreground, there are no significant visual

Comment Set C1 – Colorado River Indian Tribes (cont.)

impacts. CRIT disputes this characterization and urges the CPUC to engage in a fuller analysis of the aesthetic effects of each of the proposed Project elements, including towers, transmission lines, and other structures, on the surrounding landscape.

C1-4 cont.

Further, the DIS/MND's analysis is inadequate in that it fails to take into account the importance of the surrounding viewshed to the Tribes. The Project will travel through Mojave National Preserve, which is located just across the California/Nevada state line from Spirit Mountain, a place of great spiritual and traditional importance to the Tribes. Spirit Mountain is the center of creation for CRIT members. *See also id.* at 5-360 (recognizing the significance of Spirit Mountain to the Mojave people). According to the Mohave origin story, the Creator Mastamho set the Mohave people at Avi Kwame (Spirit Mountain) and gave them their names. Given Spirit Mountain's unique and highly valued role in CRIT's cultural tradition, the Tribes request that CPUC specifically analyze effects on views of and from Spirit Mountain and the sacred landscapes in the vicinity of the Project before concluding that the impact on visual resources is less than significant.

D. Cumulative Impacts

C1-5

The DIS/MND similarly fails to take into account cumulative impacts in the Project area. For example, with respect to cultural resources, there is less than half a page of analysis summarily concluding that there are "no projects in the cumulative scenario"—that is, projects within one mile[1]—that would have a cumulative effect on cultural resources. DIS/MND at 5-413. However, the DIS/MND suggests that just two capacitor sites and two fiber optic repeater sites—within a project dispersed across more than 235 miles of transmission infrastructure—were the points of reference for determining "cumulatively considerable impact." *Id.*; *see also id.* at 1-3. In addition, the analysis recognizes the potential for ground-disturbing activities to "affect unknown buried cultural deposits or archaeological sites" at one part of the Project site and two nearby facilities, but concludes simply that the "small size of the Barstow Repeater site (0.13 acres) and the implementation of mitigation measures would result in a less than significant impact and would result in a less than cumulatively considerable impact." *Id.* at 5-414. This is insufficient discussion to justify bypassing preparation of an EIR.

Further, the only discussion of cumulative "tribal cultural resources" impacts is just two sentences: "The cumulative effect of the ELM Project in combination with effects from projects in the cumulative scenario are similar to those discussed for Cultural Resources (see previous discussion). The cumulative impacts would be less than considerable." *Id.* at 5-419. Again, this is insufficient. CPUC has made no effort to describe the particular cumulative impacts on tribal cultural resources, despite the fact that its DIS/MND determined that the entire Mojave Trails Landscape—presumably encompassing many of the projects listed in Table 5.21-1—is a TCR.

[1] Although the DIS/MND states that this is the radius of cultural resource impacts considered, it is far from clear *which* projects fell into this group; CPUC states in its "Approach to Cumulative Impact Analysis" that "Projects used in the cumulative impact analysis are listed in Table 5.21-1, Cumulative Projects within 1 Mile of the Proposed Project, and Table 5.21-2, Cumulative Projects 1 to 5 Miles from the Proposed Project." *Id.* at 5-400. However, there is no Table 5.21-2 anywhere to be found, and Table 5.21-1 appears to show the five-mile radius instead.

Comment Set C1 – Colorado River Indian Tribes (cont.)

CPUC must adequately analyze cumulative impacts, which requires more than cursory dismissal by reference to mitigation measures. To the extent CPUC wishes to rely on mitigation measures to demonstrate that there are no "cumulatively considerable" impacts, it must first attempt to quantify the cumulative impacts and then specifically explain the effect of each relevant mitigation measure in alleviating such an impact.

C1-5 cont.

E. Growth-Inducting Impacts.

Finally, CRIT disputes CPUC's conclusion that it need not consider "[e]nvironmental effects that may be associated with future generation facilities . . . that may use Proposed Project facilities to transmit electricity" because they are "speculative" and "not the result of, or made more likely by, the proposed project." DIS/MND at 3-4. CEQA requires an analysis of growth-inducing impacts. Pub. Res. Code § 21100(b)(5). Clearly, an expansion of energy infrastructure on this scale could foreseeably result in a greater number of future generation facilities. CRIT remains concerned about the gradual advancement of such projects, one by one, across its ancestral territory, and maintains that CPUC may not avoid analyzing growth-inducing impacts by issuing a mitigated negative declaration for the Project.

C1-6

Conclusion

Thank you for your consideration. To understand how these comments were taken into account in your decisionmaking, we ask for a written response prior to a final decision. As discussed above, the Tribes also request formal consultation with the CPUC on both the Project generally and the CRMP specifically. Please copy the Tribes' Attorney General Rebecca A. Loudbear, at rloudbear@critdoj.com, Deputy Attorney General Antoinette Flora, at aflora@critdoj.com and THPO Director Bryan Etsitty, at betsitty@crit-nsn.gov, on all correspondence to the Tribes.

C1-7

Respectfully,

Dennis Patch
Chairman, Colorado River Indian Tribes

Cc: Tribal Council of the Colorado River Indian Tribes
Bryan Etsitty, THPO Director
Rebecca A. Loudbear, Attorney General, Colorado River Indian Tribes

Comment Set C1 – Colorado River Indian Tribes (cont.)

EXHIBIT 1

C1-8

Government-to-Government Consultation Policy of the Colorado River Indian Tribes

The federally recognized Colorado River Indian Tribes (CRIT or the Tribes) have over 4,000 active members from four distinct tribes – the Mohave, Chemehuevi, Hopi, and Navajo. The Tribes' reservation, which encompasses nearly 300,000 acres, straddles the Colorado River in both Arizona and California. The Tribes' ancestral homelands, however, extend far beyond the current reservation boundaries, into what is now public and private land in Arizona, California, and Nevada. As a result, the Tribes' cultural resources, including sacred sites, trails, and artifacts, are found beyond the reservation boundaries as well. The Tribes are deeply committed to the ongoing protection of such resources located both on- and off-reservation.

Federal law recognizes that CRIT is a sovereign government distinct from the United States. As a result of this status, the United States must engage in government-to-government consultation with the Tribes when actions or decisions of the United States have the potential to impact the Tribes, its government, tribal land, or cultural resources. This consultation must occur before the momentum toward any particular outcome becomes too great. The purpose of this government-to-government consultation must be to obtain CRIT's free, prior, and informed consent for such actions.[1] Desired outcomes include an ongoing, mutually beneficial relationship between federal agencies and the CRIT Tribal Council, deference to tribal sovereignty, and informed decision-making by both the United States and the Tribes. Federal agency staff and decision-makers must view consultation as more than listening and learning sessions with Tribal Council. Instead, there must be an ongoing, dynamic relationship between federal agencies and the Tribes that is built upon the agencies' concerted effort to understand the Tribes' history, culture, and government.

The Tribes have developed this policy paper to guide future government-to-government consultation with the United States and its administrative agencies.[2] This paper outlines CRIT's consultation rights and the specific characteristics that comprise minimally adequate consultation under federal law. This paper also offers additional suggestions to ensure that consultation is effective and mutually respectful.[3] If federal agencies do not follow this policy, CRIT does not consider the communications from the agencies to meet the consultation requirements of tribal or federal law. Acknowledgement of this policy is required before an agency schedules a government-to-government meeting with Tribal Council. CRIT is committed to seeking recourse

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[1] United Nations Declaration of the Rights of Indigenous Peoples, Articles 19 and 32; *see also* 36 C.F.R. § 800.1(f) (defining "consultation" as "the process of seeking, discussing, and considering the views of other participants, and where feasible, seeking agreement with them."); BLM Manual Handbook H-8120-1 at I-2 (consultation includes "[t]reating tribal information as a necessary factor in defining the range of acceptable public-land management options.").

[2] 36 C.F.R. § 800.4(c)(2)(ii)(C); 43 C.F.R. § 10.5(d)(3); Improving Tribal Consultation and Tribal Involvement in Federal Infrastructure Decisions (January 2017) ("Improving Tribal Consultation"), Key Principle 8.

[3] Required actions are distinguished from recommended actions by use of the words "must" and "shall" versus "should."

Comment Set C1 – Colorado River Indian Tribes (cont.)

through all available political, legal, and media channels if this request is denied or if the agency fails to comply with this policy.

Why A Formal Process is Needed

Federal agencies (including the Department of the Interior, Bureau of Land Management, and Bureau of Indian Affairs) have consistently failed to engage in adequate government-to-government consultation with CRIT and other tribes. The United States recently recognized this troubled history in suggesting needed modifications to the consultation process.[4] In CRIT's experience, agencies have asked for substantive tribal comments on project and policy documents after those projects and policies have already been approved or implemented. Agency staff and decision-makers have attended meetings with Tribal Council without adequate information or authority to meaningfully respond to the Tribes' concerns. Agencies have repeatedly refused to provide responses to CRIT's comments, including any explanation for why CRIT's requests cannot be accommodated. These failures have resulted in direct harm to CRIT, its members, and cultural resources of great importance to the Tribes.

As one example, BLM authorized construction of the nearly 2,000-acre Genesis Solar Energy Project on land once occupied by the ancestors of CRIT's Mohave members. The project involved significant grading along the shoreline of Ford Dry Lake, resulting in the removal of over 3,000 cultural resources over the vehement objections of the Tribes. These artifacts are now stored at the San Bernardino County Museum with no access for CRIT members. In accordance with cultural, spiritual, and religious practices, CRIT has repeatedly asked BLM to permit reburial of the Genesis artifacts, as well as any other artifacts that are inadvertently disturbed within the ancestral homeland. Yet, BLM has refused to engage in government-to-government consultation on this critical topic. Letters have been left unanswered, harmful agency policies have been issued without advance notice or consultation, and BLM officials have been unprepared to discuss their position when in-person meetings have occurred. These consultation failures have resulted in severe and ongoing harm to CRIT and its members.

Basis of Consultation Right

The fundamental principle underlying CRIT's right to meaningful consultation with the United States is the Indian trust doctrine. Pursuant to this doctrine, the United States has a fiduciary duty over tribal lands and resources as Indian trust assets.[5] As part of this duty, the United States has an obligation to consult with CRIT about federal actions that have the potential to impact these assets or other attributes of tribal sovereignty. For CRIT, tribal sovereignty includes an obligation to protect tribal and cultural resources that are located in the ancestral homelands of CRIT members.

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[4] Improving Tribal Consultation, at 1-5.

[5] *Seminole Nation v. United States*, 316 U.S. 286, 296-97 (1942); *Pit River Tribe v. U.S. Forest Service*, 469 F.3d 768, 788 (9th Cir. 2006); *Navajo Tribe of Indians v. United States*, 364 F.2d 320, 322 (Ct. Cl. 1966).

Comment Set C1 – Colorado River Indian Tribes (cont.)

This fundamental consultation right is engendered in federal statutes,[6] executive orders,[7] and agency policies.[8] These laws help implement and explain the consultation right that stems from the Indian trust doctrine, but do not diminish it.[9] Where appropriate, CRIT relies on these laws to support its definition of adequate consultation.

Characteristics of Adequate Consultation

Tribal Sovereignty. Government-to-government consultation must respect tribal sovereignty.[10] The federal government shall not treat consultation as a "box to be checked," but as a meaningful dialogue intended to result in consensus between the United States and the Tribes.

Addressing Tribal Concerns. The federal government shall timely seek and review CRIT's written and oral comments and provide comprehensive responses to Tribal concerns and requests.[11] Responses to written comments should generally be provided before any in-person government-to-government consultation. Prior to reaching its final decision, a federal agency must explain how that decision addresses CRIT's concerns.[12] Where an agency is unable to fully address CRIT's concerns, the agency shall clearly explain its reasoning based on the legal, practical, or policy constraints on its decision-making.[13] If CRIT has articulated its concerns in writing, this explanation should be in writing as well.

Involved Parties. Government-to-government consultation requires an in-person meeting between CRIT Tribal Council and the agency decision-maker with ultimate authority for a proposed project or action.[14] This decision-maker must be prepared with sufficient details about the proposed project or action, the Tribes' history, culture and government, and the Tribes'

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[6] *See, e.g.*, National Historic Preservation Act (NHPA), 54 U.S.C. §§ 302701(e), 302706(b); 36 C.F.R. § 800.5(a); Native American Graves Protection and Repatriation Act (NAGPRA), 25 U.S.C. §§ 3002(b)-(c), 3003(b), 3004(b), 3005(a)(3); 43 C.F.R. § 10.5; Archaeological Resources Protection Act (ARPA), 43 C.F.R. §§ 7.7(b)(4), 7.16(b)(2)-(3).

[7] Executive Orders 12875, 13007, 13175; September 23, 2004 "Memorandum on Government-to-Government Relationship with Tribal Governments"; November 9, 2009 "Memorandum for the Heads of Executive Departments and Agencies."

[8] Secretarial Order 3317 § (b); Department of the Interior Policy on Consultation with Indian Tribes; BLM Manual 8210: Tribal Consultation under Cultural Resource Authorities; Bureau of Indian Affairs Government-to-Government Consultation Policy (BIA Consultation Policy) at V.1-3.

[9] 36 C.F.R. § 800.4(c)(2)(ii)(B); Executive Order 13175, § 2.

[10] 36 C.F.R. § 800.4(c)(2)(ii)(B); BLM Manual 8120 at .08(A) ("The special legal status of tribal governments requires that official relations with BLM . . . shall be conducted on a government-to-government basis.").

[11] Executive Order 13175, §§ 5(b)(2)(B), 5(c)(2); Improving Tribal Consultation, Key Principle 6.

[12] BLM Manual 8120, Glossary of Terms ("consultation" defined to include "documenting the manner in which the [tribal] input affected the specific management decision(s) at issue."); BLM Manual Handbook H-8120-1 at I-1; Improving Tribal Consultation, Key Principle 6.

[13] BLM Manual 8120 at .06(E) ("Field Office Managers and staff . . . shall document all consultation efforts."); Improving Tribal Consultation, Key Principle 6.

[14] *See, e.g.*, 36 C.F.R. § 800.2(a); BIA Consultation Policy at VI.A(4); BLM Manual 8210 at .06(A).

Comment Set C1 – Colorado River Indian Tribes (cont.)

anticipated or specific concerns with respect to the proposed project or action.[15] This decision-maker should also have formal training regarding tribal sovereignty, the Indian trust doctrine, and other aspects of federal Indian law. The agency should use its staff to communicate project information to CRIT and its staff and to prepare the agency decision-maker for the government-to-government consultation. For example, prior to meeting with CRIT Tribal Council, it is the Tribes' expectation that agency staff will have provided baseline information about the project and its potential impacts to Tribal staff, such as survey results and ethnographic reports. However, CRIT does not recognize staff-to-staff discussions or communications as fulfilling the federal government's consultation responsibility.[16]

In addition, communications between CRIT and project applicants or proponents (where such applicants or proponents are not federal entities) are not government-to-government consultation. Such communications, however, can help to convey information and reduce conflict. Unless requested by CRIT, federal agencies shall not interfere with such communications. Finally, meetings held with representatives from multiple tribes do not constitute consultation with CRIT unless CRIT expressly agrees that consultation format.[17]

Timing. Government-to-government consultation must occur as early as practicable, so that tribal concerns can be taken into account before the momentum toward a particular project or action is too great.[18] Federal agencies should provide basic information about a project or action and its potential impacts to CRIT as soon as the agency begins initial planning for a project or action or a private entity approaches the agency to submit an application.[19] Federal agencies should keep CRIT apprised of the decision-making timeline so that the Tribes can participate at appropriate junctures. Federal agencies shall continue to consult with Tribes until they make a decision on the proposed project or action, and if requested by the Tribes or required by law, until construction or implementation of the project or action is complete.

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[15] *See also Pueblo of Sandia v. United States*, 50 F.3d 856, 860, 862 (10th Cir. 1995) (Section 106 "mandates an informed consultation."); BLM Manual 8120 at .06(C) ("Field Office Managers shall recognize that traditional tribal practices and beliefs are an important, living part of our Nation's heritage, and shall develop the capability to address their potential disruption . . ."); BLM Manual Handbook H-8120-1 at I-2 ("BLM's representative must be authorized to speak for the BLM and must be adequately knowledgeable about the matter at hand."); Improving Tribal Consultation, Key Principle 5.

[16] *Quechan Tribe of the Fort Yuma Indian Reservation v. U.S. Dep't of Interior*, 755 F. Supp. 2d 1104, 1118-19 (S.D. Cal. 2010).

[17] *Id.*

[18] 16 U.S.C. §§ 470a(d)(6), 470f (requiring consideration of historic resource impacts "*prior to the approval* of . . . the undertaking") (emphasis added); 36 C.F.R. §§ 800.1(c), 800.4(c)(2)(ii)(A); Executive Order 13175, §§ 5(b)(2)(A), 5(c)(1); Secretarial Order 3317, U.S. Dept. of the Interior, § 4(a); Dep't of the Interior Tribal Consultation Policy at 7-8; BIA Consultation Policy at VI.A; BLM Manual 8120 at .02(B) (consultation must "[e]nsure that tribal issues and concerns are given legally adequate consideration *during* decision-making) (emphasis added); BLM Handbook Manual H-8120-1 at V-5 (". . . the BLM manager should initiate appropriate consultation with potentially affected Native Americans, as soon as possible after the general outlines of the land use plan or the proposed land use decision can be described.").

[19] Improving Tribal Consultation, Key Principle 3.

Comment Set C1 – Colorado River Indian Tribes (cont.)

Scope of Consultation. Federal agencies must be willing to engage in consultation on any potential impacts of a proposed project or action to CRIT, its members, its land, or its cultural resources.[20] Consultation shall not be limited to potential impacts to properties eligible for listing on the National Register of Historic Places[21] or equivalent state registers, or protected by the Native American Graves Protection and Repatriation Act. If federal approval is needed for only a portion of a proposed project or action, the agency shall nevertheless consult on potential impacts from the whole of the project or action. Federal agencies should not expect CRIT to provide information about impacts to cultural resources in scientific terms and should weigh the Tribe's cultural, spiritual, historical, and anthropological input with the respect and deference that it is due.[22]

Confidentiality. Information obtained via government-to-government consultation shall be kept confidential, except to the extent that CRIT provides information in a public forum (such as via a letter submitted during a comment period or comments made at a hearing) and to the extent such information must be revealed pursuant to federal or other applicable law.[23] If a federal agency determines that confidential information obtained from CRIT must be revealed, the agency shall inform CRIT prior to the release and make all reasonable attempts to limit its scope. Federal agencies shall acknowledge that confidential information is not limited to the location of sites eligible for listing on the National Register of Historic Places[24] or protected by the Native American Graves Protection and Repatriation Act, but includes any information about sensitive resources, culture, or religious beliefs, obtained through consultation.

Resources. Federal agencies must recognize that government-to-government consultation consumes scarce tribal resources. Agencies should minimize costs to CRIT by conducting government-to-government consultation meetings in Parker, Arizona[25]; providing clear and succinct information about proposed projects or actions and their potential impacts; and ensuring that agency staff document CRIT's interests and concerns. CRIT should not be required to repeatedly provide the same information to an agency because of agency staff turnover. Agencies should explore funding sources to remunerate the Tribes for participating in consultation.

Key Requirements

To aid in implementation of this policy, agency officials shall ensure their government-to-government consultation efforts comport with this summary of key requirements:

- Initiate consultation as early as practicable.
- Timely seek and review CRIT's written and oral comments.

[20] Executive Order 13175, § 1(a).
[21] 36 C.F.R. § 800.4(c)(2)(ii).
[22] *See, e.g.*, BLM Manual Handbook B-8120-1 at II-5.
[23] *See* 36 C.F.R. §§ 800.4(a)(4), 800.11(c); *see also* BLM Manual 8120 at .06(G).
[24] 36 C.F.R. § 800.4(c)(2)(ii)(A); *see also* BLM Manual Handbook H-8120-1 at V-1.
[25] Improving Tribal Consultation, Key Principle 4.

Comment Set C1 – Colorado River Indian Tribes (cont.)

- Provide comprehensive responses to Tribal concerns and requests in the same format as such concerns and requests were provided to the agency.
- Explain agency decisions based on legal, practical, and policy constraints on decision-making.
- Involve agency decision-makers with ultimate authority in in-person consultation meetings.
- Sufficiently prepare for in-person consultation meetings with Tribal Council to be able to respond to and address the Tribes' concerns.
- Do not claim that communication with CRIT staff, between CRIT and project applicants, or in the presence of multiple tribes is government-to-government consultation.
- Consult on any potential impacts of a proposed project or action on CRIT, its members, its land, or its cultural resources.
- Keep information obtained via government-to-government consultation confidential.

Comment Set C1 – Colorado River Indian Tribes (cont.)

COLORADO RIVER INDIAN TRIBES
Tribal Historic Preservation Office
26600 Mohave Road
Parker, Arizona 85344
Telephone: (928)-669-5822 Fax: (928) 669-5843

July 20, 2017

Southern California Edison
2244 Walnut Grove avenue
Rosemead, CA 91770

RE: Eldorado-Lugo-Mohave Capacitor Project

Dear Ms. Audry Williams:

The Colorado River Indian Tribes' Tribal Historic Preservation Office ("CRIT THPO") has received your letter dated June 30, 2017, regarding the *Cultural Resource Inquiry for Southern California Edison Company's Eldorado-Lugo-Mohave Capacitor Project in San Bernardino County, California and Clark County, Nevada.*

As a preliminary matter, the Colorado River Indian Tribes are a federally recognized Indian tribe comprised of over 4,200 members belonging to the Mohave, Chemehuevi, Hopi and Navajo Tribes. The almost 300,000 acre Colorado River Indian Reservation sits astride the Colorado River between Blythe, California and Parker, Arizona. The ancestral homelands of the Tribe's members, however, extend far beyond the Reservation boundaries. Significant portions of public and private lands in California, Arizona and Nevada were occupied by the ancestors of the Colorado River Indian Tribes' Mohave and Chemehuevi members since time immemorial. These landscapes remain imbued with substantial cultural, spiritual and religious significance for the Tribes' current members and future generations. For this reason, we have a strong interest in ensuring that potential cultural resource impacts are adequately considered and mitigated.

In particular, the Colorado River Indian Tribes are concerned about the removal of artifacts from this area and corresponding destruction of the Tribes' footprint on this landscape. As such, the Tribes request that all prehistoric cultural resources, including both known and yet-to-be-discovered sites, be avoided if feasible. If avoidance of the site is infeasible, then the Tribes request that the resources be left in-situ or reburied in a nearby area, after consultation. This language should be incorporated into enforceable mitigation measures.

In addition, we respond as follows:

__√__ Given the potential impact of the project on important cultural resources, the Colorado River Indian Tribes request in-person government-to-government consultation. Please contact the CRIT THPO to discuss our concerns and schedule a meeting with Tribal Council.

Comment Set C1 – Colorado River Indian Tribes (cont.)

CRIT THPO
Project Name: Eldorado Lugo Mohave Project
Date: July 20, 2017
Page 2

_____In the event any human remains or objects subject to provision of the Native American Graves Protection and Repatriation Act, or cultural resources such as sites, trails, artifacts are identified during ground disturbance, please contact the CRIT THPO within 48 hours.

_____The Colorado River Indian Tribes request tribal monitoring of any ground disturbing activity as a condition of project approval. The Tribes request notification of any opportunities to provide tribal monitoring for the project.

_____The Colorado River Indian Tribes do not have any specific comment on the proposed project and instead defer to the comments of other affiliated tribes.

Thank you for your consideration. Please contact the undersigned if you have any questions or concerns.

Please be advised that David Harper is no longer associated with this Department. Mr. Bryan Etsitty has been appointed as Acting-Director.

Sincerely,

COLORADO RIVER INDIAN TRIBES
TRIBAL HISTORIC PRESERVATION OFFICE

/s/ Bryan Etsitty, Acting-Director
26600 Mohave Road
Parker, AZ 85344
Phone: (928) 669-5822
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emailed 07/20/17 nf

Responses to Comment Set C1 – Colorado River Indian Tribes

C1-1 The commenter states that a Mitigated Negative Declaration (MND) is inappropriate given potentially significant impacts and urges the CPUC to prepare an Environmental Impact Report (EIR) for the proposed project and also requests consultation between the tribe and CPUC.

The CPUC does not agree that an EIR is needed; the IS/MND clearly analyzes the project's environmental impacts and identifies mitigation measures that will effectively reduce all potentially significant impacts to a less than significant level. The applicant, SCE, accepted and agreed to all of the mitigation measures before the proposed IS/MND was released for public review. Pursuant to the CEQA statute and Guidelines, an IS/MND, not an EIR, is the proper document in such situations. (*See* Pub. Res. Code §§ 21064.5, 21080(c)(2); 14 Cal. Code Regs. §§ 15064(f)(2), 15070(b).) The commenter cites no evidence in support of the assertion that the CPUC does not understand the scope of the project's effects or the degree to which the IS/MND's proposed mitigation measures reduce these effects. The commenter does not acknowledge the extensive cultural resource surveys that were conducted prior to preparation of the IS/MND and that Cultural Resources Management Plans (CRMP) are typically prepared after project approval but before authorization of construction, regardless of whether the environmental document prepared under CEQA is an IS/MND or EIR. Contrary to the commenter's implication, Mitigation Measure CR-3 concerning the required CRMP is not improperly deferred. Consistent with CEQA Guidelines Section 15126.4(a)(1)(B), Mitigation Measure CR-3 clearly identifies in detail what must be included in the CRMP, the CPUC and the applicant are fully committed to the mitigation and the measure adopts specific performance standards and identifies the types of potential actions needed to achieve those standards. Circumstances where cultural resource monitoring is required are clearly identified in the mitigation measures; these include establishing buffer zones around resources to protect them from impacts.

Regarding consultation, as explained in response C1-2, the tribe and CPUC have engaged in consultation.

C1-2 **The commenter raises question regarding government-to-government consultation, which are summarized and addressed below.**

The commenter notes that Pub. Res. Code § 21080.3.1 provides for formal consultation between a California agency and a tribe regarding tribal cultural resources and the effects of a proposed project.

CRIT requested of the applicant, SCE, formal consultation via a letter it sent to the SCE dated July 20, 2017. However, the CPUC, not the applicant SCE, is the lead agency under CEQA for this project. The CPUC was not a party to communications between SCE and CRIT and was unaware of these communications before receiving CRIT's September 13, 2019 letter commenting on the Draft IS/MND. As further discussed below, the CPUC contacted CRIT numerous times at the initiation of the IS/MND preparation and CRIT had several opportunities to timely communicate its interest in formal consultation with CPUC but did not do so.

The CPUC did extensive outreach to CRIT and other tribes regarding consultation on the ELM Project. In October 2018, when the CPUC determined that preparation of an IS/MND was appropriate under CEQA, the agency initiated the consultation procedures as described in Pub. Res. Code § 21080.3.1. Twenty-one tribes or bands were identified as potentially having an interest in the geographic area of the Proposed Project. The CPUC contacted these by email, US Mail, and telephone to determine if they were interested in government-to-government consultation.

With regard to CRIT, an email with an attached invitation letter was sent to the Chairman of CRIT on October 22, 2018 using the contact information provided by the Native American Heritage Commission. At the same time, a hardcopy of the invitation letter was mailed to the Chairman via the U.S. Postal Service. U.S. Postal Service tracking confirmed delivery of the letter on October 24, 2018. On October 30, 2018, a telephone call was placed to the Chairman's office. The call was unanswered, and

a message was left requesting a reply regarding consultation. On November 13, 2018, a second email with invitation letter attached was sent. No response was received to any of these communications. Based on CRIT's lack of a response, the CPUC concluded that the tribe was not interested in formal AB 52 consultation on this Proposed Project.

The commenter states that "[b]ecause the CPUC limited consultation to just four tribes…and ignored CRIT's consultation request, its analysis of potential impacts on tribal cultural resources is incomplete in scope."

The CPUC did not "limit" consultation; the agency consulted with every tribe that indicated a desire to participate in formal government-to-government consultation. CRIT did not indicate such a desire. The commenter does not indicate in what way the analysis is incomplete in scope because of CRIT's non-participation.

In its comments on the IS/MND, CRIT requested consultation in the same manner as the four tribes who did respond to request formal consultation.

The CPUC's tribal consultation policy implements the requirements of Pub. Res. Code § 21080.3.1, including statutory deadlines. However, the policy also states: "The CPUC will honor a tribe's request for CEQA consultation that is made more than 30 days after the tribe's receipt of notice, *as long as there is still time for meaningful consultation to occur*." (emphasis added)

On September 24, 2019, an email with a letter attachment was sent to the Chairman and other contacts s listed in the CRIT letter commenting on the IS/MND. Hardcopies of the letter were sent via U.S. Mail and were received on September 30, 2019. In this communication the CPUC indicated its willingness to consult but noted that "time is of the essence for meaningful consultation to occur before the IS/MND is finalized. In the formal Proceeding for the proposed ELM Project, the Administrative Law Judge was advised that the CEQA process would be completed within two months of the close of the comment period and has planned the Proceeding accordingly. IS/MND comment closure was September 13, 2019. The final IS/MND will be completed by no later than mid-November 2019. That, in turn, means that consultation must occur and conclude quickly and without delay." On October 4, 2019, telephone calls were placed to the offices of the Chairman, the Attorney General, and the Tribal Historic Preservation Officer (THPO); messages were left requesting a return call to set up a conference call. Contact was made with the Deputy Attorney General, and a time and location were established for consultation to take place. A meeting occurred with the Attorney General, Deputy Attorney General, and THPO in Parker Arizona on November 5, 2019, during which the project and applicable mitigation measures were explained by the CPUC. The tribal representatives at the meeting indicated they would convey the information from the meeting to the Tribal Council and would contact the CPUC if they had additional questions or concerns.

Based on the consultation with CRIT, they have now been determined to be a consulting tribe for purposes of the ELM Project. The draft IS/MND has been revised as follows to acknowledge this.

At Draft IS/MND page 5-362 the text is amended:

> *Initially, three tribes requested to consult on the Proposed Project: the San Manuel Band of Mission Indians, the Morongo Band of Mission Indians, and the Twenty-Nine Palms Band of Mission Indians. Subsequently, the Fort Mojave Tribe requested consultation. Subsequently, in its comment letter on the MND as part of public review the Colorado River Indian Tribes (CRIT) requested consultation.*

At Draft IS/MND page 5-363 the following has been added:

> *Subsequent to publication of the Draft MND, the CRIT requested government-to-government consultation with the CPUC. CPUC policy permits consultation even after the response period specified in*

AB 52 has lapsed, if there is sufficient time for meaningful consultation. The CPUC met with CRIT representatives on November 5, 2019 in response to their request made in the MND comment letter. Based on this consultation meeting, the CPUC considers CRIT a consulting tribe on the ELM project. Therefore, there are five consulting tribes on the ELM Project: San Manuel Band of Mission Indians, Morongo Band of Mission Indians, Twenty-Nine Palms Band of Mission, Fort Mojave Tribe, and Colorado River Indian Tribes.

C1-3 **The commenter raises multiple points regarding tribal cultural resources, which are summarized and addressed sequentially below.**

The commenter asserts that the IS/MND's discussion of tribal cultural resources is incomplete because input from CRIT and other affected tribes was not taken into account.

The CPUC disagrees. As discussed in more detail above in the Response to Comment C1-2, the CPUC conducted extensive outreach to CRIT and other tribes to determine their interest in consultation on the ELM Project. In the process of preparing the IS/MND the agency consulted with every tribe that indicated a desire for formal government-to-government consultation. As a result, the mitigation measures in the IS/MND benefited from input gathered during multiple consultation meetings and incorporate measures proposed by tribal representatives. With regard to CRIT, emails and letters were sent and phone messages left requesting a reply regarding the tribe's interest in formal consultation. No response was received to any of these communications. Based on those efforts and CRIT's lack of response, the CPUC reasonably concluded that the tribe was not interested in formally consulting on the ELM Project. As outlined in the CPUC's tribal consultation policy, the agency is willing to consult with CRIT and hear its input regarding tribal cultural resources as long as there is still time for meaningful consultation to occur.

The commenter asserts that the analysis fails to adequately assess potential effects of ground disturbing activities or to demonstrate that the Cultural Resources Management Plan (CRMP) will fully mitigate the potential impacts of the project.

The CPUC disagrees as the IS/MND adequately analyzes all potentially significant impacts associated with the proposed project's ground disturbing activities and identifies a suite of mitigation measures that will reduce all cultural and tribal cultural impacts to levels of insignificance.

As described in IS/MND Section 3 (Project Description) new construction will take place in order to build the Newberry Springs Series Capacitor (3.3 acres) and the Ludlow Series Capacitor (3.2 acres) and associated infrastructure. Other project activities would include the replacement of approximately 232 miles of existing overhead ground wire (OHGW) with an optical ground wire (OPGW), the strengthening of 60 of the existing 855 lattice steel towers to accommodate the OPGW, the installation of three fiber optic repeater facilities in existing ROW, the installation of new 12 kV wooden distribution poles, and alternations at 16 tower with conductor span ground clearance issues. At these 16 sites, 9 would involve lifting the tower and inserting a new midsection, 3 would involve minor grading to meet clearance requirements, and 4 would require conductor modifications or reframing (lowering of lines passing under the 500 kV lines). Other than the capacitor and repeater facility construction, the potential ground disturbing activities would mostly be associated with equipment and supply laydown areas and the movement of vehicles across the landscape as part of line stringing. Most ground disturbing project activities would be short term and temporary and take place on existing access roads and previously disturbed areas.

Section 5.5.6 Cultural Resources identifies the cultural resources that could be affected by ground disturbance and makes clear that the preferred mitigation strategy is avoidance of cultural resources. The IS/MND identifies six mitigation measures (Mitigation Measures CR-1 through CR-6) to address potential impacts and to ensure that impacts do not occur or are reduced to a less than significant

level. Among these measures is the development and implementation of a Cultural Resources Management Plan (CRMP) required by Mitigation Measure CR-3. The CRMP Mitigation Measure spells out in detail the content of the plan to be developed and implemented by SCE. The CRMP is subject to review by the CPUC and consulting tribes (now including CRIT), and to approval by the CPUC. CRMPs are frequently and reliably used to spell out responsibilities and how resources will be protected.

Overall, the potential for direct impacts to cultural resources as a result of ground disturbing activities is considered relatively minor and is analogous to operations and maintenance activities that are ongoing on the existing facilities. Mitigation Measure CR-5 (Avoidance of cultural and tribal cultural resources) reflects this low potential for impacts in the requirement for Archaeological and Tribal Monitors to be present during ground disturbing activities within 100 feet of prehistoric and protohistoric resources which will allow all of these resources to be successfully avoided. In sum, the IS/MND adequately describes the potential effects of the project's ground disturbing activities and demonstrates that all potential impacts will be avoided or reduced to levels of insignificance. The commenter does not provided any substantial evidence to the contrary.

The commenter requests clarification of the potential impacts to cultural resources as a result of the alternative excavation method, horizontal directional drilling, that may be used if required.

Mitigation Measure CR-3 (Prepare and implement a Cultural Resources Management Plan) requires that the CRMP specify the particular avoidance measures that will be used and when and where they will be implemented. Therefore, the CRMP will address the use of horizontal directional drilling specifically. However, in general, when horizontal directional drilling is selected as an excavation method, only the entry and exit pits would have the potential to directly impact sensitive cultural resources. Cultural resources specialists would assist excavators to place the entry and exit pits well outside the boundaries of known cultural resources and ensure that the depth of the horizontal drilling would be sufficient to avoid the buried components of archaeological sites if appropriate.

The commenter requests that tribal monitoring be required for any and all activity within the project given that the project is encompassed by a cultural landscape/Tribal Cultural Resource, the Mojave Trails Landscape.

The commenter is correct that the CPUC considers the project to be encompassed by the Mojave Trails Landscape. Monitoring for the ELM Project, as agreed to during government-to-government consultation and included in the IS/MND's mitigation measures, is focused upon ensuring avoidance of the artifacts and features that are physical components of this landscape. However, the commenter does not indicate how the presence of tribal monitors during project activities that are not near sensitive artifacts and features would address potential impacts to the Mojave Trails Landscape.

The commenter states that CRIT strongly opposes collection and curation of cultural resources, encourages the CPUC to adopt an explicit preference for reburial in the presence of tribal monitors, and requests that the ELM Project mitigation measures be revised to require in-situ or on-site reburial if avoidance of cultural resources is not possible.

The CPUC and the IS/MND mitigation measures in no way foreclose in-situ and on-site reburial of cultural resources. This is reflected in the text of MM CR-3 (Prepare and implement a Cultural Resources Management Plan): "The decision-making process for identifying which artifacts are curated or reburied, where they are reburied and the individuals, including tribal participants, making these decisions shall be described." This measure envisions case-by-case decisions, including tribal participation, regarding the appropriate treatment of cultural resources that may be encountered where the CPUC has decision-making authority on state- and privately-owned land.

The commenter requests that the mitigation measures be revised to require avoidance of all newly discovered cultural resources, including through project modification.

No such revisions are needed because, as described in MM CR-4 (Inadvertent discovery of cultural or tribal cultural resources), if resources are identified during project implementation, they will be avoided when feasible.

The commenter requests that the mitigation measures be revised to require SCE to contract with Tribes to provide monitors for this mitigation effort.

Again, no such revisions are needed as these requirements are already incorporated into MM CR-3 (Prepare and implement a Cultural Resources Management Plan), which specifies that "Tribal Monitors shall be retained to monitor ground disturbing activities."

The commenter questions whether cultural resources surveys of the project area have been completed.

As described in Section 5.5.5 (Cultural Resources – Methodology- Archaeological Inventory), one hundred percent of the direct APE was inventoried.

The commenter requests that the tribes that will have the opportunity to review and comment on the CRMP include any tribes that are traditionally or cultural affiliated with the project site.

These requirements are already incorporated into Mitigation Measure CR-3 (Prepare and implement a Cultural Resources Management Plan), which specifies that: "The CPUC will submit the CRMP to representatives of consulting tribes for a 30-day review and comment period prior to approving the CRMP." The tribes that formally consult on the ELM Project are traditionally or cultural affiliated with the Project Area will be provided an opportunity to review and comment on the CRMP.

The commenter questions whether sensitivity training videos provided by participating tribes will be effective in educating staff about appropriate work practices and respect for tribal cultural resources.

Mitigation Measure CR-2 (Cultural resources environmental awareness training) requires that project personnel are trained about appropriate work practices, including those regarding to cultural resources and tribal cultural resources. The use of a video format allows participating tribes to choose their own words for explaining why these resources are important and for each worker to hear this explanation from a tribal member. A video format for worker training is used because there may be weekly changes in project staff and it is impractical to conduct such frequent and unpredictably timed training using in-person training staff. After the initial training of crews, monitors, and others, subsequent training may be required at irregular intervals for a single person or a small group. A pre-recorded and vetted training presentation ensures that all topics are fully covered.

The commenter requests that the sensitivity training required in MM CUL-2 be required for anyone who works at the site.

These requirements are already incorporated into Mitigation Measure CR-2 (Cultural resources environmental awareness training) which specifies that: "Training shall be required for all personnel before they begin work on a project site and repeated as needed for all new personnel before they begin work on the Project."

C1-4 **The commenter addresses visual impacts and objects to the determination that the project will have no significant impact on visual resources. The commenter disputes this characterization and requests a "fuller analysis" of the visual effects of the project on the surrounding landscape, asserting that the IS/MND analysis fails to consider the importance of the surrounding viewshed to the Tribes. The commenter's concern is focused on potential effects on Avi Kwame (Spirit Mountain), and the commenter requests that effects on views of and from Spirit Mountain be analyzed.**

The commenter does not provide evidence of a significant aesthetic impact or that the project's mitigation measures will not reduce all potential aesthetic impacts to levels of insignificance.

Based on this comment, the CPUC reviewed the location of Spirit Mountain relative to project components and their visibility. At its nearest, the existing Eldorado-Mohave 500 kV Transmission Line is approximately 6 miles west of Spirit Mountain. The existing overhead ground wire (OHGW) on this transmission line would be replaced with optical ground wire (OPGW), which is slightly greater in diameter than the existing OHGW but otherwise indistinguishable. At 6 miles, there would be no discernable visible change. One lattice steel tower on the Eldorado-Mohave 500 kV Transmission Line would be raised to address ground clearance issues. This tower would be raised 18.5 feet or less; it is nearly 8 miles from Spirit Mountain. At this distance, the change in height would be indistinguishable from existing conditions. Mohave Substation is over 11 miles southeast of Spirit Mountain and near Laughlin, NV, which has numerous mid-rise and high-rise buildings along the Colorado River. The substation is visible from some locations on the east side of the mountain. Changes at Mohave Substation include replacement of some existing equipment and installation of new equipment within the existing fence. At 11 miles and given the existing built condition of the substation and the nearby built urban conditions, changes within the substation would be indistinguishable as seen from Spirit Mountain.

In the Mojave National Preserve, two fiber optic repeater facilities are proposed in the Lugo-Mohave 500 kV Transmission Line ROW. These are low profile facilities within the ROW and would be adjacent to existing lattice steel towers. Neither site is visible from Spirit Mountain. The Lanfair repeater site is approximately 29 miles southwest of Spirit Mountain near Lanfair Road. The Kelbaker repeater site is approximately 56 miles southwest of Spirit Mountain near Kelbaker Road. Each site would house a small one-story prefabricated structure and a propane tank. The fenced area for each site would be approximately 0.1 acre. As required by Mitigation Measure AES-1 (Minimize visual contrast in project design), the building surfaces would be required to be in colors that harmonize with the surroundings. The facilities would be on the Mojave National Preserve and the colors would be approved by the National Park Service based on the NPS's color palette for facilities in this area.

For persons near the facilities, the repeater facilities would be consistent with the existing 'industrial' character at their locations, which include an existing natural gas pipeline, a 500 kV transmission line with lattice steel towers, an unpaved access road serving the pipeline and transmission line, and nearby paved public roads abutted by electric distribution lines supported on wooden poles. An existing above-ground SoCalGas gas handling facility is approximately 0.2 miles west of the Kelbaker site. The IS/MND concludes that with appropriate coloration of the low-profile repeater buildings, the visual impact would be less than significant. The same is true for the Barstow repeater site, which is 130 miles west of Spirit Mountain within the existing Lugo-Mohave transmission line ROW and adjacent to the Eldorado-Lugo transmission line in an area of scattered rural residential and agricultural buildings near Haynes Road and Barstow Road (Route 247).

The two proposed series capacitor facilities would be approximately 95 miles west of Spirit Mountain, and not visible from there. These sites are in an area with existing underground and above ground infrastructure. Their locations are approximately 0.6 miles north of I-40, within the existing Eldorado-Lugo and Lugo-Mohave transmission line ROWs which are approximately 1.3 miles apart at this location. The vicinity also includes the existing Pisgah Substation, the two 500 kV transmission lines, two 220 kV transmission lines, distribution lines, a cell tower, the BNSF railway, a storage tank, paved and unpaved roads, and several gas pipelines. A large open mining area is less than 4 miles to the southwest of the sites. Due to the location of the proposed facilities within existing ROWs with existing LSTs and conductors, and the presence of other 'industrial' facilities in the vicinity, the proposed facility is consistent with the existing visual character of the surrounding landscape.

C1-5 **The commenter points out that the IS/MND references a Table 5.21-2 (Cumulative Projects 1 to 5 Miles from the Proposed Project), which is not included in the IS/MND.**

The commenter is correct. Originally, two tables were developed, one for projects within 1 mile and one for projects 1 to 5 miles from the Proposed Project. The tables were combined into a single table (Table 5.21-1) to include all projects 0 to 5 miles from the Proposed Project. The reference to Table 5.21-2 is removed from Draft IS/MND page 5-400, which now reads:

> *Projects used in the cumulative impact analysis are listed in Table 5.21-1, ~~Cumulative Projects within 1 Mile of the Proposed Project, and Table 5.21-2,~~ Cumulative Projects 1 to 5 Miles from the Proposed Project. The approximate locations of all the projects are shown on Figure 5.21-1, Planned and Proposed Projects within 5 Miles of the Proposed Project.*

The commenter contends that the IS/MND fails to consider cumulative impacts in the project area.

The CPUC disagrees. CEQA Guidelines section 15130 discusses cumulative impacts and states that discussion of cumulative impacts of a project need not consider the effect significant if the incremental effect is not "cumulatively considerable." CEQA Guidelines Section 15130 notes that "When the combined cumulative impact associated with the project's incremental effect and the effects of other projects is not significant, the EIR shall briefly indicate why the cumulative impact is not significant and is not discussed in further detail in the EIR." This means that in order to address cumulative impacts, the CEQA review must first consider (a) the impacts of the project, (b) the impacts of the cumulative projects, and (c) whether the impacts of the project would combine with those of the cumulative projects to result in a significant impact. If they could not, then this should be briefly explained. If the combined impacts could result in a significant impact, then the analysis should consider the incremental effect of the Proposed Project and whether it is "cumulatively considerable". The IS/MND complies with these requirements. It first considers what the impacts of the project are and then considers what the impacts of any cumulative projects that could combine with the Proposed Project are and demonstrates that there is no evidence of any potentially significant cumulative impacts from the combination of project and cumulative activities.

The commenter notes that the two series capacitor sites and three fiber optic repeater sites were the primary focus of the cumulative cultural impact analysis, and that these are dispersed along more than 235 miles of transmission line.

The commenter is correct that these sites where new construction would occur were the focus of the cumulative impact analysis. This is reasonable and appropriate because the other project elements (raising 9 out of over 800 existing towers and replacing existing OHGW with new OPGW) would have minor to no discernible impact that would combine with the impacts of cumulative projects and, therefore, were not discussed.

The cumulative analysis looked at what projects would be near enough to the two series capacitor sites and three fiber optic repeater sites to have the potential to combine into a cumulatively considerable impact. Because no proposed or foreseeable projects were identified within 5 miles of the two series capacitor sites or the two repeater sites on the Mojave National Preserve, these features of the Proposed Project were not identified as contributors to a potentially significant cumulative impact.

One cumulative project was identified near the Barstow repeater site - the Ord Mountain Solar Energy Storage Project. That proposed new photovoltaic project would occupy approximately 484 acres and would be adjacent to a new 75-acre substation. The EIR for that project concluded that the impacts to cultural resources and tribal cultural resources would be less than significant with mitigation incorporated. SCE's proposed Barstow fiber optic repeater site would be nearby on 0.13 acres situated within the ROW near an existing transmission tower. These two projects would have the potential to

result in a cumulatively significant impact, so the contribution of the ELM Project's Barstow repeater was considered further. After additional review, it was justifiably concluded that the contribution of the ELM Project to the potentially significant cumulative impacts was less than cumulatively considerable because of the repeater's size and location, and the mitigation measures applicable to the ELM Project reduced its impacts.

The commenter asserts that the cumulative impacts to tribal cultural resources, particularly to the Mojave Trails Landscape, are not sufficiently described, and as such is insufficient.

Additional text has been added to Draft IS/MND page 5-419 which now reads:

> *Those portions of the Mojave Trails Landscape that overlap with the CEQA Areas of Direct and Indirect Impacts were analyzed for direct and indirect effects. The ELM Project was found to have no direct impacts to the Mojave Trails Landscape with mitigation because it would avoid and protect the resources that contribute to the landscape. Similarly, the ELM Project reviewed the indirect impacts of the project on the Mojave Trails Landscape and concluded that the contribution of the project would be minor because similar industrial infrastructure already exists within the viewshed of the Landscape and the resource would not be subject to impacts from the ELM Project. Because the ELM Project would not contribute to direct or indirect impacts on the Mojave Trails Landscape, it would not have impacts that could combine with the cumulative impacts to this landscape. The cumulative effect of the ELM Project in combination with effects from projects in the cumulative scenario ~~are similar to those discussed for Cultural Resources (see previous discussion). The cumulative impacts~~ would be less than considerable.*

C1-6 **The commenter asserts that the Draft IS/MND fails to address growth-inducing impacts and the environmental effects of future generation facilities.**

Please see Response to Comment B2-8. The analysis recognizes that generation facilities, including "future generation facilities" not yet built but planned, may use the Proposed Project to transmit electricity (Draft IS/MND page 3-4, Section 3.2.3). The consideration of growth-inducing impacts appears in: Section 5.3, Air Quality; Section 5.14, Population and Housing; Section 5.15, Public Services; Section 5.16, Recreation; and Section 5.17, Transportation.

The impact analysis for Energy in Section 5.6.6 (Draft IS/MND page 5-157) points to prior CAISO approvals for the Proposed Project as a way of providing deliverability of renewable resources, including certain specific generation facilities and also renewable resource portfolios of generic generating capacity in broad geographic zones. The future generation facilities: (i) are speculative; (ii) are not the result of, or made more likely by, the Proposed Project; and (iii) will themselves be subject to full CEQA and NEPA review processes (Draft IS/MND page 3-4, Section 3.2.3). It would be speculative to define the resources that may eventually use the Proposed Project because they could include specific proposed generation projects seeking to interconnect or other resources fitting the location and size characteristics of the portfolios developed by the CPUC and CEC for the annual CAISO Transmission Plan. Accordingly, the Draft IS/MND reasonably and appropriately finds that the environmental effects of future generation facilities would not be direct or indirect effects of the Proposed Project because such facilities are speculative and are not the result of, or made more likely by, the Proposed Project (Draft IS/MND page 3-4, Section 3.2.3). No additional analysis is necessary.

C1-7 **The commenter requests a written response to comments, formal consultation on both the project and the CRMP, and for the CPUC to copy certain individuals on all correspondence.**

The CPUC includes written responses to comments as part of the Final IS/MND; it does not provide comment responses directly to commenters. See response C1-2 regarding consultation. The individuals named in the comment will be copied on correspondence and will receive notice of the publication of the Final IS/MND.

C1-8 **The commenter attached two exhibits to the comment letter, a copy of the CRIT government-to-government policy, which appears to be an internal CRIT document guiding consultation with the United States, and a copy of CRIT correspondence with SCE dated July 20, 2017.**

These attachments are acknowledged. No action or further response is necessary or required.

Comment Set D1 – Southern California Edison

SOUTHERN CALIFORNIA EDISON®
An EDISON INTERNATIONAL® Company

September 13, 2019

Email Only
Ms. Billie Blanchard
California Public Utilities Commission
c/o Aspen Environmental Group
235 Montgomery Street, Suite 640
San Francisco, CA 94104-2920

Re: Southern California Edison's Comments to the Draft Mitigation Negative Declaration on the Eldorado-Lugo-Mohave Series Capacitor Project (A.18-05-007)

Dear Ms. Blanchard,

Thank you for the opportunity to comment on the above referenced Draft MND. The accompanying document contains the comments of Southern California Edison Co. ("SCE") on the Draft Mitigated Negative Declaration ("MND") for the Eldorado-Lugo-Mohave Series Capacitor Project ("Proposed Project").

On behalf of SCE, the proponent of the Proposed Project, SCE appreciates the time and effort of the CPUC and its consultant Aspen Environmental Group in analyzing the Proposed Project and developing the Draft MND.

SCE comments may include proposed revisions to the MND which are shown with underlined text or deletions which are shown with stricken text.

SCE looks forward to the CPUC's preparation of the Final MND and consideration of approval of the Proposed Project. Should you have any questions concerning these comments, please contact me at (626) 302-1164.

Sincerely

Thomas E. Diaz
Regulatory Affairs Senior Advisor
Southern California Edison

cc: (w/enclosure)
Fritts Golden (Aspen)
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Comment Set D1 – Southern California Edison (cont.)

#	MND Section	Page No.	Current MND Description	Proposed Revision	Rationale	
1.	1.1	1-1	Maintain system reliability within the Los Angeles Basin as well as the entire California Independent System Operator (CAISO) grid, which is defined as the Electrical Needs Area (ENA).	No change is proposed to this text. Instead, SCE suggests providing a footnote to define "Los Angeles Basin": The Los Angeles Basin, in the context of transmission facilities, consists of SCE-owned 500 kV and 220 kV facilities that serve major metropolitan areas in Orange, Riverside, San Bernardino, Los Angeles, Ventura, and Santa Barbara Counties.	Someone reading "Los Angeles Basin" for the first time may mistakenly assume Los Angeles County or the City of Los Angeles was being referred to. The added definition more fully defines "Los Angeles Basin." This definition is taken from SCE's previously filed Proponents Environmental Assessment (PEA), Chapter 1, Section 1.2 at page 1-3.	D1-1
2.	1.1	1-2	N/A; added additional bullets.	SCE recommends that the following project objectives be added to this section. – Ensure compliance with all applicable reliability planning criteria required by the North American Electric Reliability Corporation, Western Electricity Coordinating Council, and California Independent System Operator (CAISO). – Integrate planned generation resources in order for those facilities to become fully deliverable. – Meet the requirements of existing Interconnection Agreements that require the Proposed Project to achieve FCDS for generation facilities. – Meet Proposed Project needs while minimizing environmental impacts. – Design and construct the Proposed Project in conformance with SCE's approved engineering, design, and construction standards for substation, transmission, subtransmission, and distribution system projects.	These inserted project objectives were missing from the full list of project objectives in Section 1.1 but are fully listed in Chapter 4 at page 4-7. These missing project objectives are also found in SCE's PTC application at page 5 filed in May 2018.	D1-2

Comment Set D1 – Southern California Edison (cont.)

#	MND Section	Page No.	Current MND Description	Proposed Revision	Rationale	
3.	1.3	1-3	Install approximately 2 miles of overhead and 500 feet of underground telecommunications facilities as one path to connect the proposed series capacitors to SCE's existing communication system.	Install approximately 2 miles of overhead and ~~500~~ 700 feet of underground telecommunications facilities as one path to connect the proposed series capacitors to SCE's existing communication system.	Proposed SCE telecommunication design for underground facilities calls for approximately 700 feet.	D1-3
4.	1.3	1-3	Relocating, replacing, or modifying existing transmission, subtransmission, and distribution facilities at approximately 12 locations along the Eldorado-Lugo, Eldorado-Mohave, and Lugo-Mohave 500 kV Transmission Lines to address 14 of the overhead clearance discrepancies. Tower modifications would include raising 9 towers approximately 18.5 feet by inserting new lattice-steel sections in tower bodies.	Relocating, replacing, or modifying existing transmission, subtransmission, and distribution facilities at approximately 12 locations along the Eldorado-Lugo, Eldorado-Mohave, and Lugo-Mohave 500 kV Transmission Lines to address 14 of the overhead clearance discrepancies. Tower modifications would include raising 9 towers up to approximately 18.5 feet by inserting new lattice-steel sections in tower bodies.	Suggested edits were made to indicate there may be varying tower height modifications.	D1-4
5.	1.3	1-3	Install approximately 235 miles of optical ground wire (OPGW) (approximately 59 miles on the Eldorado- Mohave Transmission Line and approximately 173 miles on the Lugo-Mohave Transmission Line, including approximately 3 miles of underground telecommunications facilities in the vicinity of the Mohave Substation).	Install approximately ~~235~~ 232 miles of optical ground wire (OPGW) (approximately 59 miles on the Eldorado- Mohave Transmission Line and approximately 173 miles on the Lugo-Mohave Transmission Line, and ~~including~~ approximately 3 miles of underground telecommunications facilities in the vicinity of the Mohave Substation).	The 3 miles of underground telecommunication facilities are not OPGW and will be installed in an underground duct bank system.	D1-5
6.	3.1	3-1	Transmission Lines to address 14 of the overhead clearance discrepancies. Tower modifications would include raising 9 towers approximately 18.5 feet by inserting new lattice-steel sections in tower bodies	Transmission Lines to address 14 of the overhead clearance discrepancies. Tower modifications would include raising 9 towers up to approximately 18.5 feet by inserting new lattice-steel sections in tower bodies	Suggested edits were made to indicate there may be varying tower height modifications.	D1-6

Comment Set D1 – Southern California Edison (cont.)

#	MND Section	Page No.	Current MND Description	Proposed Revision	Rationale	
7.	4.1.8	4-2	Relocating, replacing, or modifying existing transmission, subtransmission, and distribution facilities at approximately 12 locations along the Eldorado-Lugo, Eldorado-Mohave, and Lugo-Mohave 500 kV Transmission Lines to address 14 of the overhead clearance discrepancies. Tower modifications would include raising 9 towers approximately 18.5 feet by inserting new lattice-steel sections in tower bodies.	Relocating, replacing, or modifying existing transmission, subtransmission, and distribution facilities at approximately 12 locations along the Eldorado-Lugo, Eldorado-Mohave, and Lugo-Mohave 500 kV Transmission Lines to address 14 of the overhead clearance discrepancies. Tower modifications would include raising 9 towers <u>up to</u> approximately 18.5 feet by inserting new lattice-steel sections in tower bodies.	Suggested edits were made to indicate there may be varying tower height modifications.	D1-7
8.	4.5.1.4	4-15	Install 3 fiber optic repeater facilities in the existing Lugo-Mohave 500 kV Transmission Line ROW. Two of these facilities would be within chain-link-fenced areas measuring approximately 70 feet by 35 feet, and one facility would be within a fenced area measuring approximately 101 feet by 57 feet. Access to Kelbaker and Lanfair repeater sites would be by way of approximately 80 -foot long new access road. (Figure 4-2, Sheets 2, 5, and 7; and Figures 4-6, 4-7, and 4-8) The repeater facilities would consist of: – Pre-fabricated building – Communication manhole – Distribution manhole – Emergency generator – Aboveground propane fuel tank surrounded by a block wall – Underground telecommunications facilities – Access road from existing transmission line access road to repeater site (at Kelbaker and Lanfair only)	Install 3 fiber optic repeater facilities in the existing Lugo-Mohave 500 kV Transmission Line ROW. Two of these facilities would be within chain-link-fenced areas measuring approximately 70 feet by 35 feet, and one facility would be within a fenced area measuring approximately 101 feet by 57 feet. Access to Kelbaker and Lanfair repeater sites would be by way of approximately 80 -foot long new access road. (Figure 4-2, Sheets 2, 5, and 7; and Figures 4-6, 4-7, and 4-8) The repeater facilities would consist of: – Pre-fabricated building – Communication manhole – Distribution manhole – Emergency generator – Aboveground propane fuel tank surrounded by a block wall – Underground telecommunications facilities – Access road from existing transmission line access road to repeater site ~~(at Kelbaker and Lanfair only)~~	There is a slight extension of access road at the Barstow repeater site as well. Suggested edits would not limit the access road description to just the Kelbaker and Lanfair repeater sites.	D1-8

Comment Set D1 – Southern California Edison (cont.)

#	MND Section	Page No.	Current MND Description	Proposed Revision	Rationale	
9.	4.7.7	4-47	Land disturbance includes all areas affected by construction of the Proposed Project. Approximately 378.1 acres of land would be disturbed. Total permanent land disturbance for the Proposed Project would be approximately 7.0 acres. The balance of the land disturbed by project activities (371.1 acres) includes 125.5 acres of previously disturbed land and 245.6 acres of undisturbed land that would be restored after construction. The estimated amount of land disturbance for each Proposed Project component is summarized in Table 4-15, Proposed Project Estimated Land Disturbance.	Land disturbance includes all areas affected by construction of the Proposed Project. Approximately ~~378.1~~ 380.4 acres of land would be disturbed. Total permanent land disturbance for the Proposed Project would be approximately 7.0 acres. The balance of the land disturbed by project activities (~~371.1~~ 373.5 acres) includes ~~125.5~~ 126.2 acres of previously disturbed land and ~~245.6~~ 247.3 acres of undisturbed land that would be restored after construction. The estimated amount of land disturbance for each Proposed Project component is summarized in Table 4-15, Proposed Project Estimated Land Disturbance.	Revised disturbance amounts reflect design changes to address tribal concerns expressed during recent on-site visits with Native American tribes, CPUC and BLM.	D1-9
10.	4.7.7 Table 4-15	4-49	See Table 4-15, Proposed Project Estimated Land Disturbance.	For a detailed summary of the land disturbance acreage totals revised in #9 directly above, please see Attachment 1: Table 4-15, Proposed Project Estimated Land Disturbance.	Revised disturbance amounts reflect design changes to address tribal concerns expressed during recent on-site visits with Native American tribes, CPUC and BLM.	D1-10
11.	5.3 MM AQ-1	5-59	Prepare and implement a Dust Control Plan. SCE shall avoid visible fugitive dust emissions by implementing the following dust control measures derived from MDAQMD Rule 403.2. Prior to commencing earth-moving activity, SCE shall prepare and submit to the MDAQMD, Clark County DAQ, CPUC, BLM and NPS a Dust Control Plan that describes all dust control measures that will be implemented for the project, including, but not limited to:	Prepare and implement a Dust Control Plan. SCE shall ~~avoid~~ minimize visible fugitive dust emissions by implementing the following dust control measures derived from MDAQMD Rule 403.2. Prior to commencing earth-moving activity, SCE shall prepare and submit to the MDAQMD, Clark County DAQ, CPUC, BLM and NPS a Dust Control Plan that describes all dust control measures that will be implemented for the project, including, but not limited to:	Suggested edit is consistent with purpose of mitigation measure to reduce impacts to less than significant as it would be impossible to avoid all visible emissions.	D1-11
12.	5.4.1	5-67	An additional nine special-status wildlife species were not observed in surveys but are likely to occur within or immediately adjacent to the Proposed Project footprint. Summary descriptions	An additional ~~nine~~ eleven special-status wildlife species were not observed in surveys but are likely to occur within or immediately adjacent to the Proposed Project footprint. Summary	Revised to match the number and description of species.	D1-12

Comment Set D1 – Southern California Edison (cont.)

#	MND Section	Page No.	Current MND Description	Proposed Revision	Rationale	
			of each of the following species are presented in MND Appendix D: - Banded Gila monster - Desert rosy boa - Mojave fringe-toed lizard - Loggerhead shrike - Bendire's thrasher - Golden eagle - Western burrowing owl - Pallid bat - American badger - Desert kit fox	descriptions of each of the following species are presented in MND Appendix D: - Banded Gila monster - Desert rosy boa - Mojave fringe-toed lizard - Loggerhead shrike - Bendire's thrasher - Golden eagle - Western burrowing owl - Pallid bat - American badger - Ringtail - Desert kit fox		D1-12 cont.
13.	5.7	5-159	b. Result in substantial soil erosion or the loss of topsoil?	Uncheck the Less Than Significant Impact box.	Only the Less than Significant with Mitigation box should be checked. See highlighted area in table below.	D1-13
14.	5.7	5-159	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 waste water?	Uncheck the Less Than Significant Impact box and check the No Impact box.	The No Impact box should be checked. See highlighted areas in table below.	D1-14

Comment Set D1 – Southern California Edison (cont.)

D1-15

#	MND Section	Page No.	Current MND Description	Proposed Revision	Rationale
			5.7 Geology and Soils		
15.	5.7	5-188	LESS THAN SIGNIFICANT. Proposed Project operation and maintenance activities would be incorporated into the existing Operation and Maintenance schedule for the existing transmission lines, substations, and associated facilities. Operation and Maintenance of the Proposed Project would not involve the use of a septic tank or alternative wastewater disposal system, as Operation and Maintenance of the	NO IMPACT. ~~LESS THAN SIGNIFICANT.~~ Proposed Project operation and maintenance activities would be incorporated into the existing Operation and Maintenance schedule for the existing transmission lines, substations, and associated facilities. Operation and Maintenance of the Proposed Project would not involve the use of a septic tank or alternative wastewater disposal system, as Operation and Maintenance of the	Summary heading revised to match conclusions in this paragraph.

GEOLOGY AND SOILS Would the project:	Potentially Significant Impact	Less Than Significant 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? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☒	☐
ii) Strong seismic ground shaking?	☐	☐	☒	☐
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐
iv) Landslides?	☐	☐	☒	☐
b. Result in substantial soil erosion or the loss of topsoil?	☐	☒	☒	☐
c. Be located on geologic units or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?	☐	☐	☒	☐
d. Be located on expansive soil, as defined in the 2016 California Building Code (CBC),[1] 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 waste water?	☐	☐	☒	☐
f. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☒	☐	☐

Comment Set D1 – Southern California Edison (cont.)

#	MND Section	Page No.	Current MND Description	Proposed Revision	Rationale	
			Proposed Project is not anticipated to generate wastewater (SCE, 2018). As a result, no impact would occur.	Proposed Project is not anticipated to generate wastewater (SCE, 2018). As a result, no impact would occur.		D1-15 cont.

Comment Set D1 – Southern California Edison (cont.)

Table 4-15. Proposed Project Estimated Land Disturbance

Proposed Project Feature	Quantity	Total Approximate Area Disturbed during Construction (acres)	Approximate Area Previously Disturbed (acres)	Approximate Area to be Restored (acres)	Approximate Area Permanently Disturbed (acres)
Mid-Line Series Capacitors					
Newberry Springs Series Capacitor	1	3.8	0.0	0.6	3.2
Ludlow Series Capacitor	1	4.0	0.0	1.5	2.5
Total Estimate for Mid-Line Series Capacitors		7.7	0.0	2.1	5.6
Transmission					
Guard Structures	92	7.4	0.0	7.4	0.0
Pull and Tension Sites	198	~~58.3~~ 58.1	0.0	~~58.1~~ 57.9	0.2
Discrepancy Work Areas	14	3.6	3.5	0.1	0.0
OPGW/Tower Work	92	20.8	20.6	0.2	0.0
Total Estimated for Transmission		~~90.2~~ 89.9	24.1	~~65.9~~ 65.6	0.2
Subtransmission					
Discrepancy Work Area	1	1.7	0.0	1.7	0.0
Total Estimated for Subtransmission		1.7	0.0	1.7	0.0
Distribution					
Mid-Line Series Capacitor Work Areas (includes Joint Distribution/ Telecommunications Route between Capacitors)	4	~~21.2~~ 20.8	0.0	~~21.2~~ 20.8	0.0
Fiber Optic Repeater Work Areas	3	2.7	0.0	2.7	0.0
Infraction Work Area	1	0.1	0.0	0.1	0.0
Total Estimated for Distribution		~~23.9~~ 23.6	0.0	~~23.9~~ 23.6	0.0
Telecommunications					
Fiber Optic Repeaters	3	0.2	0.0	0.0	0.2
Telecommunications Work Areas (Mohave Substation, Mid-Line Series Capacitors, Fiber Optic Repeaters, and Pull and Tension Sites)	38	32.0	0.9	31.1	0.0
Total Estimated for Telecommunications		32.2	0.9	31.1	0.2
Substations					
Lugo Substation	1	~~22.9~~ 23.0	~~22.9~~ 23.0	0.0	0.0
Mohave Substation	1	21.5	21.5	0.0	0.0
Eldorado Substation	1	11.0	11.0	0.0	0.0
McCullough Substation	5	0.4	0.4	0.0	0.0
Total Estimated for Substations[1]		~~55.8~~ 55.9	~~55.8~~ 55.9	0.0	0.0

D1-16

Comment Set D1 – Southern California Edison (cont.)

Table 4-15. Proposed Project Estimated Land Disturbance

Staging Areas					
Staging Areas	17	~~98.3~~ 99.5	34.4	~~63.9~~ 65.1	0.0
Landing Zones	201	~~50.0~~ 51.4	~~0.1~~ 0.7	~~49.9~~ 50.7	0.0
Parking Areas	4	15.5	9.8	5.7	0.0
Total Estimated for Staging Areas		~~163.8~~ 166.4	~~44.3~~ 45.0	~~119.4~~ 121.4	0.0
Access Roads and/or Spur Roads					
Access Roads and/or Spur Roads	11	1.4	0.3	0.2	0.9
Footpaths	40	1.6	0.0	1.6	0.0
Total Area Estimated for Access Roads and/or Spur Roads and Footpaths		3.0	0.3	1.8	0.9
Total Estimated for Proposed Project		~~378.1~~ 380.4	~~125.5~~ 126.2	~~245.6~~ 247.3	7.0

D1-16 cont.

Responses to Comment Set D1 – Southern California Edison

D1-1 **SCE recommends inclusion of a footnote to define "Los Angeles Basin."**

The text at Draft MND page 1-1 has been modified to read:

> *Maintain system reliability of SCE transmission facilities within the Los Angeles Basin (metropolitan Orange, Riverside, San Bernardino, Los Angeles, Ventura, and Santa Barbara Counties) as well as the entire California Independent System Operator (CAISO) grid, which is defined as the Electrical Needs Area (ENA).*

D1-2 **To be consistent with the list of project objectives in Chapter 4, Project Description, beginning at Draft MND page 4-7, SCE requests the inclusion of objectives that were omitted at Draft MND page 1-2.**

The text has been modified by inserting the missing objectives at the end of the list in Chapter 1:

- *Ensure compliance with all applicable reliability planning criteria required by the North American Electric Reliability Corporation, Western Electricity Coordinating Council, and California Independent System Operator (CAISO).*
- *Integrate planned generation resources in order for those facilities to become fully deliverable.*
- *Meet the requirements of existing Interconnection Agreements that require the Proposed Project to achieve FCDS for generation facilities.*
- *Meet Proposed Project needs while minimizing environmental impacts.*
- *Design and construct the Proposed Project in conformance with SCE's approved engineering, design, and construction standards for substation, transmission, subtransmission, and distribution system projects.*

D1-3 **SCE requests a change in the length of underground telecommunications facilities at Draft MND page 103. The text has been amended as follows**:

- *Provide 2 communication paths between the series capacitor sites.*
  - *Install approximately 2 miles of overhead and ~~500~~ 700 feet of underground telecommunications facilities as one path to connect the proposed series capacitors to SCE's existing communication system.*

D1-4 **SCE requests a text edit to identify that increased heights of towers requiring raising will not exceed an increase of approximately 18.5 feet**.

The text at Draft MND page 1-3 has been modified to read:

> – *Relocating, replacing, or modifying existing transmission, subtransmission, and distribution facilities at approximately 12 locations along the Eldorado-Lugo, Eldorado-Mohave, and Lugo-Mohave 500 kV Transmission Lines to address 14 of the overhead clearance discrepancies. Tower modifications would include raising 9 towers up to approximately 18.5 feet by inserting new lattice-steel sections in tower bodies.*

D1-5 **SCE requests a clarification that 3 miles of transmission facilities is not optical ground wire.**

The text at Draft MND page 1-4 has been modified to read:

- *Install approximately ~~235~~ 232 miles of optical ground wire (OPGW) (approximately 59 miles on the Eldorado-Mohave Transmission Line and approximately 173 miles on the Lugo-Mohave Transmission Line, ~~including~~ and approximately 3 miles of underground telecommunications facilities in the vicinity of the Mohave Substation).*

D1-6 **This comment repeats comment D1-3**.

D1-7 **SCE requests the change to Draft MND page 1-3 noted in comment D1-3 be made as well in Chapter 4, Project Description, Draft MND page 4-2**

This change has been made.

D1-8 **SCE requests a deletion in the description of repeater sites at page 4-15, as a slight extension of the access road at the Barstow repeater will be needed.**

The text has been modified as follows:

The repeater facilities would consist of:

- *Pre-fabricated building*
- *Communication manhole*
- *Distribution manhole*
- *Emergency generator*
- *Aboveground propane fuel tank surrounded by a block wall*
- *Underground telecommunications facilities*
- *Access road from existing transmission line access road to repeater site ~~(at Kelbaker and Lanfair only)~~*

D1-9 **SCE revised disturbed land acreages slightly**.

The text at Draft MND page 4-47 has been edited to show these changes. The text now reads:

Land disturbance includes all areas affected by construction of the Proposed Project. Approximately ~~378.1~~380.4 acres of land would be disturbed. Total permanent land disturbance for the Proposed Project would be approximately 7.0 acres. The balance of the land disturbed by project activities (~~371.1~~373.5 acres) includes ~~125.5~~126.2 acres of previously disturbed land and ~~245.6~~247.3 acres of undisturbed land that would be restored after construction. The estimated amount of land disturbance for each Proposed Project component is summarized in Table 4-15, Proposed Project Estimated Land Disturbance.

D1-10 **SCE references revisions to Table 4-15 provided as an attachment (Comment D1-16) to SCE's comments that shows more detail regarding the changes**.

The table has been modified in the text to indicate the changes. Owing to the size of the table, the changes are not listed here, but are included in Table 4-15, Proposed Project Estimated Land Disturbance, in Chapter 4, Draft MND page 4-49.

D1-11 **SCE recommends a slight change to Mitigation Measure AQ-1 in Section 5.3. Air Quality**.

This change has been made in Section 5.3 and in Chapter 6. Mitigation Monitoring Plan and reads as follows:

Mitigation Measures

AQ-1 ***Prepare and implement a Dust Control Plan.*** *SCE shall ~~avoid~~ minimize visible fugitive dust emissions by implementing the following dust control measures derived from MDAQMD Rule 403.2. …*

D1-12 SCE adds a special-status wildlife species not observed in surveys but likely to occur in the area. The text now reads:

An additional ~~nine~~ eleven special-status wildlife species were not observed in surveys but are likely to occur within or immediately adjacent to the Proposed Project footprint. Summary descriptions of each of the following species are presented in MND Appendix D:

- *Banded Gila monster*
- *Desert rosy boa*
- *Mojave fringe-toed lizard*
- *Loggerhead shrike*
- *Bendire's thrasher*
- *Golden eagle*
- *Western burrowing owl*
- *Pallid bat*
- *American badger*
- *Ringtail*
- *Desert kit fox*

D1-13 **SCE notes that in Section 5.7, Geology and Soils, two of the summary boxes for item b are checked**.

This has been corrected in the text at Draft MND page 5-159.

D1-14 **SCE notes that in Section 5.7, Geology and Soils, the correct summary box for item e is not checked and that the Less than Significant designation for soils related to septic tanks should be No Impact**.

These have been corrected in the text at Draft MND pages 5-159 and 5-188.

D1-15 **This comment illustrates the edits in Comments D1-13 and D1-14.**

D1-16 **The comment is a copy of Table 4-15 with revisions**.

See Comment D1-10.

Appendix A

List of Preparers

Appendix A. List of Preparers

A consultant team headed by Aspen Environmental Group prepared this document under the direction of the California Public Utilities Commission. The preparers and technical reviewers of this document are presented below.

Lead Agency

California Public Utilities Commission, Energy Division

Billie Blanchard, Senior Analyst	Project Manager, Lead Agency Contact

Project Management and Document Preparation

Aspen Environmental Group – Prime Contractor

Susan Lee, Executive Vice President	Principal in Charge, Senior Review, Technical Advisor
Fritts Golden, Senior Associate	Project Manager, Aesthetics, Technical Review
Emily Capello, Senior Associate	Agriculture and Forestry, Mineral Resources, Land Use and Planning, Recreation, Wildfire
Brewster Birdsall, P.E, Senior Associate	Air Quality, Energy, Greenhouse Gas, Noise, Transportation, Utilities and Service Systems, Electric and Magnetic Fields
Jody Fessler, Environmental Scientist	Biological Resources
Scott White, Senior Biologist	Biological Resources
Philip Lowe, P.E, Senior Associate	Hydrology and Water Quality
Melissa Do, Environmental Scientist	Transportation, Population and Housing, Public Services
Beth Bagwell, PhD, RPA, Senior Archaeologist	Cultural Resources, Tribal Cultural Resources
James Allan, PhD, RPA, Cultural Resources Director	Cultural Resources, Tribal Cultural Resources
Mark Tangard, Associate	Document Production
Kati Simpson, Senior Graphic Designer	Graphics
Tracy Popiel, GIS Specialist	GIS/Graphics
Grace Weeks, Associate	Editorial Review and Project Assistant

PhaseLine LLC

Chuck Williams, P.E., Civil Engineer	Electric and Magnetic Fields

Granite Data Solutions

Aurie Patterson, PG, Geologist	Geology and Soils, Hazards and Hazardous Materials

Appendix B

Air Quality/Greenhouse Gas Emissions Data

Eldorado-Lugo-Mohave Series Capacitor Project - SCE
Proponent's Environmental Assessment - Responses to Data Requests
Based on SCE Filename: Q.01 Attachment 1 of 1_ELM_AQ Calc Spreadsheet_20190417 -- transmitted to CPUC 5/1/2019 (abridged to make printable)

Calculation Process

1. Sheets labeled with the prefix "IN" contain data provided by SCE and are project-specific
2. Sheets labeled with the prefix "LU" are look up values that provide emission factors or other constants
3. A table named "Master Impacts" (in unabridged XLS file) holds the annual emissions for each year of construction in each state and for each pollutant
4. The "Emissions Summary" and "GHG Summary" contain rolled up tables summarizing the estimated emissions from "Master Impacts" data
5. The data provided on the "IN" sheets were combined to begin the "Master Impacts" dataset
6. The "LU" sheets were used to collect the appropriate emission factors

Component	Sub Component	Phase	Cmpt_SubCmpt_Phase	California	Nevada	Start Date	End Date	Duration	Working Days	Working Days in 2018	Working Days in 2020	Working Days in 2021	Duration in 2018	Duration in 2020	Duration in 2021	Workforce
Transmission	500 kV	Survey (1)	Transmission - 500 kV - Survey (1)	75	25	5/30/2020	8/29/2021	90	391	0	186	207	0	90	90	8
Transmission	All 500kV	Marshalling Yard (2)	Transmission - All 500kV - Marshalling Yard (2)	75	25	5/30/2020	8/29/2020	91	78	0	79	0	0	79	0	4
Transmission	All 500kV - Moh-Eld	R/W Clearing	Transmission - All 500kV - Moh-Eld - R/W Clearing	0	100	5/30/2020	7/30/2020	60	53	0	54	0	0	54	0	5
Transmission	All 500kV - Moh-Eld	Pull-site preparation	Transmission - All 500kV - Moh-Eld - Pull-site preparation	0	100	5/30/2020	7/30/2020	60	53	0	54	0	0	54	0	5
Transmission	All 500kV - Moh-Eld	Guard Structure Installation (5)	Transmission - All 500kV - Moh-Eld - Guard Structure Installation (5)	0	100	5/30/2020	7/30/2020	137	53	0	54	0	0	54	0	
Transmission	All 500kV - Moh-Eld	Remove OHGW, Install OPGW, Splicing, Peak Mod (14)	Transmission - All 500kV - Moh-Eld - Remove OHGW, Install OPGW, Splicing, Peak Mod (14)	0	100	5/30/2020	7/30/2020	137	53	0	54	0	0	54	0	
Transmission	All 500kV - Moh-Eld	Guard Structure Removal (15)	Transmission - All 500kV - Moh-Eld - Guard Structure Removal (15)	0	100	5/30/2020	7/30/2020	366	53	0	54	0	0	54	0	6
Transmission	All 500kV - Moh-Eld	Restoration (16)	Transmission - All 500kV - Moh-Eld - Restoration (16)	0	100	5/30/2020	7/30/2020	61	53	0	54	0	0	54	0	44
Transmission	All 500kV - Moh-Eld	LST Foundation Reinforcement14	Transmission - All 500kV - Moh-Eld - LST Foundation Reinforcement14	0	100	7/23/2020	7/30/2020	61	6	0	7	0	0	7	0	6
Transmission	All 500kV - Lugo-Moh	R/W Clearing	Transmission - All 500kV - Lugo-Moh - R/W Clearing	95	5	12/14/2020	4/30/2021	61	118	0	16	103	0	16	61	7
Transmission	All 500kV - Lugo-Moh	Pull-site preparation	Transmission - All 500kV - Lugo-Moh - Pull-site preparation	95	5	12/14/2020	4/30/2021	137	118	0	16	103	0	16	103	
Transmission	All 500kV - Lugo-Moh	Guard Structure Installation (5)	Transmission - All 500kV - Lugo-Moh - Guard Structure Installation (5)	95	5	12/14/2020	4/30/2021	137	118	0	16	103	0	16	103	
Transmission	All 500kV - Lugo-Moh	Remove OHGW, Install OPGW, Splicing, Peak Mod (14)	Transmission - All 500kV - Lugo-Moh - Remove OHGW, Install OPGW, Splicing, Peak Mod (14)	95	5	12/14/2020	4/30/2021	137	118	0	16	103	0	16	103	
Transmission	All 500kV - Lugo-Moh	Guard Structure Removal (15)	Transmission - All 500kV - Lugo-Moh - Guard Structure Removal (15)	95	5	12/14/2020	4/30/2021	92	118	0	16	103	0	16	92	5
Transmission	All 500kV - Lugo-Moh	Restoration (16)	Transmission - All 500kV - Lugo-Moh - Restoration (16)	95	5	12/14/2020	4/30/2021	31	118	0	16	103	0	16	31	5
Transmission	All 500kV - Lugo-Moh	Install Underground Fiber	Transmission - All 500kV - Lugo-Moh - Install Underground Fiber	100	0	7/30/2020	10/30/2020	7	79	0	80	0	0	7	0	
Transmission	All 500kV	Overhead Conductor Modifications	Transmission - All 500kV - Overhead Conductor Modifications	100	0	11/29/2020	3/1/2021	366	79	0	29	52	0	29	52	5
Transmission	All 500kV	Fiber Splicing and Termination	Transmission - All 500kV - Fiber Splicing and Termination	75	25	7/30/2020	7/31/2021	10	314	0	133	182	0	10	10	2
Transmission	All 500kV	Wood Pole Modification (6)	Transmission_All 500kV_Wood Pole Modification (6)	75	25	10/30/2020	6/14/2021	10	195	0	54	142	0	10	10	2
Transmission	All 500kV	TSP Removal	Transmission_All 500kV_TSP Removal	100	0	12/30/2020	6/29/2021	60	156	0	2	155	0	2	60	15
Transmission	All 500kV	TSP Foundation Removal	Transmission_All 500kV_TSP Foundation Removal	100	0	12/30/2020	6/29/2021	34	156	0	2	155	0	2	34	15
Transmission	All 500kV	Install TSP Foundations	Transmission_All 500kV_Install TSP Foundations	100	0	12/30/2020	6/29/2021	34	156	0	2	155	0	2	34	5
Transmission	All 500kV	TSP Haul	Transmission_All 500kV_TSP Haul	100	0	12/30/2020	6/29/2021	75	156	0	2	155	0	2	75	4
Transmission	All 500kV	TSP Assembly	Transmission_All 500kV_TSP Assembly	100	0	12/30/2020	6/29/2021	15	156	0	2	155	0	2	15	2
Transmission	All 500kV	TSP Erection	Transmission_All 500kV_TSP Erection	100	0	12/30/2020	6/29/2021	75	156	0	2	155	0	2	75	15
Transmission	All 500kV	Install Trench (17)	Transmission_All 500kV_Install Trench (17)	75	25	11/29/2020	5/30/2021	109	156	0	29	129	0	29	109	15
Substation	ELD Sub-Line Pos	Survey (Phase 1 - Lugo)	Substation - ELD Sub-Line Pos - Survey (Phase 1 - Lugo)	0	100	7/30/2020	8/29/2021	31	339	0	133	207	0	31	31	
Substation	ELD Sub-Line Pos	Survey (Phase 2 - Mohave)	Substation - ELD Sub-Line Pos - Survey (Phase 2 - Mohave)	0	100	5/30/2020	5/30/2021	109	313	0	186	129	0	109	109	5
Substation	ELD Sub-Line Pos	Grading/Civil (Phase 1)	Substation - ELD Sub-Line Pos - Grading/Civil (Phase 1)	0	100	4/30/2021	6/13/2021	150	38	0	0	39	0	0	39	4
Substation	ELD Sub-Line Pos	Electrical (Phase 1)	Substation - ELD Sub-Line Pos - Electrical (Phase 1)	0	100	6/15/2021	7/19/2021	29	30	0	0	30	0	0	29	4
Substation	ELD Sub-Line Pos	Wiring	Substation - ELD Sub-Line Pos - Wiring	0	100	6/15/2021	7/19/2021	15	30	0	0	30	0	0	15	2
Substation	ELD Sub-Line Pos	Testing	Substation - ELD Sub-Line Pos - Testing	0	100	6/15/2021	8/29/2021	70	65	0	0	66	0	0	66	15
Substation	Lugo-Line Pos	Survey	Substation - Lugo-Line Pos - Survey	100	0	12/13/2020	8/29/2021	33	222	0	17	207	0	17	33	15
Substation	Lugo-Line Pos	Grading/Civil	Substation - Lugo-Line Pos - Grading/Civil	100	0	12/30/2020	3/31/2021	33	78	0	2	78	0	2	33	5
Substation	Lugo-Line Pos	Electrical (SC1)	Substation - Lugo-Line Pos - Electrical (SC1)	100	0	4/1/2021	7/19/2021	44	94	0	0	95	0	0	44	4
Substation	Lugo-Line Pos	Electrical (SC4)	Substation - Lugo-Line Pos - Electrical (SC4)	100	0	3/18/2021	4/18/2021	54	27	0	0	28	0	0	28	5
Substation	Lugo-Line Pos	Wiring (SC1)	Substation - Lugo-Line Pos - Wiring (SC1)	100	0	4/1/2021	7/19/2021	75	94	0	0	95	0	0	75	15
Substation	Lugo-Line Pos	Testing (SC1)	Substation - Lugo-Line Pos - Testing (SC1)	100	0	4/1/2021	8/29/2021	62	129	0	0	130	0	0	62	6
Substation	Lugo-Line Pos	Testing (SC4)	Substation - Lugo-Line Pos - Testing (SC4)	100	0	4/18/2021	5/17/2021	64	25	0	0	26	0	0	26	5
Substation	Mohave-Line Pos	Survey (Phase 1 - Eldorado)	Substation - Mohave-Line Pos - Survey (Phase 1 - Eldorado)	0	100	5/30/2020	5/30/2021	89	313	0	186	129	0	89	89	15
Substation	Mohave-Line Pos	Grading/Civil (Phase 1)	Substation - Mohave-Line Pos - Grading/Civil (Phase 1)	0	100	3/1/2021	4/15/2021	46	39	0	0	40	0	0	40	6
Substation	Mohave-Line Pos	Electrical	Substation - Mohave-Line Pos - Electrical	0	100	4/16/2021	5/19/2021	29	29	0	0	30	0	0	29	10
Substation	Mohave-Line Pos	Wiring	Substation - Mohave-Line Pos - Wiring	0	100	4/16/2021	5/19/2021	92	29	0	0	30	0	0	30	
Substation	Mohave-Line Pos	Testing	Substation - Mohave-Line Pos - Testing	0	100	4/16/2021	5/30/2021	124	38	0	0	39	0	0	39	20
Capacitors	Lugo Series Cap- SC1	Demo: Removals, Refurbishing	Capacitors - Lugo Series Cap- SC1 - Demo: Removals, Refurbishing	100	0	12/6/2020	1/29/2021	43	47	0	23	25	0	23	25	10
Capacitors	Lugo Series Cap- SC1	Installations: Equipment, Wiring	Capacitors - Lugo Series Cap- SC1 - Installations: Equipment, Wiring	100	0	12/30/2020	3/15/2021	61	65	0	2	64	0	2	61	5
Capacitors	Lugo Series Cap- SC1	Commissioning: Testing	Capacitors - Lugo Series Cap- SC1 - Commissioning: Testing	100	0	3/1/2021	5/2/2021	75	54	0	0	54	0	0	54	15
Capacitors	Lugo Series Cap- SC4	Demo: Removals, Refurbishing	Capacitors - Lugo Series Cap- SC4 - Demo: Removals, Refurbishing	100	0	12/13/2020	2/15/2021	85	55	0	17	40	0	17	40	10
Capacitors	Lugo Series Cap- SC4	Installations: Equipment, Wiring	Capacitors - Lugo Series Cap- SC4 - Installations: Equipment, Wiring	100	0	1/13/2021	4/12/2021	52	77	0	0	78	0	0	52	12
Capacitors	Lugo Series Cap- SC4	Commissioning: Testing	Capacitors - Lugo Series Cap- SC4 - Commissioning: Testing	100	0	4/1/2021	5/17/2021	101	40	0	0	41	0	0	41	13
Capacitors	Mohave Series Cap- SC6	Demo: Removals, Refurbishing	Capacitors - Mohave Series Cap- SC6 - Demo: Removals, Refurbishing	0	100	5/30/2020	6/28/2020	162	25	0	26	0	0	26	0	14
Capacitors	Mohave Series Cap- SC6	Civil: Grading, Foundations, Below Grade	Capacitors - Mohave Series Cap- SC6 - Civil: Grading, Foundations, Below Grade	0	100	6/29/2020	9/29/2020	31	79	0	80	0	0	31	0	15
Capacitors	Mohave Series Cap- SC6	Installations: Equipment, Wiring	Capacitors - Mohave Series Cap- SC6 - Installations: Equipment, Wiring	0	100	7/28/2020	11/29/2020	69	107	0	108	0	0	69	0	16
Capacitors	Mohave Series Cap- SC6	Commissioning: Testing	Capacitors - Mohave Series Cap- SC6 - Commissioning: Testing	0	100	11/17/2020	12/30/2020	84	37	0	38	0	0	38	0	17
Capacitors	Eldorado Series Cap- SC3	Demo: Removals, Refurbishing	Capacitors - Eldorado Series Cap- SC3 - Demo: Removals, Refurbishing	0	100	5/30/2020	7/30/2020	156	53	0	54	0	0	54	0	18
Capacitors	Eldorado Series Cap- SC3	Installations: Equipment, Wiring	Capacitors - Eldorado Series Cap- SC3 - Installations: Equipment, Wiring	0	100	6/15/2020	8/29/2020	38	65	0	66	0	0	38	0	19
Capacitors	Eldorado Series Cap- SC3	Commissioning: Testing	Capacitors - Eldorado Series Cap- SC3 - Commissioning: Testing	0	100	9/19/2020	12/13/2020	1	73	0	74	0	0	1	0	20
Capacitors	Newberry Springs Series Cap- SC2	Grading	Capacitors - Newberry Springs Series Cap- SC2 - Grading	100	0	8/8/2020	9/29/2020	4	45	0	46	0	0	4	0	21
Capacitors	Newberry Springs Series Cap- SC2	Civil: Foundations, Below Grade, Stone Cover	Capacitors - Newberry Springs Series Cap- SC2 - Civil: Foundations, Below Grade, Stone Cover	100	0	9/20/2020	12/30/2020	1	87	0	88	0	0	1	0	22
Capacitors	Newberry Springs Series Cap- SC2	Installations: Structures, Equipment, Wiring	Capacitors - Newberry Springs Series Cap- SC2 - Installations: Structures, Equipment, Wiring	100	0	11/4/2020	4/15/2021	1	139	0	50	90	0	1	1	23
Capacitors	Newberry Springs Series Cap- SC2	Commissioning: Testing	Capacitors - Newberry Springs Series Cap- SC2 - Commissioning: Testing	100	0	4/1/2021	5/2/2021	4	27	0	0	28	0	0	4	24
Capacitors	Ludlow Series Cap- SC5	Grading	Capacitors - Ludlow Series Cap- SC5 - Grading	100	0	8/22/2020	10/30/2020	1	60	0	60	0	0	1	0	25
Capacitors	Ludlow Series Cap- SC5	Civil: Foundations, Below Grade, Stone Cover	Capacitors - Ludlow Series Cap- SC5 - Civil: Foundations, Below Grade, Stone Cover	100	0	10/21/2020	1/13/2021	35	72	0	62	12	0	35	12	6
Capacitors	Ludlow Series Cap- SC5	Installations: Structures, Equipment, Wiring	Capacitors - Ludlow Series Cap- SC5 - Installations: Structures, Equipment, Wiring	100	0	11/25/2020	4/30/2021	1	134	0	32	103	0	1	1	3
Capacitors	Ludlow Series Cap- SC5	Commissioning: Testing	Capacitors - Ludlow Series Cap- SC5 - Commissioning: Testing	100	0	4/30/2021	6/7/2021	35	33	0	0	34	0	0	34	6
Distribution	Newberry Springs Series Cap- SC2	Trenching, Structure Excavation(1)	Distribution - Newberry Springs Series Cap- SC2 - Trenching, Structure Excavation(1)	100	0	11/29/2020	5/30/2021	1	156	0	29	129	0	1	1	4
Distribution	Newberry Springs Series Cap- SC2	Overhead Line Work(2)	Distribution - Newberry Springs Series Cap- SC2 - Overhead Line Work(2)	100	0	11/29/2020	5/30/2021	3	156	0	29	129	0	3	3	6
Distribution	Newberry Springs Series Cap- SC2	Underground Cable Pulling (3)& Transformer Installation	Distribution - Newberry Springs Series Cap- SC2 - Underground Cable Pulling (3)& Transformer Installation	100	0	11/29/2020	5/30/2021	1	156	0	29	129	0	1	1	4
Distribution	Newberry Springs Series Cap- SC2	Underground Cable Makeup (4)	Distribution - Newberry Springs Series Cap- SC2 - Underground Cable Makeup (4)	100	0	11/29/2020	5/30/2021	1	156	0	29	129	0	1	1	3
Distribution	Newberry Springs Series Cap- SC2	Pole Installation (5)	Distribution - Newberry Springs Series Cap- SC2 - Pole Installation (5)	100	0	11/29/2020	5/30/2021	9	156	0	29	129	0	9	9	6
Distribution	Ludlow Series Cap- SC5	Trenching, Structure Excavation(1)	Distribution - Ludlow Series Cap- SC5 - Trenching, Structure Excavation(1)	100	0	11/29/2020	5/30/2021	1	156	0	29	129	0	1	1	4
Distribution	Ludlow Series Cap- SC5	Overhead Line Work(2)	Distribution - Ludlow Series Cap- SC5 - Overhead Line Work(2)	100	0	11/29/2020	5/30/2021	2	156	0	29	129	0	2	2	6
Distribution	Ludlow Series Cap- SC5	Underground Cable Makeup (4)	Distribution - Ludlow Series Cap- SC5 - Underground Cable Makeup (4)	100	0	11/29/2020	5/30/2021	1	156	0	29	129	0	1	1	4
Distribution	Ludlow Series Cap- SC5	Pole Installation (5)	Distribution - Ludlow Series Cap- SC5 - Pole Installation (5)	100	0	11/29/2020	5/30/2021	1	156	0	29	129	0	1	1	3
Distribution	Lanfair Communication Repeater	Trenching, Structure Excavation(1)	Distribution - Lanfair Communication Repeater - Trenching, Structure Excavation(1)	100	0	11/29/2020	5/30/2021	4	156	0	29	129	0	4	4	6
Distribution	Lanfair Communication Repeater	Overhead Line Work(2)	Distribution - Lanfair Communication Repeater - Overhead Line Work(2)	100	0	11/29/2020	5/30/2021	1	156	0	29	129	0	1	1	4
Distribution	Lanfair Communication Repeater	Underground Cable Pulling (3)& Transformer Installation	Distribution - Lanfair Communication Repeater - Underground Cable Pulling (3)& Transformer Installation	100	0	11/29/2020	5/30/2021	1	156	0	29	129	0	1	1	6
Distribution	Lanfair Communication Repeater	Underground Cable Makeup (4)	Distribution - Lanfair Communication Repeater - Underground Cable Makeup (4)	100	0	11/29/2020	5/30/2021	1	156	0	29	129	0	1	1	4
Distribution	Lanfair Communication Repeater	Pole Installation (5)	Distribution - Lanfair Communication Repeater - Pole Installation (5)	100	0	11/29/2020	5/30/2021	1	156	0	29	129	0	1	1	3
Distribution	Kelbaker Communication Repeater	Trenching, Structure Excavation(1)	Distribution - Kelbaker Communication Repeater - Trenching, Structure Excavation(1)	100	0	11/29/2020	5/30/2021	1	156	0	29	129	0	1	1	6
Distribution	Kelbaker Communication Repeater	Overhead Line Work(2)	Distribution - Kelbaker Communication Repeater - Overhead Line Work(2)	100	0	11/29/2020	5/30/2021	1	156	0	29	129	0	1	1	6
Distribution	Kelbaker Communication Repeater	Underground Cable Pulling (3)& Transformer Installation	Distribution - Kelbaker Communication Repeater - Underground Cable Pulling (3)& Transformer Installation	100	0	11/29/2020	5/30/2021	70	156	0	29	129	0	29	70	8
Distribution	Kelbaker Communication Repeater	Underground Cable Makeup (4)	Distribution - Kelbaker Communication Repeater - Underground Cable Makeup (4)	100	0	11/29/2020	5/30/2021	70	156	0	29	129	0	29	70	8
Distribution	Kelbaker Communication Repeater	Pole Installation (5)	Distribution - Kelbaker Communication Repeater - Pole Installation (5)	100	0	11/29/2020	5/30/2021	70	156	0	29	129	0	29	70	8
Distribution	Barstow Communication Repeater	Trenching, Structure Excavation(1)	Distribution - Barstow Communication Repeater - Trenching, Structure Excavation(1)	100	0	11/29/2020	5/30/2021	156	156	0	29	129	0	29	129	
Distribution	Barstow Communication Repeater	Overhead Line Work(2)	Distribution - Barstow Communication Repeater - Overhead Line Work(2)	100	0	11/29/2020	5/30/2021	156	156	0	29	129	0	29	129	
Distribution	Barstow Communication Repeater	Underground Cable Pulling (3)& Transformer Installation	Distribution - Barstow Communication Repeater - Underground Cable Pulling (3)& Transformer Installation	100	0	11/29/2020	5/30/2021	156	156	0	29	129	0	29	129	
Distribution	Barstow Communication Repeater	Underground Cable Makeup (4)	Distribution - Barstow Communication Repeater - Underground Cable Makeup (4)	100	0	11/29/2020	5/30/2021	156	156	0	29	129	0	29	129	
Distribution	Barstow Communication Repeater	Pole Installation (5)	Distribution - Barstow Communication Repeater - Pole Installation (5)	100	0	11/29/2020	5/30/2021	156	156	0	29	129	0	29	129	
Distribution	Deep Creek T-Line Undercrossing	Overhead Line Work(2)	Distribution - Deep Creek T-Line Undercrossing - Overhead Line Work(2)	100	0	9/21/2020	11/4/2020	38	38	0	39	0	0	38	0	
Telecom	Lanfair Communication Repeater	Tower/Shelter Installation	Telecom - Lanfair Communication Repeater - Tower/Shelter Installation	100	0	11/29/2020	2/28/2021	78	78	0	29	51	0	29	51	
Telecom	Kelbaker Communication Repeater	Tower/Shelter Installation	Telecom - Kelbaker Communication Repeater - Tower/Shelter Installation	100	0	11/29/2020	2/28/2021	78	78	0	29	51	0	29	51	
Telecom	Barstow Communication Repeater	Tower/Shelter Installation	Telecom - Barstow Communication Repeater - Tower/Shelter Installation	100	0	11/29/2020	2/28/2021	78	78	0	29	51	0	29	51	
McCullough	McCullough	Survey	McCullough - McCullough - Survey	0	100	3/1/2020	3/8/2020	3	6	0	7	0	0	3	0	2
McCullough	McCullough	Civil	McCullough - McCullough - Civil	0	100	3/9/2020	5/31/2020	80	72	0	72	0	0	72	0	8
McCullough	McCullough	Electrical 1	McCullough - McCullough - Electrical 1	0	100	3/15/2020	5/31/2020	66	66	0	67	0	0	66	0	7
McCullough	McCullough	Electrical 2	McCullough - McCullough - Electrical 2	0	100	9/1/2020	11/15/2020	65	65	0	66	0	0	65	0	
McCullough	McCullough	Wiring	McCullough - McCullough - Wiring	0	100	10/1/2020	12/31/2020	78	78	0	79	0	0	78	0	5
McCullough	McCullough	Test	McCullough - McCullough - Test	0	100	10/1/2020	12/31/2020	78	78	0	79	0	0	78	0	2

Onroad Vehicle Trip Types and Trip Lengths (round-trip)

					(mi)		(mi)		
EquipRename	HPRename		On-Off	Fuel	On Type	Trip Distance	Paved Percent	Paved Distance	Unpaved Distance	Trips per day
1-Ton Crew Cab, 4x4		300	on	Gas	passenger	100	90	90	10	1
4000 Water Truck		425	on	Diesel	hhdt	100	75	75	25	1
Truck, Semi Tractor		400	on	Diesel	hhdt	100	90	90	10	1
Lowboy Truck/Trailer		450	on	Diesel	hhdt	100	90	90	10	1
3/4-Ton Truck, 4x4		275	on	Gas	passenger	100	90	90	10	1
Flat Bed Truck/Trailer		400	on	Diesel	hhdt	100	90	90	10	1
10 C.Y. Dump Truck		500	on	Diesel	hhdt	100	90	90	10	1
Concrete Mixer Truck		350	on	Diesel	hhdt	100	90	90	10	1
Helicopter Support Truck		300	on	Gas	delivery	100	90	90	10	1
Splicing Lab		300	on	Diesel	passenger	100	90	90	10	1
Fuel Truck		300	on	Diesel	hhdt	100	90	90	10	1
Medium duty splicing lab Truck		250	on	Diesel	delivery	100	90	90	10	1
Tool Truck		300	on	Gas	delivery	100	90	90	10	1
Job Site Utility Cart		90	on	Diesel	passenger	100	90	90	10	1
Foreman's Truck		400	on	Gas	passenger	100	90	90	10	1
Low Bed Hauler		300	on	Gas	hhdt	100	90	90	10	1
Test Truck		300	on	Gas	delivery	100	90	90	10	1
Low Bed Equipment Hauler (5 axle)		700	on	Diesel	hhdt	100	90	90	10	1
Low Bed Equipment Hauler (7 axle)		800	on	Diesel	hhdt	100	90	90	10	1
8,000 Gal. Water Pull		900	on	Diesel	hhdt	100	75	75	25	1
Low Side End Dump		500	on	Diesel	hhdt	100	90	90	10	1
2-Ton Truck		300	on	Diesel	delivery	100	90	90	10	1
Worker Commute	NA		on	Diesel	passenger	100	100	100	0	1

Offroad Default Load Factors. Source: CalEEMod Users Guide, Appendix D, Table 3.3

OFFROAD Equipment Type	Load Factor
Aerial Lifts	0.31
Air Compressors	0.48
Bore/Drill Rigs	0.5
Cement and Mortar Mixers	0.56
Concrete/Industrial Saws	0.73
Cranes	0.29
Crawler Tractors	0.43
Crushing/Proc. Equipment	0.78
Dumpers/Tenders	0.38
Excavators	0.38
Forklifts	0.2
Generator Sets	0.74
Graders	0.41
Off-Highway Tractors	0.44
Off-Highway Trucks	0.38
Other Construction Equipment	0.42
Other General Industrial Equipment	0.34
Other Material Handling Equipment	0.4
Pavers	0.42
Paving Equipment	0.36
Plate Compactors	0.43
Pressure Washers	0.3
Pumps	0.74
Rollers	0.38
Rough Terrain Forklifts	0.4
Rubber Tired Dozers	0.4
Rubber Tired Loaders	0.36
Scrapers	0.48
Signal Boards	0.82
Skid Steer Loaders	0.37
Surfacing Equipment	0.3
Sweepers/Scrubbers	0.46

Tractors/Loaders/Backhoes	0.37
Trenchers	0.5
Welders	0.45

	Data for GHG, SF6 Release									SF6 (lb)	SF6 (lb)	CO2e (ton)
NO	Equip	Siemens 1 segment	Siemens 2 Segment	Existing Equip	ABB/GE 1 segment	ABB/GE 2-segment	Sourthern	Existing Equipment	All	Worst Case	Annual Leaked	Annual CO2e Leaked
1	Switch for Lugo Cap at Eldorado Sub	-52	0	-104	81	162				162	0.81	9.6795
2	Switch for Newberry Springs Series Cap S	52	104		81	162				162	0.81	9.6795
3	Switch Eldorado Caps at Lugo Sub	-52	0	-104	81	162				162	0.81	9.6795
4	Switch for Lugo Caps at Mohave Sub	52	104		81	162				162	0.81	9.6795
5	Switch for Ludlow Cap Site	52	104		81	162				162	0.81	9.6795
6	Switch for Mojave caps at Lugo Sub	-52	0	-104	81	162				162	0.81	9.6795
7	Reactor device for Lugo Line at Eldorado Sub							0	1295	1295	6.475	77.37625
9	500 Circuit Breakers at Eldorado Sub								180	180	0.9	10.755
10	500 Circuit Breakers at Lugo Sub								4240	4240	21.2	253.34
11	500 Circuit Breakers at Mohave Sub								5780	5780	28.9	345.355
	500 Circuit Breakers at McCullough Sub								*5780*	*5780*	*28.9*	*345.355*
										18247	91.235	1,090.26

				CO2e (MT)
	Annual Leak Rate	0.005	Note: 0.5% annual leak rate based on manufacturer's guaranteed maximum annual leak rate	SF6 Release, Total : 989.08
	GWP	23900		

Offroad Emission Factors (Uncontrolled). Source: CalEEMod Users Guide, Appendix D, Table 3.4

						(g/hp-hr)	(g/hp-hr)	(g/hp-hr)	(g/hp-hr)	(g/hp-hr)	(g/hp-hr)	(g/hp-hr)	(g/hp-hr)
Equipment Type	**Year**	**Low HP**	**High HP**	**Bin Number**	**Low-High**	**ROG**	**CO**	**NOX**	**SOX**	**PM10**	**PM25**	**CO2**	**CH4**
Aerial Lifts	2020	6	15	1	6_15	0.168	3.09942	2.95486	0.005	0.031	0.028	525.0743	0.17
Aerial Lifts	2020	16	25	2	16_25	0.168	3.09942	2.95486	0.005	0.031	0.028	525.0743	0.17
Aerial Lifts	2020	26	50	3	26_50	0.168	3.09942	2.95486	0.005	0.031	0.028	525.0743	0.17
Aerial Lifts	2020	51	120	4	51_120	0.115	3.1768	1.86859	0.005	0.042	0.038	472.1142	0.153
Aerial Lifts	2020	251	500	7	251_500	0.069	0.94623	0.63803	0.005	0.009	0.008	472.0545	0.153
Aerial Lifts	2020	501	750	8	501_750	0.2	1.013	1.868	0.005	0.057	0.057	568.299	0.018
Aerial Lifts	2021	6	15	1	6_15	0.165	3.11369	2.92238	0.005	0.027	0.024	525.0743	0.17
Aerial Lifts	2021	16	25	2	16_25	0.165	3.11369	2.92238	0.005	0.027	0.024	525.0743	0.17
Aerial Lifts	2021	26	50	3	26_50	0.165	3.11369	2.92238	0.005	0.027	0.024	525.0743	0.17
Aerial Lifts	2021	51	120	4	51_120	0.109	3.17624	1.74368	0.005	0.033	0.031	472.1142	0.153
Aerial Lifts	2021	251	500	7	251_500	0.072	0.95107	0.64021	0.005	0.009	0.008	472.0545	0.153
Aerial Lifts	2021	501	750	8	501_750	0.187	1.004	1.61	0.005	0.05	0.05	568.299	0.016
Air Compressors	2020	6	15	1	6_15	0.731	3.546	4.542	0.008	0.227	0.227	568.299	0.066
Air Compressors	2020	16	25	2	16_25	0.769	2.473	4.538	0.007	0.212	0.212	568.3	0.069
Air Compressors	2020	26	50	3	26_50	1.001	5.164	4.397	0.007	0.25	0.25	568.299	0.09
Air Compressors	2020	51	120	4	51_120	0.489	3.698	3.4	0.006	0.224	0.224	568.299	0.044
Air Compressors	2020	121	175	5	121_175	0.374	3.203	2.558	0.006	0.133	0.133	568.299	0.033
Air Compressors	2020	176	250	6	176_250	0.288	1.121	2.172	0.006	0.069	0.069	568.299	0.026
Air Compressors	2020	251	500	7	251_500	0.279	1.076	1.935	0.005	0.067	0.067	568.299	0.025
Air Compressors	2020	501	750	8	501_750	0.28	1.076	1.982	0.005	0.067	0.067	568.299	0.025
Air Compressors	2020	751	1000	9	751_1000	0.306	1.158	3.828	0.005	0.093	0.093	568.3	0.027
Air Compressors	2021	6	15	1	6_15	0.717	3.531	4.462	0.008	0.214	0.214	568.299	0.064
Air Compressors	2021	16	25	2	16_25	0.752	2.446	4.497	0.007	0.201	0.201	568.299	0.067
Air Compressors	2021	26	50	3	26_50	0.887	5.021	4.221	0.007	0.212	0.212	568.299	0.08
Air Compressors	2021	51	120	4	51_120	0.442	3.67	3.083	0.006	0.19	0.19	568.299	0.039
Air Compressors	2021	121	175	5	121_175	0.343	3.192	2.218	0.006	0.115	0.115	568.299	0.03
Air Compressors	2021	176	250	6	176_250	0.268	1.108	1.859	0.006	0.06	0.06	568.299	0.024
Air Compressors	2021	251	500	7	251_500	0.261	1.064	1.663	0.005	0.058	0.058	568.299	0.023
Air Compressors	2021	501	750	8	501_750	0.262	1.064	1.699	0.005	0.058	0.058	568.299	0.023
Air Compressors	2021	751	1000	9	751_1000	0.284	1.134	3.565	0.005	0.082	0.082	568.3	0.025
Bore/Drill Rigs	2020	6	15	1	6_15	0.716	4.51013	4.6451	0.006	0.294	0.271	535.2948	0.173
Bore/Drill Rigs	2020	16	25	2	16_25	0.716	4.51013	4.6451	0.006	0.294	0.271	535.2948	0.173
Bore/Drill Rigs	2020	26	50	3	26_50	0.716	4.51013	4.6451	0.006	0.294	0.271	535.2948	0.173
Bore/Drill Rigs	2020	51	120	4	51_120	0.246	3.32347	3.06601	0.005	0.159	0.146	463.5827	0.15
Bore/Drill Rigs	2020	121	175	5	121_175	0.174	2.96948	1.87149	0.005	0.082	0.076	477.722	0.155
Bore/Drill Rigs	2020	176	250	6	176_250	0.142	1.06766	1.80732	0.005	0.052	0.048	466.8342	0.151
Bore/Drill Rigs	2020	251	500	7	251_500	0.125	1.01263	1.40938	0.005	0.045	0.041	466.8219	0.151
Bore/Drill Rigs	2020	501	750	8	501_750	0.109	0.97413	1.23085	0.005	0.041	0.038	473.6679	0.153

Bore/Drill Rigs	2020	751	1000	9	751_1000	0.133	0.98839	3.05008	0.005	0.061	0.056	471.8492	0.153
Bore/Drill Rigs	2021	6	15	1	6_15	0.711	4.54836	4.63432	0.006	0.291	0.268	535.3782	0.173
Bore/Drill Rigs	2021	16	25	2	16_25	0.711	4.54836	4.63432	0.006	0.291	0.268	535.3782	0.173
Bore/Drill Rigs	2021	26	50	3	26_50	0.711	4.54836	4.63432	0.006	0.291	0.268	535.3782	0.173
Bore/Drill Rigs	2021	51	120	4	51_120	0.217	3.30573	2.73675	0.005	0.131	0.12	464.9725	0.15
Bore/Drill Rigs	2021	121	175	5	121_175	0.154	2.9614	1.5983	0.005	0.07	0.064	477.0482	0.154
Bore/Drill Rigs	2021	176	250	6	176_250	0.132	1.06418	1.55102	0.005	0.047	0.043	467.9916	0.151
Bore/Drill Rigs	2021	251	500	7	251_500	0.117	1.01479	1.22069	0.005	0.041	0.038	469.8158	0.152
Bore/Drill Rigs	2021	501	750	8	501_750	0.098	0.97176	0.95517	0.005	0.033	0.031	474.079	0.153
Bore/Drill Rigs	2021	751	1000	9	751_1000	0.136	0.99261	3.05759	0.005	0.061	0.057	471.8158	0.153
Cement and Mortar Mixers	2020	6	15	1	6_15	0.661	3.47	4.142	0.008	0.161	0.161	568.299	0.059
Cement and Mortar Mixers	2020	16	25	2	16_25	0.723	2.397	4.442	0.007	0.187	0.187	568.299	0.065
Cement and Mortar Mixers	2021	6	15	1	6_15	0.661	3.469	4.142	0.008	0.161	0.161	568.299	0.059
Cement and Mortar Mixers	2021	16	25	2	16_25	0.712	2.381	4.419	0.007	0.18	0.18	568.299	0.064
Concrete/Industrial Saws	2020	16	25	2	16_25	0.685	2.339	4.332	0.007	0.161	0.161	568.299	0.061
Concrete/Industrial Saws	2020	26	50	3	26_50	0.798	4.552	4.196	0.007	0.212	0.212	568.299	0.072
Concrete/Industrial Saws	2020	51	120	4	51_120	0.401	3.535	3.163	0.006	0.19	0.19	568.299	0.036
Concrete/Industrial Saws	2020	121	175	5	121_175	0.306	3.072	2.324	0.006	0.114	0.114	568.299	0.027
Concrete/Industrial Saws	2021	16	25	2	16_25	0.685	2.34	4.332	0.007	0.161	0.161	568.299	0.061
Concrete/Industrial Saws	2021	26	50	3	26_50	0.722	4.481	4.063	0.007	0.184	0.184	568.3	0.065
Concrete/Industrial Saws	2021	51	120	4	51_120	0.369	3.523	2.913	0.006	0.166	0.166	568.299	0.033
Concrete/Industrial Saws	2021	121	175	5	121_175	0.286	3.072	2.055	0.006	0.101	0.101	568.299	0.025
Cranes	2020	26	50	3	26_50	2.084	7.37625	5.98471	0.005	0.624	0.574	517.9263	0.168
Cranes	2020	51	120	4	51_120	0.732	4.17141	6.38117	0.005	0.453	0.417	469.8821	0.152
Cranes	2020	121	175	5	121_175	0.537	3.56232	5.5697	0.005	0.298	0.274	474.5939	0.153
Cranes	2020	176	250	6	176_250	0.384	1.7904	4.56329	0.005	0.188	0.173	472.9488	0.153
Cranes	2020	251	500	7	251_500	0.321	2.66037	3.86243	0.005	0.155	0.142	472.5579	0.153
Cranes	2020	501	750	8	501_750	0.242	1.44353	3.10471	0.005	0.116	0.107	470.4254	0.152
Cranes	2020	1001	9999	10	1001_9999	0.182	0.99943	2.3614	0.005	0.06	0.056	472.0545	0.153
Cranes	2021	26	50	3	26_50	2.115	7.48883	6.01375	0.005	0.631	0.581	517.8995	0.167
Cranes	2021	51	120	4	51_120	0.651	4.06507	5.73085	0.005	0.398	0.366	469.8867	0.152
Cranes	2021	121	175	5	121_175	0.498	3.51648	5.1125	0.005	0.273	0.251	474.5458	0.153
Cranes	2021	176	250	6	176_250	0.349	1.67824	4.10439	0.005	0.167	0.153	472.9057	0.153
Cranes	2021	251	500	7	251_500	0.295	2.44833	3.44253	0.005	0.139	0.127	472.4553	0.153
Cranes	2021	501	750	8	501_750	0.228	1.43956	2.72739	0.005	0.107	0.098	470.5495	0.152
Cranes	2021	1001	9999	10	1001_9999	0.192	1.00751	2.37402	0.005	0.061	0.056	472.0545	0.153
Crawler Tractors	2020	26	50	3	26_50	2.053	7.3	5.64276	0.005	0.591	0.544	515.679	0.167
Crawler Tractors	2020	51	120	4	51_120	0.715	4.04412	6.00933	0.005	0.5	0.46	476.3284	0.154
Crawler Tractors	2020	121	175	5	121_175	0.476	3.33989	4.87226	0.005	0.272	0.25	471.015	0.152
Crawler Tractors	2020	176	250	6	176_250	0.36	1.55491	4.63225	0.005	0.175	0.161	472.941	0.153
Crawler Tractors	2020	251	500	7	251_500	0.301	2.0875	3.62175	0.005	0.141	0.13	475.2338	0.154

Crawler Tractors	2020	501	750	8	501_750	0.256	1.31018	3.13716	0.005	0.115	0.106	473.3119	0.153
Crawler Tractors	2020	751	1000	9	751_1000	0.463	2.02764	7.23682	0.005	0.212	0.195	475.6525	0.154
Crawler Tractors	2021	26	50	3	26_50	2.064	7.34869	5.61511	0.005	0.591	0.543	516.1077	0.167
Crawler Tractors	2021	51	120	4	51_120	0.673	4.00549	5.65746	0.005	0.466	0.428	476.437	0.154
Crawler Tractors	2021	121	175	5	121_175	0.436	3.30982	4.3947	0.005	0.245	0.225	471.421	0.152
Crawler Tractors	2021	176	250	6	176_250	0.343	1.51456	4.33394	0.005	0.163	0.15	472.9246	0.153
Crawler Tractors	2021	251	500	7	251_500	0.283	2.02434	3.27633	0.005	0.129	0.119	474.4843	0.153
Crawler Tractors	2021	501	750	8	501_750	0.239	1.26985	2.82478	0.005	0.104	0.095	473.0941	0.153
Crawler Tractors	2021	751	1000	9	751_1000	0.399	1.89563	6.3992	0.005	0.182	0.167	471.8224	0.153
Crushing/Proc. Equipment	2020	26	50	3	26_50	0.947	5.211	4.347	0.007	0.233	0.233	568.299	0.085
Crushing/Proc. Equipment	2020	51	120	4	51_120	0.473	3.722	3.249	0.006	0.206	0.206	568.299	0.042
Crushing/Proc. Equipment	2020	121	175	5	121_175	0.367	3.234	2.392	0.006	0.124	0.124	568.299	0.033
Crushing/Proc. Equipment	2020	176	250	6	176_250	0.289	1.125	2.014	0.006	0.065	0.065	568.299	0.026
Crushing/Proc. Equipment	2020	251	500	7	251_500	0.281	1.078	1.799	0.005	0.063	0.063	568.299	0.025
Crushing/Proc. Equipment	2020	501	750	8	501_750	0.281	1.077	1.835	0.005	0.063	0.063	568.299	0.025
Crushing/Proc. Equipment	2020	1001	9999	10	1001_9999	0.329	1.153	3.699	0.005	0.089	0.089	568.299	0.029
Crushing/Proc. Equipment	2021	26	50	3	26_50	0.862	5.136	4.211	0.007	0.201	0.201	568.299	0.077
Crushing/Proc. Equipment	2021	51	120	4	51_120	0.438	3.711	2.989	0.006	0.178	0.178	568.299	0.039
Crushing/Proc. Equipment	2021	121	175	5	121_175	0.344	3.235	2.114	0.006	0.109	0.109	568.299	0.031
Crushing/Proc. Equipment	2021	176	250	6	176_250	0.274	1.119	1.756	0.006	0.057	0.057	568.299	0.024
Crushing/Proc. Equipment	2021	251	500	7	251_500	0.268	1.072	1.574	0.005	0.055	0.055	568.3	0.024
Crushing/Proc. Equipment	2021	501	750	8	501_750	0.268	1.072	1.606	0.005	0.055	0.055	568.299	0.024
Crushing/Proc. Equipment	2021	1001	9999	10	1001_9999	0.314	1.136	3.487	0.005	0.08	0.08	568.299	0.028
Dumpers/Tenders	2020	16	25	2	16_25	0.685	2.339	4.336	0.007	0.165	0.165	568.299	0.061
Dumpers/Tenders	2021	16	25	2	16_25	0.685	2.339	4.333	0.007	0.163	0.163	568.299	0.061
Excavators	2020	16	25	2	16_25	0.593	4.50032	4.03131	0.005	0.222	0.204	525.3675	0.17
Excavators	2020	26	50	3	26_50	0.593	4.50032	4.03131	0.005	0.222	0.204	525.3675	0.17
Excavators	2020	51	120	4	51_120	0.299	3.50495	3.08964	0.005	0.185	0.17	468.0546	0.151
Excavators	2020	121	175	5	121_175	0.231	3.08597	2.27838	0.005	0.11	0.102	472.2891	0.153
Excavators	2020	176	250	6	176_250	0.177	1.11778	2.02738	0.005	0.061	0.056	471.8828	0.153
Excavators	2020	251	500	7	251_500	0.153	1.1016	1.57199	0.005	0.052	0.048	470.2956	0.152
Excavators	2020	501	750	8	501_750	0.17	1.14543	1.79718	0.005	0.061	0.056	468.8706	0.152
Excavators	2021	16	25	2	16_25	0.562	4.46094	3.91866	0.005	0.202	0.186	525.3774	0.17
Excavators	2021	26	50	3	26_50	0.562	4.46094	3.91866	0.005	0.202	0.186	525.3774	0.17
Excavators	2021	51	120	4	51_120	0.275	3.49196	2.84891	0.005	0.161	0.148	467.7906	0.151
Excavators	2021	121	175	5	121_175	0.216	3.08975	2.03357	0.005	0.099	0.091	472.3586	0.153
Excavators	2021	176	250	6	176_250	0.163	1.10324	1.70572	0.005	0.052	0.048	471.7931	0.153
Excavators	2021	251	500	7	251_500	0.143	1.08777	1.33174	0.005	0.045	0.041	469.6156	0.152
Excavators	2021	501	750	8	501_750	0.165	1.14978	1.61856	0.005	0.056	0.052	469.547	0.152
Forklifts	2020	26	50	3	26_50	1.124	5.70563	4.68572	0.005	0.36	0.331	525.4833	0.17
Forklifts	2020	51	120	4	51_120	0.459	3.75954	4.13299	0.005	0.308	0.283	471.5285	0.153

Forklifts	2020	121	175	5 121_175	0.338	3.24885	3.3196	0.005	0.18	0.165	472.1062	0.153
Forklifts	2020	176	250	6 176_250	0.293	1.44178	3.24149	0.005	0.126	0.116	473.3255	0.153
Forklifts	2020	251	500	7 251_500	0.251	1.47807	2.43991	0.005	0.097	0.089	473.6151	0.153
Forklifts	2021	26	50	3 26_50	1.002	5.53477	4.5202	0.005	0.318	0.292	525.4833	0.17
Forklifts	2021	51	120	4 51_120	0.412	3.72	3.75592	0.005	0.267	0.245	471.5285	0.153
Forklifts	2021	121	175	5 121_175	0.308	3.23128	2.9207	0.005	0.158	0.145	472.1062	0.153
Forklifts	2021	176	250	6 176_250	0.249	1.33672	2.58195	0.005	0.099	0.091	473.3255	0.153
Forklifts	2021	251	500	7 251_500	0.254	1.48481	2.30266	0.005	0.094	0.086	473.6151	0.153
Generator Sets	2020	6	15	1 6_15	0.646	3.546	4.516	0.008	0.212	0.212	568.299	0.058
Generator Sets	2020	16	25	2 16_25	0.721	2.473	4.538	0.007	0.205	0.205	568.299	0.065
Generator Sets	2020	26	50	3 26_50	0.691	3.995	4.075	0.007	0.194	0.194	568.299	0.062
Generator Sets	2020	51	120	4 51_120	0.364	3.38	3.173	0.006	0.179	0.179	568.299	0.032
Generator Sets	2020	121	175	5 121_175	0.267	2.93	2.38	0.006	0.105	0.105	568.299	0.024
Generator Sets	2020	176	250	6 176_250	0.198	1.026	2.016	0.006	0.057	0.057	568.299	0.017
Generator Sets	2020	251	500	7 251_500	0.188	1.005	1.816	0.005	0.055	0.055	568.299	0.017
Generator Sets	2020	501	750	8 501_750	0.191	1.005	1.858	0.005	0.056	0.056	568.299	0.017
Generator Sets	2020	1001	9999	10 1001_9999	0.242	1.082	3.608	0.005	0.079	0.079	568.3	0.021
Generator Sets	2021	6	15	1 6_15	0.634	3.531	4.441	0.008	0.201	0.201	568.299	0.057
Generator Sets	2021	16	25	2 16_25	0.712	2.446	4.497	0.007	0.196	0.196	568.299	0.064
Generator Sets	2021	26	50	3 26_50	0.613	3.905	3.916	0.007	0.165	0.165	568.299	0.055
Generator Sets	2021	51	120	4 51_120	0.326	3.361	2.888	0.006	0.153	0.153	568.299	0.029
Generator Sets	2021	121	175	5 121_175	0.243	2.925	2.068	0.006	0.091	0.091	568.299	0.021
Generator Sets	2021	176	250	6 176_250	0.183	1.016	1.73	0.006	0.049	0.049	568.299	0.016
Generator Sets	2021	251	500	7 251_500	0.175	0.996	1.562	0.005	0.048	0.048	568.299	0.015
Generator Sets	2021	501	750	8 501_750	0.177	0.996	1.596	0.005	0.048	0.048	568.299	0.016
Generator Sets	2021	1001	9999	10 1001_9999	0.22	1.06	3.372	0.005	0.07	0.07	568.3	0.019
Graders	2020	26	50	3 26_50	2.516	8.13394	5.82549	0.005	0.709	0.652	492.8615	0.159
Graders	2020	51	120	4 51_120	0.976	4.56142	7.72513	0.005	0.622	0.572	469.3371	0.152
Graders	2020	121	175	5 121_175	0.567	3.62102	5.53045	0.005	0.309	0.284	478.0403	0.155
Graders	2020	176	250	6 176_250	0.352	1.34183	4.67787	0.005	0.15	0.138	475.3037	0.154
Graders	2020	251	500	7 251_500	0.322	1.5256	3.10731	0.005	0.121	0.111	471.9795	0.153
Graders	2020	501	750	8 501_750	0.319	1.229	2.031	0.005	0.072	0.072	568.299	0.028
Graders	2021	26	50	3 26_50	2.235	7.62621	5.48468	0.005	0.631	0.581	492.9352	0.159
Graders	2021	51	120	4 51_120	0.901	4.45175	7.12535	0.005	0.57	0.524	469.0701	0.152
Graders	2021	121	175	5 121_175	0.505	3.55896	4.83947	0.005	0.27	0.248	478.5289	0.155
Graders	2021	176	250	6 176_250	0.335	1.30687	4.38134	0.005	0.139	0.128	474.5386	0.153
Graders	2021	251	500	7 251_500	0.322	1.46044	3.01257	0.005	0.117	0.108	471.8981	0.153
Graders	2021	501	750	8 501_750	0.303	1.207	1.808	0.005	0.064	0.064	568.299	0.027
Off-Highway Tractors	2020	51	120	4 51_120	0.448	3.78798	4.18317	0.005	0.307	0.282	474.1481	0.153
Off-Highway Tractors	2020	121	175	5 121_175	0.271	3.21511	2.89032	0.005	0.14	0.129	472.9169	0.153
Off-Highway Tractors	2020	176	250	6 176_250	0.221	1.1813	2.57547	0.005	0.086	0.079	470.943	0.152

Off-Highway Tractors	2020	501	750	8 501_750	0.201	1.13143	2.04663	0.005	0.076	0.07	471.8151	0.153
Off-Highway Tractors	2020	751	1000	9 751_1000	0.15	1.02156	2.39599	0.005	0.063	0.058	472.0545	0.153
Off-Highway Tractors	2021	51	120	4 51_120	0.395	3.74258	3.77306	0.005	0.261	0.24	474.5155	0.153
Off-Highway Tractors	2021	121	175	5 121_175	0.259	3.21953	2.65962	0.005	0.129	0.118	472.9236	0.153
Off-Highway Tractors	2021	176	250	6 176_250	0.2	1.16179	2.11341	0.005	0.072	0.067	471.0028	0.152
Off-Highway Tractors	2021	501	750	8 501_750	0.181	1.12237	1.71505	0.005	0.063	0.058	471.8056	0.153
Off-Highway Tractors	2021	751	1000	9 751_1000	0.16	1.0331	2.41401	0.005	0.064	0.059	472.0545	0.153
Off-Highway Trucks	2020	121	175	5 121_175	0.31	3.3388	2.62769	0.005	0.137	0.126	470.0967	0.152
Off-Highway Trucks	2020	176	250	6 176_250	0.275	1.39106	2.50726	0.005	0.098	0.09	470.1675	0.152
Off-Highway Trucks	2020	251	500	7 251_500	0.246	1.41417	2.34677	0.005	0.086	0.079	474.5787	0.153
Off-Highway Trucks	2020	501	750	8 501_750	0.312	2.02683	3.05816	0.005	0.12	0.11	472.7499	0.153
Off-Highway Trucks	2020	751	1000	9 751_1000	0.303	1.37163	4.79365	0.005	0.125	0.115	469.8892	0.152
Off-Highway Trucks	2021	121	175	5 121_175	0.278	3.32405	2.24626	0.005	0.113	0.104	470.2898	0.152
Off-Highway Trucks	2021	176	250	6 176_250	0.249	1.34839	2.10869	0.005	0.082	0.076	470.1932	0.152
Off-Highway Trucks	2021	251	500	7 251_500	0.225	1.33781	1.95357	0.005	0.072	0.066	474.542	0.153
Off-Highway Trucks	2021	501	750	8 501_750	0.293	1.93522	2.66798	0.005	0.106	0.098	472.991	0.153
Off-Highway Trucks	2021	751	1000	9 751_1000	0.256	1.25154	4.15817	0.005	0.099	0.091	471.0552	0.152
Other Construction Equipment	2020	6	15	1 6_15	1.072	5.40446	5.03626	0.005	0.405	0.373	527.9656	0.171
Other Construction Equipment	2020	16	25	2 16_25	1.072	5.40446	5.03626	0.005	0.405	0.373	527.9656	0.171
Other Construction Equipment	2020	26	50	3 26_50	1.072	5.40446	5.03626	0.005	0.405	0.373	527.9656	0.171
Other Construction Equipment	2020	51	120	4 51_120	0.519	3.73189	4.7712	0.005	0.354	0.325	472.2162	0.153
Other Construction Equipment	2020	121	175	5 121_175	0.388	3.23528	4.11203	0.005	0.217	0.2	469.9837	0.152
Other Construction Equipment	2020	251	500	7 251_500	0.224	1.6338	2.63672	0.005	0.096	0.088	475.2326	0.154
Other Construction Equipment	2021	6	15	1 6_15	1.01	5.30749	4.90234	0.005	0.382	0.351	527.7834	0.171
Other Construction Equipment	2021	16	25	2 16_25	1.01	5.30749	4.90234	0.005	0.382	0.351	527.7834	0.171
Other Construction Equipment	2021	26	50	3 26_50	1.01	5.30749	4.90234	0.005	0.382	0.351	527.7834	0.171
Other Construction Equipment	2021	51	120	4 51_120	0.482	3.70304	4.4558	0.005	0.323	0.298	472.275	0.153
Other Construction Equipment	2021	121	175	5 121_175	0.33	3.18275	3.43847	0.005	0.18	0.165	469.7642	0.152
Other Construction Equipment	2021	251	500	7 251_500	0.215	1.59874	2.42822	0.005	0.09	0.082	475.2124	0.154
Other General Industrial Equipment	2020	6	15	1 6_15	0.946	5.50397	4.62219	0.005	0.334	0.307	526.1761	0.17
Other General Industrial Equipment	2020	16	25	2 16_25	0.946	5.50397	4.62219	0.005	0.334	0.307	526.1761	0.17
Other General Industrial Equipment	2020	26	50	3 26_50	0.946	5.50397	4.62219	0.005	0.334	0.307	526.1761	0.17
Other General Industrial Equipment	2020	51	120	4 51_120	0.446	3.77073	4.06079	0.005	0.296	0.272	469.9998	0.152
Other General Industrial Equipment	2020	121	175	5 121_175	0.268	3.22922	2.57503	0.005	0.135	0.124	471.8502	0.153
Other General Industrial Equipment	2020	176	250	6 176_250	0.237	1.23914	2.66782	0.005	0.09	0.083	473.2231	0.153
Other General Industrial Equipment	2020	251	500	7 251_500	0.208	1.34424	2.06187	0.005	0.072	0.067	472.929	0.153
Other General Industrial Equipment	2020	501	750	8 501_750	0.175	1.46184	1.67591	0.005	0.062	0.057	473.4638	0.153
Other General Industrial Equipment	2020	751	1000	9 751_1000	0.271	1.085	4.85721	0.005	0.119	0.109	472.0545	0.153
Other General Industrial Equipment	2021	6	15	1 6_15	0.831	5.31354	4.42532	0.005	0.289	0.266	526.1761	0.17
Other General Industrial Equipment	2021	16	25	2 16_25	0.831	5.31354	4.42532	0.005	0.289	0.266	526.1761	0.17
Other General Industrial Equipment	2021	26	50	3 26_50	0.831	5.31354	4.42532	0.005	0.289	0.266	526.1761	0.17

Other General Industrial Equipment	2021	51	120	4	51_120	0.404	3.74029	3.7177	0.005	0.256	0.235	469.9998	0.152
Other General Industrial Equipment	2021	121	175	5	121_175	0.254	3.23421	2.34745	0.005	0.121	0.111	471.8502	0.153
Other General Industrial Equipment	2021	176	250	6	176_250	0.204	1.17138	2.0939	0.005	0.07	0.064	473.2231	0.153
Other General Industrial Equipment	2021	251	500	7	251_500	0.195	1.32956	1.79624	0.005	0.064	0.059	472.929	0.153
Other General Industrial Equipment	2021	501	750	8	501_750	0.166	1.46305	1.38672	0.005	0.054	0.05	473.4638	0.153
Other General Industrial Equipment	2021	751	1000	9	751_1000	0.276	1.09291	4.87557	0.005	0.12	0.11	472.0545	0.153
Other Material Handling Equipment	2020	26	50	3	26_50	1.245	6.1671	5.13925	0.005	0.439	0.404	523.7088	0.169
Other Material Handling Equipment	2020	51	120	4	51_120	0.307	3.58938	3.10396	0.005	0.182	0.168	473.5884	0.153
Other Material Handling Equipment	2020	121	175	5	121_175	0.252	3.17089	2.36653	0.005	0.118	0.109	472.2193	0.153
Other Material Handling Equipment	2020	176	250	6	176_250	0.291	1.31882	3.59889	0.005	0.115	0.106	471.482	0.152
Other Material Handling Equipment	2020	251	500	7	251_500	0.282	1.52346	3.20974	0.005	0.12	0.11	470.2972	0.152
Other Material Handling Equipment	2020	1001	9999	10	1001_9999	0.2	1.04898	3.61407	0.005	0.078	0.072	472.0545	0.153
Other Material Handling Equipment	2021	26	50	3	26_50	1.108	5.95956	4.96638	0.005	0.396	0.364	523.7088	0.169
Other Material Handling Equipment	2021	51	120	4	51_120	0.294	3.60203	2.95622	0.005	0.166	0.152	473.5884	0.153
Other Material Handling Equipment	2021	121	175	5	121_175	0.249	3.19638	2.24633	0.005	0.114	0.105	472.2193	0.153
Other Material Handling Equipment	2021	176	250	6	176_250	0.269	1.30911	3.08193	0.005	0.102	0.094	471.482	0.152
Other Material Handling Equipment	2021	251	500	7	251_500	0.254	1.44188	2.60166	0.005	0.101	0.093	470.2972	0.152
Other Material Handling Equipment	2021	1001	9999	10	1001_9999	0.072	0.97159	2.3179	0.005	0.019	0.018	472.0545	0.153
Pavers	2020	16	25	2	16_25	1.318	5.52345	4.76401	0.005	0.402	0.37	526.2098	0.17
Pavers	2020	26	50	3	26_50	1.318	5.52345	4.76401	0.005	0.402	0.37	526.2098	0.17
Pavers	2020	51	120	4	51_120	0.47	3.60405	4.42718	0.005	0.325	0.299	469.8815	0.152
Pavers	2020	121	175	5	121_175	0.273	3.0097	2.91833	0.005	0.142	0.131	472.7746	0.153
Pavers	2020	176	250	6	176_250	0.176	1.02834	2.77699	0.005	0.076	0.07	472.8337	0.153
Pavers	2020	251	500	7	251_500	0.165	0.98677	2.13394	0.005	0.077	0.071	466.2059	0.151
Pavers	2021	16	25	2	16_25	1.208	5.30162	4.60183	0.005	0.37	0.34	526.5153	0.17
Pavers	2021	26	50	3	26_50	1.208	5.30162	4.60183	0.005	0.37	0.34	526.5153	0.17
Pavers	2021	51	120	4	51_120	0.42	3.56251	4.02622	0.005	0.285	0.262	469.7736	0.152
Pavers	2021	121	175	5	121_175	0.256	3.01647	2.6948	0.005	0.13	0.12	472.5552	0.153
Pavers	2021	176	250	6	176_250	0.165	1.02422	2.4844	0.005	0.07	0.064	472.4765	0.153
Pavers	2021	251	500	7	251_500	0.164	0.9877	2.05298	0.005	0.074	0.068	465.5908	0.151
Paving Equipment	2020	16	25	2	16_25	0.621	4.22322	3.9519	0.005	0.217	0.2	520.1235	0.168
Paving Equipment	2020	26	50	3	26_50	0.621	4.22322	3.9519	0.005	0.217	0.2	520.1235	0.168
Paving Equipment	2020	51	120	4	51_120	0.397	3.58172	3.78064	0.005	0.256	0.235	473.3249	0.153
Paving Equipment	2020	121	175	5	121_175	0.248	3.02393	2.55498	0.005	0.128	0.118	470.7359	0.152
Paving Equipment	2020	176	250	6	176_250	0.243	1.25215	3.2202	0.005	0.111	0.102	472.1514	0.153
Paving Equipment	2021	16	25	2	16_25	0.587	4.21072	3.88226	0.005	0.2	0.184	520.3965	0.168
Paving Equipment	2021	26	50	3	26_50	0.587	4.21072	3.88226	0.005	0.2	0.184	520.3965	0.168
Paving Equipment	2021	51	120	4	51_120	0.355	3.5537	3.45065	0.005	0.219	0.201	473.2205	0.153
Paving Equipment	2021	121	175	5	121_175	0.229	3.03229	2.31505	0.005	0.114	0.105	470.6495	0.152
Paving Equipment	2021	176	250	6	176_250	0.211	1.20904	2.58202	0.005	0.092	0.085	472.151	0.153
Plate Compactors	2020	6	15	1	6_15	0.661	3.469	4.142	0.008	0.161	0.161	568.299	0.059

Plate Compactors	2021	6	15	1 6_15	0.661	3.469	4.142	0.008	0.161	0.161	568.299	0.059
Pressure Washers	2020	6	15	1 6_15	0.646	3.546	4.516	0.008	0.212	0.212	568.299	0.058
Pressure Washers	2020	16	25	2 16_25	0.721	2.473	4.538	0.007	0.205	0.205	568.299	0.065
Pressure Washers	2020	26	50	3 26_50	0.499	3.393	3.917	0.007	0.161	0.161	568.299	0.045
Pressure Washers	2020	51	120	4 51_120	0.298	3.225	3.036	0.006	0.151	0.151	568.299	0.026
Pressure Washers	2020	121	175	5 121_175	0.258	2.907	2.383	0.006	0.104	0.104	568.299	0.023
Pressure Washers	2020	176	250	6 176_250	0.098	0.986	0.265	0.006	0.009	0.009	568.299	0.008
Pressure Washers	2021	6	15	1 6_15	0.634	3.531	4.441	0.008	0.201	0.201	568.299	0.057
Pressure Washers	2021	16	25	2 16_25	0.712	2.446	4.497	0.007	0.196	0.196	568.299	0.064
Pressure Washers	2021	26	50	3 26_50	0.439	3.329	3.765	0.007	0.136	0.136	568.299	0.039
Pressure Washers	2021	51	120	4 51_120	0.264	3.21	2.766	0.006	0.129	0.129	568.299	0.023
Pressure Washers	2021	121	175	5 121_175	0.238	2.907	2.118	0.006	0.093	0.093	568.299	0.021
Pressure Washers	2021	176	250	6 176_250	0.098	0.986	0.265	0.006	0.009	0.009	568.299	0.008
Pumps	2020	6	15	1 6_15	0.731	3.546	4.542	0.008	0.227	0.227	568.299	0.066
Pumps	2020	16	25	2 16_25	0.769	2.473	4.538	0.007	0.212	0.212	568.299	0.069
Pumps	2020	26	50	3 26_50	0.755	4.197	4.128	0.007	0.206	0.206	568.299	0.068
Pumps	2020	51	120	4 51_120	0.386	3.432	3.219	0.006	0.189	0.189	568.299	0.034
Pumps	2020	121	175	5 121_175	0.285	2.974	2.418	0.006	0.111	0.111	568.299	0.025
Pumps	2020	176	250	6 176_250	0.212	1.042	2.05	0.006	0.06	0.06	568.299	0.019
Pumps	2020	251	500	7 251_500	0.203	1.017	1.841	0.005	0.057	0.057	568.3	0.018
Pumps	2020	501	750	8 501_750	0.205	1.017	1.884	0.005	0.058	0.058	568.299	0.018
Pumps	2020	1001	9999	10 1001_9999	0.255	1.096	3.649	0.005	0.081	0.081	568.3	0.023
Pumps	2021	6	15	1 6_15	0.717	3.531	4.462	0.008	0.214	0.214	568.299	0.064
Pumps	2021	16	25	2 16_25	0.752	2.446	4.497	0.007	0.201	0.201	568.299	0.067
Pumps	2021	26	50	3 26_50	0.671	4.099	3.966	0.007	0.175	0.175	568.299	0.06
Pumps	2021	51	120	4 51_120	0.347	3.412	2.928	0.006	0.162	0.162	568.3	0.031
Pumps	2021	121	175	5 121_175	0.26	2.968	2.101	0.006	0.096	0.096	568.299	0.023
Pumps	2021	176	250	6 176_250	0.197	1.031	1.759	0.006	0.052	0.052	568.299	0.017
Pumps	2021	251	500	7 251_500	0.189	1.007	1.584	0.005	0.05	0.05	568.299	0.017
Pumps	2021	501	750	8 501_750	0.191	1.007	1.618	0.005	0.05	0.05	568.299	0.017
Pumps	2021	1001	9999	10 1001_9999	0.233	1.074	3.409	0.005	0.072	0.072	568.3	0.021
Rollers	2020	6	15	1 6_15	0.926	4.72504	4.53426	0.005	0.329	0.303	525.8798	0.17
Rollers	2020	16	25	2 16_25	0.926	4.72504	4.53426	0.005	0.329	0.303	525.8798	0.17
Rollers	2020	26	50	3 26_50	0.926	4.72504	4.53426	0.005	0.329	0.303	525.8798	0.17
Rollers	2020	51	120	4 51_120	0.388	3.53135	3.88153	0.005	0.247	0.228	473.8594	0.153
Rollers	2020	121	175	5 121_175	0.215	2.93333	2.45176	0.005	0.113	0.104	471.9177	0.153
Rollers	2020	176	250	6 176_250	0.209	1.25343	2.75095	0.005	0.089	0.082	473.3669	0.153
Rollers	2020	251	500	7 251_500	0.235	2.11346	2.82823	0.005	0.109	0.101	479.3254	0.155
Rollers	2021	6	15	1 6_15	0.847	4.59681	4.35097	0.005	0.294	0.27	525.7908	0.17
Rollers	2021	16	25	2 16_25	0.847	4.59681	4.35097	0.005	0.294	0.27	525.7908	0.17
Rollers	2021	26	50	3 26_50	0.847	4.59681	4.35097	0.005	0.294	0.27	525.7908	0.17

Rollers	2021	51	120	4 51_120	0.353	3.50719	3.5889	0.005	0.219	0.202	473.9012	0.153
Rollers	2021	121	175	5 121_175	0.193	2.9256	2.11691	0.005	0.097	0.09	471.9799	0.153
Rollers	2021	176	250	6 176_250	0.196	1.22849	2.49332	0.005	0.081	0.075	473.4704	0.153
Rollers	2021	251	500	7 251_500	0.221	1.94995	2.58936	0.005	0.1	0.092	479.3294	0.155
Rough Terrain Forklifts	2020	26	50	3 26_50	0.999	4.68594	4.4946	0.005	0.316	0.291	525.6222	0.17
Rough Terrain Forklifts	2020	51	120	4 51_120	0.189	3.25575	2.45218	0.005	0.103	0.094	472.9842	0.153
Rough Terrain Forklifts	2020	121	175	5 121_175	0.143	2.84466	1.86888	0.005	0.068	0.063	471.7152	0.153
Rough Terrain Forklifts	2020	176	250	6 176_250	0.112	0.97848	1.60906	0.005	0.037	0.034	472.5671	0.153
Rough Terrain Forklifts	2020	251	500	7 251_500	0.089	0.94184	1.30199	0.005	0.028	0.026	465.7709	0.151
Rough Terrain Forklifts	2021	26	50	3 26_50	0.968	4.65658	4.41145	0.005	0.304	0.279	525.3844	0.17
Rough Terrain Forklifts	2021	51	120	4 51_120	0.175	3.25191	2.28534	0.005	0.089	0.081	473.11	0.153
Rough Terrain Forklifts	2021	121	175	5 121_175	0.13	2.8447	1.61661	0.005	0.06	0.055	471.7575	0.153
Rough Terrain Forklifts	2021	176	250	6 176_250	0.115	0.98379	1.61186	0.005	0.037	0.034	472.5469	0.153
Rough Terrain Forklifts	2021	251	500	7 251_500	0.092	0.94604	1.30199	0.005	0.028	0.026	465.7442	0.151
Rubber Tired Dozers	2020	121	175	5 121_175	0.726	3.89288	7.18525	0.005	0.411	0.378	473.0116	0.153
Rubber Tired Dozers	2020	176	250	6 176_250	0.619	2.37104	6.50332	0.005	0.318	0.293	474.7928	0.154
Rubber Tired Dozers	2020	251	500	7 251_500	0.535	4.41134	5.64089	0.005	0.259	0.238	479.7569	0.155
Rubber Tired Dozers	2020	501	750	8 501_750	0.456	2.60108	6.12255	0.005	0.218	0.201	473.0562	0.153
Rubber Tired Dozers	2020	751	1000	9 751_1000	0.522	2.164	5.306	0.005	0.16	0.16	568.299	0.047
Rubber Tired Dozers	2021	121	175	5 121_175	0.691	3.84814	6.79037	0.005	0.386	0.355	472.9751	0.153
Rubber Tired Dozers	2021	176	250	6 176_250	0.6	2.31719	6.29617	0.005	0.306	0.281	474.7984	0.154
Rubber Tired Dozers	2021	251	500	7 251_500	0.492	4.04107	5.081	0.005	0.232	0.214	478.9868	0.155
Rubber Tired Dozers	2021	501	750	8 501_750	0.458	2.60396	6.12254	0.005	0.218	0.201	473.0459	0.153
Rubber Tired Dozers	2021	751	1000	9 751_1000	0.497	2.057	5.095	0.005	0.15	0.15	568.299	0.044
Rubber Tired Loaders	2020	16	25	2 16_25	1.48	6.76793	5.25369	0.005	0.474	0.436	524.6967	0.17
Rubber Tired Loaders	2020	26	50	3 26_50	1.48	6.76793	5.25369	0.005	0.474	0.436	524.6967	0.17
Rubber Tired Loaders	2020	51	120	4 51_120	0.556	3.94839	4.68644	0.005	0.367	0.338	465.6735	0.151
Rubber Tired Loaders	2020	121	175	5 121_175	0.379	3.36809	3.51735	0.005	0.194	0.178	471.2135	0.152
Rubber Tired Loaders	2020	176	250	6 176_250	0.29	1.26885	3.42116	0.005	0.114	0.104	469.5127	0.152
Rubber Tired Loaders	2020	251	500	7 251_500	0.289	1.6304	3.01666	0.005	0.112	0.103	466.7831	0.151
Rubber Tired Loaders	2020	501	750	8 501_750	0.277	1.39991	2.76722	0.005	0.107	0.099	462.193	0.149
Rubber Tired Loaders	2020	751	1000	9 751_1000	0.311	1.20366	5.25309	0.005	0.139	0.127	469.9352	0.152
Rubber Tired Loaders	2021	16	25	2 16_25	1.325	6.44855	4.97419	0.005	0.409	0.376	524.5505	0.17
Rubber Tired Loaders	2021	26	50	3 26_50	1.325	6.44855	4.97419	0.005	0.409	0.376	524.5505	0.17
Rubber Tired Loaders	2021	51	120	4 51_120	0.498	3.8917	4.21491	0.005	0.316	0.291	466.4213	0.151
Rubber Tired Loaders	2021	121	175	5 121_175	0.346	3.35381	3.11886	0.005	0.171	0.157	471.0804	0.152
Rubber Tired Loaders	2021	176	250	6 176_250	0.266	1.24034	2.9977	0.005	0.1	0.092	469.5642	0.152
Rubber Tired Loaders	2021	251	500	7 251_500	0.264	1.52922	2.61037	0.005	0.097	0.09	467.9277	0.151
Rubber Tired Loaders	2021	501	750	8 501_750	0.271	1.39703	2.64092	0.005	0.102	0.094	462.0548	0.149
Rubber Tired Loaders	2021	751	1000	9 751_1000	0.294	1.2055	4.97489	0.005	0.128	0.118	471.2577	0.152
Scrapers	2020	51	120	4 51_120	0.701	4.19756	6.6767	0.005	0.51	0.469	483.745	0.156

Scrapers	2020	121	175	5	121_175	0.478	3.50114	4.86851	0.005	0.262	0.241	478.6077	0.155
Scrapers	2020	176	250	6	176_250	0.446	2.06469	5.089	0.005	0.223	0.205	468.9883	0.152
Scrapers	2020	251	500	7	251_500	0.32	2.40063	3.78254	0.005	0.148	0.136	472.1751	0.153
Scrapers	2020	501	750	8	501_750	0.262	1.72502	3.12592	0.005	0.113	0.104	471.7776	0.153
Scrapers	2021	51	120	4	51_120	0.704	4.21819	6.65882	0.005	0.512	0.471	483.7128	0.156
Scrapers	2021	121	175	5	121_175	0.432	3.45599	4.34133	0.005	0.232	0.213	478.654	0.155
Scrapers	2021	176	250	6	176_250	0.391	1.88374	4.36706	0.005	0.189	0.174	469.1258	0.152
Scrapers	2021	251	500	7	251_500	0.299	2.25454	3.44481	0.005	0.134	0.123	472.4636	0.153
Scrapers	2021	501	750	8	501_750	0.25	1.65772	2.88702	0.005	0.105	0.097	471.7859	0.153
Signal Boards	2020	6	15	1	6_15	0.661	3.469	4.142	0.008	0.161	0.161	568.299	0.059
Signal Boards	2020	26	50	3	26_50	0.788	4.448	4.132	0.007	0.206	0.206	568.299	0.071
Signal Boards	2020	51	120	4	51_120	0.395	3.504	3.134	0.006	0.187	0.187	568.299	0.035
Signal Boards	2020	121	175	5	121_175	0.298	3.043	2.309	0.006	0.11	0.11	568.299	0.026
Signal Boards	2020	176	250	6	176_250	0.274	1.281	2.35	0.007	0.071	0.071	686.695	0.024
Signal Boards	2021	6	15	1	6_15	0.661	3.469	4.142	0.008	0.161	0.161	568.299	0.059
Signal Boards	2021	26	50	3	26_50	0.714	4.38	4.002	0.007	0.179	0.179	568.299	0.064
Signal Boards	2021	51	120	4	51_120	0.363	3.493	2.889	0.006	0.162	0.162	568.299	0.032
Signal Boards	2021	121	175	5	121_175	0.278	3.043	2.043	0.006	0.098	0.098	568.299	0.025
Signal Boards	2021	176	250	6	176_250	0.26	1.273	2.053	0.007	0.063	0.063	686.695	0.023
Skid Steer Loaders	2020	16	25	2	16_25	0.439	3.76397	3.69113	0.005	0.145	0.133	527.7577	0.171
Skid Steer Loaders	2020	26	50	3	26_50	0.439	3.76397	3.69113	0.005	0.145	0.133	527.7577	0.171
Skid Steer Loaders	2020	51	120	4	51_120	0.188	3.2771	2.5046	0.005	0.108	0.1	471.9075	0.153
Skid Steer Loaders	2021	16	25	2	16_25	0.409	3.73158	3.57304	0.005	0.126	0.116	527.4501	0.171
Skid Steer Loaders	2021	26	50	3	26_50	0.409	3.73158	3.57304	0.005	0.126	0.116	527.4501	0.171
Skid Steer Loaders	2021	51	120	4	51_120	0.178	3.27687	2.36588	0.005	0.096	0.089	471.9774	0.153
Surfacing Equipment	2020	26	50	3	26_50	0.536	3.93357	4.23906	0.006	0.216	0.199	535.5275	0.173
Surfacing Equipment	2020	51	120	4	51_120	0.33	3.43932	3.61216	0.005	0.206	0.19	473.8188	0.153
Surfacing Equipment	2020	121	175	5	121_175	0.307	2.93068	3.67232	0.005	0.175	0.161	469.2079	0.152
Surfacing Equipment	2020	176	250	6	176_250	0.212	1.21774	3.22243	0.005	0.097	0.089	476.4261	0.154
Surfacing Equipment	2020	251	500	7	251_500	0.146	1.21902	1.83755	0.005	0.067	0.062	471.6331	0.153
Surfacing Equipment	2020	501	750	8	501_750	0.142	0.99569	2.09374	0.005	0.074	0.068	469.6252	0.152
Surfacing Equipment	2021	26	50	3	26_50	0.507	3.93231	4.18875	0.006	0.204	0.188	535.784	0.173
Surfacing Equipment	2021	51	120	4	51_120	0.312	3.43619	3.46112	0.005	0.191	0.175	474.0906	0.153
Surfacing Equipment	2021	121	175	5	121_175	0.258	2.91895	3.09858	0.005	0.145	0.134	469.1687	0.152
Surfacing Equipment	2021	176	250	6	176_250	0.207	1.21854	2.99364	0.005	0.092	0.085	476.8023	0.154
Surfacing Equipment	2021	251	500	7	251_500	0.141	1.20226	1.75282	0.005	0.064	0.058	471.7484	0.153
Surfacing Equipment	2021	501	750	8	501_750	0.125	0.99181	1.59712	0.005	0.062	0.057	470.4087	0.152
Sweepers/Scrubbers	2020	6	15	1	6_15	1.344	6.1554	5.09515	0.005	0.463	0.426	525.3284	0.17
Sweepers/Scrubbers	2020	16	25	2	16_25	1.344	6.1554	5.09515	0.005	0.463	0.426	525.3284	0.17
Sweepers/Scrubbers	2020	26	50	3	26_50	1.344	6.1554	5.09515	0.005	0.463	0.426	525.3284	0.17
Sweepers/Scrubbers	2020	51	120	4	51_120	0.52	3.82752	4.4821	0.005	0.36	0.331	474.1157	0.153

Sweepers/Scrubbers	2020	121	175	5	121_175	0.462	3.35909	4.60809	0.005	0.237	0.218	473.1221	0.153
Sweepers/Scrubbers	2020	176	250	6	176_250	0.207	1.13655	2.4856	0.005	0.079	0.073	470.1263	0.152
Sweepers/Scrubbers	2021	6	15	1	6_15	1.219	5.89996	4.84946	0.005	0.412	0.379	525.3284	0.17
Sweepers/Scrubbers	2021	16	25	2	16_25	1.219	5.89996	4.84946	0.005	0.412	0.379	525.3284	0.17
Sweepers/Scrubbers	2021	26	50	3	26_50	1.219	5.89996	4.84946	0.005	0.412	0.379	525.3284	0.17
Sweepers/Scrubbers	2021	51	120	4	51_120	0.44	3.75746	3.96194	0.005	0.291	0.268	474.1157	0.153
Sweepers/Scrubbers	2021	121	175	5	121_175	0.385	3.24726	3.70723	0.005	0.187	0.172	473.1221	0.153
Sweepers/Scrubbers	2021	176	250	6	176_250	0.164	1.1084	1.75821	0.005	0.055	0.051	470.1263	0.152
Tractors/Loaders/Backhoes	2020	16	25	2	16_25	0.83	5.03491	4.39784	0.005	0.288	0.265	515.874	0.167
Tractors/Loaders/Backhoes	2020	26	50	3	26_50	0.83	5.03491	4.39784	0.005	0.288	0.265	515.874	0.167
Tractors/Loaders/Backhoes	2020	51	120	4	51_120	0.331	3.60147	3.32571	0.005	0.21	0.193	475.1543	0.154
Tractors/Loaders/Backhoes	2020	121	175	5	121_175	0.246	3.10518	2.41467	0.005	0.122	0.112	467.5132	0.151
Tractors/Loaders/Backhoes	2020	176	250	6	176_250	0.225	1.19592	2.73794	0.005	0.09	0.083	470.4998	0.152
Tractors/Loaders/Backhoes	2020	251	500	7	251_500	0.194	1.35815	2.07976	0.005	0.073	0.067	468.2447	0.151
Tractors/Loaders/Backhoes	2020	501	750	8	501_750	0.268	1.60984	3.11926	0.005	0.117	0.108	468.6602	0.152
Tractors/Loaders/Backhoes	2021	16	25	2	16_25	0.756	4.90172	4.22643	0.005	0.254	0.234	515.1213	0.167
Tractors/Loaders/Backhoes	2021	26	50	3	26_50	0.756	4.90172	4.22643	0.005	0.254	0.234	515.1213	0.167
Tractors/Loaders/Backhoes	2021	51	120	4	51_120	0.296	3.57072	2.995	0.005	0.177	0.162	475.3621	0.154
Tractors/Loaders/Backhoes	2021	121	175	5	121_175	0.221	3.0907	2.06221	0.005	0.104	0.096	467.5285	0.151
Tractors/Loaders/Backhoes	2021	176	250	6	176_250	0.209	1.18606	2.36922	0.005	0.08	0.074	470.5716	0.152
Tractors/Loaders/Backhoes	2021	251	500	7	251_500	0.179	1.34147	1.776	0.005	0.064	0.059	469.3025	0.152
Tractors/Loaders/Backhoes	2021	501	750	8	501_750	0.247	1.43254	2.75417	0.005	0.104	0.096	466.4564	0.151
Trenchers	2020	6	15	1	6_15	0.905	4.8331	4.67651	0.005	0.356	0.328	527.0962	0.17
Trenchers	2020	16	25	2	16_25	0.905	4.8331	4.67651	0.005	0.356	0.328	527.0962	0.17
Trenchers	2020	26	50	3	26_50	0.905	4.8331	4.67651	0.005	0.356	0.328	527.0962	0.17
Trenchers	2020	51	120	4	51_120	0.61	3.83272	5.51952	0.005	0.413	0.38	475.1265	0.154
Trenchers	2020	121	175	5	121_175	0.421	3.32968	4.46042	0.005	0.228	0.21	467.7348	0.151
Trenchers	2020	176	250	6	176_250	0.392	1.77405	4.8091	0.005	0.195	0.179	473.5951	0.153
Trenchers	2020	251	500	7	251_500	0.233	1.85932	2.775	0.005	0.105	0.097	470.6367	0.152
Trenchers	2020	501	750	8	501_750	0.07	0.95004	0.56006	0.005	0.009	0.008	472.6556	0.153
Trenchers	2021	6	15	1	6_15	0.809	4.66576	4.45891	0.005	0.313	0.288	527.0165	0.17
Trenchers	2021	16	25	2	16_25	0.809	4.66576	4.45891	0.005	0.313	0.288	527.0165	0.17
Trenchers	2021	26	50	3	26_50	0.809	4.66576	4.45891	0.005	0.313	0.288	527.0165	0.17
Trenchers	2021	51	120	4	51_120	0.556	3.78912	5.10594	0.005	0.371	0.341	475.287	0.154
Trenchers	2021	121	175	5	121_175	0.407	3.30363	4.27237	0.005	0.219	0.201	467.7343	0.151
Trenchers	2021	176	250	6	176_250	0.356	1.66826	4.36036	0.005	0.172	0.158	473.8538	0.153
Trenchers	2021	251	500	7	251_500	0.221	1.86493	2.49105	0.005	0.1	0.092	470.701	0.152
Trenchers	2021	501	750	8	501_750	0.066	0.94677	0.47513	0.005	0.009	0.008	472.5289	0.153
Welders	2020	6	15	1	6_15	0.731	3.546	4.542	0.008	0.227	0.227	568.299	0.066
Welders	2020	16	25	2	16_25	0.769	2.473	4.538	0.007	0.212	0.212	568.299	0.069
Welders	2020	26	50	3	26_50	0.937	4.84	4.304	0.007	0.238	0.238	568.299	0.084

Welders	2020	51	120	4 51_120	0.455	3.605	3.351	0.006	0.216	0.216	568.299	0.041
Welders	2020	121	175	5 121_175	0.344	3.122	2.523	0.006	0.127	0.127	568.299	0.031
Welders	2020	176	250	6 176_250	0.261	1.093	2.143	0.006	0.066	0.066	568.299	0.023
Welders	2020	251	500	7 251_500	0.252	1.055	1.91	0.005	0.064	0.064	568.299	0.022
Welders	2021	6	15	1 6_15	0.717	3.531	4.462	0.008	0.214	0.214	568.299	0.064
Welders	2021	16	25	2 16_25	0.752	2.446	4.497	0.007	0.201	0.201	568.299	0.067
Welders	2021	26	50	3 26_50	0.829	4.708	4.133	0.007	0.203	0.203	568.299	0.074
Welders	2021	51	120	4 51_120	0.411	3.579	3.042	0.006	0.184	0.184	568.299	0.037
Welders	2021	121	175	5 121_175	0.315	3.112	2.189	0.006	0.11	0.11	568.299	0.028
Welders	2021	176	250	6 176_250	0.243	1.081	1.836	0.006	0.057	0.057	568.299	0.021
Welders	2021	251	500	7 251_500	0.236	1.044	1.642	0.005	0.055	0.055	568.299	0.021

Offroad Emission Factors (Controlled). Source: CalEEMod Users Guide Appendix D, Table 3.5

Tier 4 Final		(hp)	(g/hp-hr)	(g/hp-hr)	(g/hp-hr)	(g/hp-hr)	(g/hp-hr)
Tier 4 Bin	**Low**	**High**	**ROG**	**CO**	**NOX**	**PM10**	**PM25**
1	25	49	0.12	4.1	2.75	0.008	0.008
2	50	74	0.12	3.7	2.74	0.008	0.008
3	75	119	0.12	3.7	0.26	0.008	0.008
4	120	174	0.06	3.7	0.26	0.008	0.008
5	175	299	0.06	2.2	0.26	0.008	0.008
6	300	599	0.06	2.2	0.26	0.008	0.008
7	600	750	0.06	2.2	0.26	0.008	0.008
8	751	2000	0.06	2.6	2.24	0.016	0.016

Onroad Emission Factors, Uncontrolled Exhaust (typ MDAB per CalEEMod 2016.3.2, Q.46 SCE, 6/8/2018)

	(lb/mi)	(lb/mi)	(lb/mi)	(lb/mi)	(lb/mi)	(lb/mi)	(lb/mi)	(lb/mi)
	On Uncontrolled Exhaust							

Vehicle Type	ROG	NOX	CO	SOX	PM10	PM25	CO2	CH4
passenger	0.000308	0.000279	0.003281	0.00000792	0.00000475	0.00000421	0.788512	0.0000282
delivery	0.000346	0.004683	0.002023	0.0000231	0.0001496	0.0001431	2.397769	0.00003
hhdt	0.000161	0.006102	0.000923	0.0000308	0.0000343	0.0000328	3.233361	0.0000172

Onroad Uncontrolled Dust

	(lb/mi)	(lb/mi)
	On Uncontrolled Dust	

Vehicle Type	Road Type	PM10	PM25	State	Lookup
passenger	Paved	0.0007597	0.0002014	Nevada	passenger_Paved_Nevada
delivery	Paved	0.0009749	0.000292	Nevada	delivery_Paved_Nevada
hhdt	Paved	0.0008759	0.0002402	Nevada	hhdt_Paved_Nevada
passenger	Unpaved	1.4717771	0.146894	Nevada	passenger_Unpaved_Nevada
delivery	Unpaved	1.4719923	0.1469846	Nevada	delivery_Unpaved_Nevada
hhdt	Unpaved	1.4718933	0.1469328	Nevada	hhdt_Unpaved_Nevada
passenger	Paved	0.0007597	0.0002014	California	passenger_Paved_California
delivery	Paved	0.0009749	0.000292	California	delivery_Paved_California
hhdt	Paved	0.0008759	0.0002402	California	hhdt_Paved_California
passenger	Unpaved	1.4717771	0.146894	California	passenger_Unpaved_California
delivery	Unpaved	1.4719923	0.1469846	California	delivery_Unpaved_California
hhdt	Unpaved	1.4718933	0.1469328	California	hhdt_Unpaved_California

Onroad Emission Factors, Controlled Exhaust (typ MDAB per CalEEMod 2016.3.2, Q.46 SCE, 6/8/2018)

	(lb/mi)	(lb/mi)	(lb/mi)	(lb/mi)	(lb/mi)	(lb/mi)	(lb/mi)	(lb/mi)
	On Controlled Exhaust							

Vehicle Type	ROG	NOX	CO	SOX	PM10	PM25	CO2	CH4
passenger	0.000308	0.000279	0.003281	0.00000792	0.00000457	4.21E-06	0.788512	2.82E-05
delivery	0.000346	0.004683	0.002023	0.0000231	0.0001496	0.000143	2.397769	0.00003
hhdt	0.000161	0.006102	0.000923	0.0000308	0.0000343	3.28E-05	3.233361	1.72E-05

Onroad Controlled Dust

	(lb/mi)	(lb/mi)
	On Controlled Dust	

Vehicle Type	Road Type	PM10	PM25	State	Lookup
passenger	Paved	0.0007597	0.0002014	Nevada	passenger_Paved_Nevada
delivery	Paved	0.0009137	0.0002663	Nevada	delivery_Paved_Nevada
hhdt	Paved	0.0008753	0.00024	Nevada	hhdt_Paved_Nevada
passenger	Unpaved	0.4055636	0.0404448	Nevada	passenger_Unpaved_Nevada
delivery	Unpaved	0.4057787	0.0405354	Nevada	delivery_Unpaved_Nevada
hhdt	Unpaved	0.4056797	0.0404836	Nevada	hhdt_Unpaved_Nevada
passenger	Paved	0.0007597	0.0002014	California	passenger_Paved_California
delivery	Paved	0.0009137	0.0002663	California	delivery_Paved_California
hhdt	Paved	0.0008753	0.00024	California	hhdt_Paved_California
passenger	Unpaved	0.235484336	0.02350304	California	passenger_Unpaved_California
delivery	Unpaved	0.235518768	0.023517536	California	delivery_Unpaved_California
hhdt	Unpaved	0.235502928	0.023509248	California	hhdt_Unpaved_California

Helicopter Emission Factors, Exhaust

Mode	Fuel Flow (kilograms per second)	Time in Mode (minutes)	Emission Factor (pounds per minute) CO	ROG	NO_x	SO_x	PM10	PM2.5	CO_2	CH4
Taxi Out	0.013	2	0.007	0.069	0.007	0.004	0.01	0.009	10.838	0.0004
Takeoff	0.119	1	0.228	0.001	0.228	0.04	0.054	0.0486	98.788	0.0032
Climbout	0.117	2	0.227	0.001	0.227	0.04	0.045	0.0405	97.732	0.0032
Approach	0.029	24	0.032	0.001	0.032	0.01	0.018	0.0162	23.855	0.0008
Taxi In	0.013	1	0.007	0.069	0.007	0.004	0.01	0.009	10.838	0.0004
Total		Pounds per hour ->	2.942	0.468	2.942	0.744	1.212	1.0908	1798.6	0.0583

*Assume 90% of PM = PM2.5 and 100% of PM is PM10

(lb/hr)

Pollutant	EF
CO	2.942
ROG	0.468
NOX	2.942
SOX	0.744
PM10	1.212
PM25	1.0908
CO2	1798.572
CH4	0.058261

kilograms CO_2 per Gallon of Jet A Fuel - Helicopters	9.57	kilograms per gallon	CCAR GRP v3.1 Table C.3
grams CO_2 per Gallon of Jet A Fuel - Helicopters	9570	grams per gallon	
grams N_2O per Gallon of Jet A Fuel - Helicopters	0.31	grams per gallon	CCAR GRP v3.1 Table C.6
grams CH_4 per Gallon of Jet A Fuel - Helicopters	0.27	grams per gallon	CCAR GRP v3.1 Table C.6

Earthwork Emission Factors, Fugitive Dust

Uncontrolled	(lb/hr)	(lb/hr)
Category	**PM10**	**PM25**
Soil Handling	0.00162	0.000336
Grading	1.481	0.308

Controlled	(lb/hr)	(lb/hr)
Category	**PM10**	**PM25**
Soil Handling	0.000891	0.0001848
Grading	0.81455	0.1694

Total Construction Duration, Uncontrolled Emissions (by year, by state)

	(ton)	(ton)	(ton)	(ton)	(ton)	(ton)	(ton)	(ton)

Uncontrolled Annual Emissions (tons per year)

State	Year	ROG	NOX	CO	SOX	PM10	PM25	CO2	CH4
California	2020	1.1	10.0	9.3	0.3	52.7	5.9	2971.2	0.5
California	2021	2.1	15.6	17.2	1.5	62.4	8.6	6525.5	0.7
Nevada	2020	1.5	12.6	12.0	0.8	53.7	6.8	4417.6	0.5
Nevada	2021	0.4	3.0	3.1	0.1	19.8	2.2	944.0	0.1
Total Construction		**5.0**	**41.2**	**41.6**	**2.7**	**188.5**	**23.5**	**14858.3**	**1.8**

Total Construction Duration, Controlled Emissions (by year, by state)

	(ton)	(ton)	(ton)	(ton)	(ton)	(ton)	(ton)	(ton)

Controlled Annual Emissions (tons per year)

State	Year	ROG	NOX	CO	SOX	PM10	PM25	CO2	CH4
California	2020	0.5	3.4	11.2	0.3	9.2	1.3	2971.2	0.5
California	2021	1.5	8.7	19.1	1.5	12.8	3.4	6525.5	0.7
Nevada	2020	1.0	5.8	13.5	0.8	16.1	2.8	4417.6	0.5
Nevada	2021	0.2	1.1	3.4	0.1	5.7	0.7	944.0	0.1
Total Construction		**3.2**	**19.0**	**47.2**	**2.7**	**43.9**	**8.3**	**14858.3**	**1.8**

Total Construction Duration, Uncontrolled Emissions (by source type)

		(ton)	(ton)	(ton)	(ton)	(ton)	(ton)	(ton)	(ton)
Category	On-Off	ROG	NOX	CO	SOX	PM10	PM25	CO2	CH4
	NA	1.6	10.2	10.2	2.6	4.2	3.8	6223.1	0.2
	off	2.5	26.9	22.9	0.1	1.6	1.1	4967.5	1.5
	on	0.9	4.1	8.5	0.0	182.7	18.7	3667.7	0.1
Total Construction		**5.0**	**41.2**	**41.6**	**2.7**	**188.5**	**23.5**	**14858.3**	**1.8**

Total Construction Duration, Controlled Emissions (by source type)

		(ton)	(ton)	(ton)	(ton)	(ton)	(ton)	(ton)	(ton)
Category	On-Off	ROG	NOX	CO	SOX	PM10	PM25	CO2	CH4
	NA	1.6	10.2	10.2	2.6	4.2	3.8	6223.1	0.2
	off	0.7	4.7	28.4	0.1	0.4	0.1	4967.5	1.5
	on	0.9	4.1	8.5	0.0	39.3	4.3	3667.7	0.1
Total Construction		**3.2**	**19.0**	**47.2**	**2.7**	**43.9**	**8.3**	**14858.3**	**1.8**

	Sum of CO2e, GWP:	1	25
		(ton)	(ton)
		CO2e	CO2e (CH4)
		14,858.3	45.3

Estimate of Energy Use | from: US CO2 Emission Factors for Transport Fuels

(kg CO2 / gal)		(gal)		(MTCO2e)	(MTCO2e)
Transport Fuel (TCR Table 13.1)		Estimate		CO2e	CO2e
9.75	Jet Fuel (Jet A)	579,032	Helicopter	5,650	
10.21	Diesel	441,386	Offroad	4,541	
8.78	Gasoline	378,965	Onroad	3,329	
Source: The Climate Registry (5/1/2018) default emission factors for 2018					(/ 30 yr)
				13,520.4	**450.7**

Total Construction Duration, GHG Summary				***Exhaust (excludes SF6)***
	(ton)	(ton)	(ton)	(MTCO2e)
Column1	**CO2**	**CH4**	**CO2e**	**CO2e with SF6**
GWP	1	25		
2020	7388.8	1.0	7414.1	8504.4
2021	7469.5	0.8	7489.5	8579.7
Total Construction	**14,858.3**	**1.8**	**14,903.6**	**13,520.4**

SF6 (in CO2e ton/yr)	*1,090.26*
SF6 (in MTCO2e/yr)	*989.08*

Southern California Edison
ELM Project A.18-05-007
Q.AQ-2 Response: DATA REQUEST SET A1805007-ED-SCE-001

									GWP =	25	210
Generator Location	**Approximate Generator Output (kW)**	Equiv.Gen Output (hp)	Est fuel inp: 30% effic (MMBtu/hr)	**Emission Factor (g/kW-hr) NOx**	**Emission Factor (g/kW-hr) CO**	**NSPS JJJJ Std (g/hp-hr) VOC**	**AP-42 Est (lb/MMBtu) PM10/PM2.5**	**AP-42 Est (lb/MMBtu) SO2**	**Emission Factor (g/kW-hr) CO2**	**Emission Factor (g/kW-hr) CH4**	**Emission Factor (g/kW-hr) N2O**
Each Repeater Site	36.9	49.5	0.4	7.6	69.3	1.0	7.7E-05	5.9E-04	706.7	0.033	0.008
Each Capacitor Site	351.0	470.7	4.0	2.7	4.4	1.0	7.7E-05	5.9E-04	740.5	0.147	0.011

Q.AQ-2 Response, SCE's Notes:

- NO_x = oxides of nitrogen, CO = carbon monoxide, CO_2 = carbon dioxide, CH_4 = methane, N_2O = nitrous oxide
- Repeater site generator CAP emission factors obtained from the United States (U.S.) Environmental Protection Agency's (EPA's) exhaust emission data sheet (EDS-1168).
- Capacitor site generator CAP emission factors obtained from the U.S. EPA's Mobile 40 CFR Part 1048 standards (Nonroad Tier 2).
- GHG emission factors were obtained from the U.S. EPA's annual certification data. In the absence of test results from matching engine families, emission factors from similar engine families were averaged.

Additional emission factors: VOC ~ 1.0 g/hp-hr (40 CFR 60 Subpart JJJJ Table 1); PM10/PM2.5 ~ 0.000077 lb/MMBtu input (USEPA AP-42 Table 3.2-2)

Daily Emissions

These generators at each repeater site will be tested weekly by operating each for approximately 30 minutes.
The generators at each capacitor site will be tested quarterly for approximately 30 minutes. One of these quarterly tests will be extended to approximately 3 hours.
As a result, the capacitor generators will require approximately 4.5 hours of testing annually. The table that follows provides the maximum estimated daily emissions for each generator, by location.

Generator Location	**Approximate Generator Output (kW)**	**Approximate Daily Testing Duration per Site (hours/day)**	**(lb/d) NOx**	**(lb/d) CO**	**(lb/d) VOC**	**(lb/d) PM10/PM2.5**	**(lb/d) SO2**	**(lb/d) CO2**	**(lb/d) CH4**	**(lb/d) N2O**
Each Repeater Site	36.9	0.5	0.31	2.82	0.05	3.57E-08	2.72E-07	28.74	0.00	0.00
Each Capacitor Site	351	3	6.27	10.21	3.11	2.04E-06	1.55E-05	1719.02	0.34	0.03

Annual Emissions

As described previously, each generator at each repeater site would be tested weekly and each generator at each capacitor site would be tested quarterly.
The table that follows presents the total approximate annual emissions from the testing process.

Generator Location (Qty)	**Engines # Overall**	**Approximate Annual Testing Duration per Site (hr/yr)**	**(lb/yr) NOx**	**(lb/yr) CO**	**(lb/yr) VOC**	**(lb/yr) PM10/PM2.5**	**(lb/yr) SO2**	**(lb/yr) CO2**	**(lb/yr) CH4**	**(lb/yr) N2O**
Repeater Sites (3)	3	26	48.22	439.73	8.51	5.57E-06	4.24E-05	4484.18	0.21	0.05
Capacitor Sites (2)	2	4.5	18.80	30.64	9.34	6.11E-06	4.66E-05	5157.05	1.02	0.08

			(ton/yr) NOx	**(ton/yr) CO**	**(ton/yr) VOC**	**(ton/yr) PM10/PM2.5**	**(ton/yr) SO2**	**(MT/yr) CO2e**
Total	--	--	**0.034**	**0.235**	**0.009**	**5.84E-09**	**4.45E-08**	**4.40**

Notes:

- CO2e= carbon dioxide equivalent
- CH4 global warming potential (GWP) = 25, N2O GWP = 210

Appendix C

California Local Regulations

Appendix C
Local California Regulations

The CPUC has sole and exclusive jurisdiction over the siting and design of the components of the Proposed Project located in the State of California. Pursuant to CPUC G.O. 131-D, Section XIV.B, "Local jurisdictions acting pursuant to local authority are preempted from regulating electric power line projects, distribution lines, substations, or electric facilities constructed by public utilities subject to the CPUC's jurisdiction. However, in locating such projects, the public utilities shall consult with local agencies regarding land use matters." Consequently, public utilities are directed to consider local regulations and consult with local agencies, but the county and cities' regulations are not applicable as the county and cities do not have jurisdiction over the proposed project. For informational purposes, local regulations in California jurisdictions are provided below. In some instances, local regulations are considered in evaluating impact, including air quality, greenhouse gas emissions, noise, and transportation. In Nevada, the Proposed Project is subject to local regulations.

Aesthetics

County of San Bernardino 2007 General Plan. The Conservation and Open Space Elements of the County of San Bernardino 2007 General Plan contain goals and policies for the protection of visual resources in the desert region. The following goals and policies from the County of San Bernardino 2007 General Plan are relevant to the proposed project:

- **Goal D/CO 1:** Preserve the unique environmental features and natural resources of the Desert Region, including native wildlife, vegetation, water and scenic vistas.
- **Policy D/CO 1.2:** Require future land development practices to be compatible with the existing topography and scenic vistas, and protect the natural vegetation.
- **Goal D/CO 3:** Preserve the dark night sky as a natural resource in the Desert Region communities.
- **Policy D/CO 3.2:** All outdoor lighting, including street lighting, shall be provided in accordance with the Night Sky Protection Ordinance and shall only be provided as necessary to meet safety standards.
- **Policy CO 8.1, Program 3:** Require undergrounding of new and existing transmission lines when feasible.
- **Policy CO 8.1, Program 4:** Assist in the development and use of new designs for major transmission line towers that are aesthetically compatible with the environment from a close viewing distance.
- **Policy CO 8.1, Program 7:** The County shall consult with the major electric utilities regarding the location of under-grounding of new and existing transmission lines, and consider the under-grounding of distribution lines when feasible and as determined by California state regulatory processes.
- **Policy CO 8.1, Program 8:** The County shall consult with electric utilities during the planning construction of their major transmission lines towers to ensure that they are aesthetically compatible with the surrounding environment.
- **Goal OS 4:** The County will preserve and protect cultural resources throughout the County, including parks, areas of regional significance, and scenic, cultural and historic sites that contribute to a distinctive visual experience for visitors and quality of life for County residents.
- **Goal OS 5:** The County will maintain and enhance the visual character of scenic routes in the County.
- **Policy OS 5.2:** Define the scenic corridor on either side of the designated route, measured from the outside edge of the right-of-way, trail, or path. Development along scenic corridors will be required to

demonstrate through visual analysis that proposed improvements are compatible with the scenic qualities present.

- **Policy OS 5.3:** The County desires to retain the scenic character of visually important roadways throughout the County. A "scenic route" is a roadway that has scenic vistas and other scenic and aesthetic qualities that over time have been found to add beauty to the County. Therefore, the County designates the following routes as scenic highways and applies all applicable policies to development on these routes (see Figures 2-4A through 2-4C of the Circulation and Infrastructure Background Report):
  - Black Canyon Road
  - Essex Road from Essex northwest to Mitchell Caverns
  - Historic Route 66 (National Trails Highway or Main Street) from Oro Grande northeast and east to the Arizona state line, excepting those areas with incorporated cities
  - I-40 from Ludlow northeast to Needles
  - Kelbaker Road from I-15 southeast to I-40*
  - Lanfair/Ivanpah Road
  - SR-247 (Old Woman Springs Road/Barstow Road) from the Town of Yucca Valley north to Barstow
  - Coxey Truck Trail from Bowen Ranch Road southeast to Rim of the World Drive
  - SR-18 from Big Bear Lake northwest to Apple Valley
- **Policy D/OS 1.6:** No development of any kind, including resource extraction, shall be approved which would destroy or seriously diminish the visual quality of existing sand dunes.
- **Policy OS 7.6:** Require that hillside development be compatible with natural features and the ability to develop the site in a manner that preserves the integrity and character of the hillside environment, including but not limited to, consideration of terrain, landform, access needs, fire and erosion hazards, watershed and flood factors, tree preservation, and scenic amenities and quality.

City of Hesperia General Plan 2010. The Open Space Element of the City of Hesperia General Plan 2010 identifies natural open space areas that should be preserved, including the Mojave River to the east; the Oro Grande Wash and the San Bernardino and San Gabriel Mountains to the south; and the surrounding Victor Valley, along with neighboring hillsides and the natural desert environment. The following policy from the Open Space Element is relevant to the proposed project:

- **Implementation Policy OS-4.2:** Preserve the aesthetic integrity and usefulness of open space washes by implementing restrictive development standards on projects occurring in or around the wash areas, and ensuring development proposals are compatible.

Agriculture and Forestry

County of San Bernardino 2007 General Plan. The Conservation Element of the County of San Bernardino 2007 General Plan contains the following agriculture policies:

- **Policy CO 6.1:** Protect prime agricultural lands from the adverse effects of urban encroachment, particularly increased erosion and sedimentation, trespass, and nonagricultural land development
- **Policy CO 6.4:** Provide and maintain a viable and diverse agricultural industry in San Bernardino County

County of San Bernardino Development Code. Section 82.03.040 of the County of San Bernardino Development Code regulates development within the agricultural zoning districts. Transmission lines are permitted with an alternative review procedure (as defined in Section 85.02.050), which includes review and approval by the CPUC.

City of Hesperia. The proposed project crosses no agriculture, forest, or grazing lands in the City of Hesperia. Therefore, city regulations for these resources have not been included.

Nevada. The proposed project crosses no agriculture, forest, or grazing lands in Nevada. Therefore, Nevada regulations for these resources have not been included.

Air Quality

Mojave Desert Air Quality Management District regulations are applicable to the Proposed Project and are included in Section 5.3.2 Regulatory Background.

Biological Resources

County of San Bernardino General Plan. The County of San Bernardino 2007 General Plan Conservation Element, Open Space Element, and Land Use Element contain the following goals and policies that are relevant to biological resources for the Proposed Project:

- Goal CO 2: The County will maintain and enhance biological diversity and healthy ecosystems throughout the County.
- Goal CO 5: The County will protect and preserve water resources for the maintenance, enhancement, and restoration of environmental resources.
- Policy CO 2.1: The County will coordinate with state and federal agencies and departments to ensure that their programs to preserve rare and endangered species and protect areas of special habitat value, as well as conserve populations and habitats of commonly occurring species, are reflected in reviews and approvals of development programs.
- Policy CO 2.2: Provide a balanced approach to resource protection and recreational use of the natural environment.
- Policy CO 5.4: Drainage courses will be kept in their natural condition to the greatest extent feasible to retain habitat and allow some recharge of groundwater basins and resultant savings.
- Goal OS 6: Improve and preserve open space corridors throughout the County.
- Policy OS 4.2: The County will preserve and encourage the management of suitable land for greenbelts, forests, recreation facilities, and flood control to provide adequate water supply, achieve air quality improvement, and provide habitat for fish, wildlife, and wild vegetation.
- Policy LU 7.2: Enact and enforce regulations that will limit development in environmentally sensitive areas, such as those adjacent to river or streamside areas, and hazardous areas, such as flood plains.

Development Code Section 88.01.060, Native Desert Plant Protection. Regulates the removal of specified native desert plants including smoke trees, mesquite, all species of the family *Agavaceae,* creosote rings, Joshua trees, desert ironwood, and palo verde.

Development Code Section 88.01.080, Riparian Plants. Protects riparian vegetation within 200 feet of the bank of a stream.

City of Hesperia General Plan. The Conservation Element of the plan contains the following goals and policies that are relevant to biological resources for the Proposed Project:

- Goal CN-3: Minimize development and set aside necessary open space near and along the surface waters as well as those washes and other water passageways located in the City of Hesperia to preserve

and protect plant and animal species and their natural habitat dependent on such surface waters and water ways.

- Implementation Policy CN-1.4: Limit the disturbance of natural water hydrology by minimizing the creation of impervious surface area.
- Implementation Policy CN-2.1: Minimize impacts to washes that convey drainage by prohibiting development within drainage corridors.
- Implementation Policy CN-2.3: Protect open space areas used for recharging groundwater basins.
- Implementation Policy CN 3-2: Preserve areas within the Oro Grand wash and un-named wash #1 that exhibit ideal native habitat in a natural state.
- Implementation Policy CN-4.1: Preserve pristine open space areas and known wildlife corridors for conservation to protect species and their habitats.
- Implementation Policy CN-4.2: Encourage the protection, preservation and long-term viability of environmentally sensitive habitats and species in the City of Hesperia.
- Implementation Policy CN-4.4: In those areas known as possible habitat for endangered and sensitive species, require proper assessments before authorizing development.
- Implementation Policy CN-4.5: Where such assessments indicate the presence of endangered or sensitive species, require appropriate actions to preserve the habitat and protect the identified species.

City of Hesperia Code of Ordinances, Chapter 16.24. Article II, Desert Native Plant Protection, requires removal permits for smoke trees, Joshua trees, and creosote rings. Article III, Riparian Plant Conservation, requires a tree removal permit for any vegetation removal within 200 feet of a stream bank.

Cultural Resources

San Bernardino County General Plan (2007)

The San Bernardino County General Plan (2007) directly addresses cultural resources in the Conservation and Open Space Elements.

Goal CO 3. The County will preserve and promote its historic and prehistoric cultural heritage.

Policy CO 3.1 Identify and protect important archaeological and historic cultural resources in areas of the County that have been determined to have known cultural resource sensitivity.

Program 1. Require a cultural resources field survey and evaluation prepared by a qualified professional for projects located within the mapped Cultural Resource Overlay area.

Policy CO 3.2 Identify and protect important archaeological and historic cultural resources in all lands that involves disturbance of previously undisturbed ground.

Program 1. Require the Archaeological Information Center at the San Bernardino County Museum to conduct a preliminary cultural resource review prior to the County's application acceptance for all land use applications in planning regions lacking Cultural Resource Overlays and in lands located outside of planning regions.

Program 2. Should the County's preliminary review indicate the presence of known cultural resources or moderate to high sensitivity for the potential presence of cultural resources, a field survey and evaluation prepared by a qualified professional will be required with project submittal. The format of

the report and standards for evaluation will follow the "Guidelines for Cultural Resource Management Reports" on file with the San Bernardino County Land Use Services Department.

Policy CO 3.3 Establish programs to preserve the information and heritage value of cultural and historical resources.

Policy CO 3.4 The County will comply with Government Code Section 65352.2 (SB 18) by consulting with tribes as identified by the California Native American Heritage Commission on all General Plan and specific plan actions.

Program 1. Site record forms and reports of surveys, test excavations, and data recovery programs will be filed with the Archaeological Information Center at the San Bernardino County Museum, and will be reviewed and approved in consultation with that office. a. Preliminary reports verifying that all necessary archaeological or historical fieldwork has been completed will be required prior to project grading and/or building permits. b. Final reports will be submitted and approved prior to project occupancy permits.

Program 2. Any artifacts collected or recovered as a result of cultural resource investigations will be catalogued per County Museum guidelines and adequately curated in an institution with appropriate staff and facilities for their scientific information potential to be preserved. This shall not preclude the local tribes from seeking the return of certain artifacts as agreed to in a consultation process with the developer/project archaeologist.

Program 3. When avoidance or preservation of an archaeological site or historic structure is proposed as a form of mitigation, a program detailing how such long-term avoidance or preservation is assured will be developed and approved prior to conditional approval.

Policy CO 3.5 Ensure that important cultural resources are avoided or minimized to protect Native American beliefs and traditions.

Program 1. Consistent with SB 18, as well as possible mitigation measures identified through the CEQA process, the County will work and consult with local tribes to identify, protect and preserve "traditional cultural properties" (TCPs). TCPs include both manmade sites and resources as well as natural landscapes that contribute to the cultural significance of areas.

Program 2. The County will protect confidential information concerning Native American cultural resources with internal procedures, per the requirements of SB 922, an addendum to SB 18. The purpose of SB 922 is to exempt cultural site information from public review as provided for in the Public Records Act. Information provided by tribes to the County shall be considered confidential or sacred.

Program 3. The County will work in good faith with the local tribes, developers/applicants and other parties if the local affected tribes request the return of certain Native American artifacts from private development projects. The developer is expected to act in good faith when considering the local tribe's request for artifacts. Artifacts not desired by the local tribe will be placed in a qualified repository as established by the California State Historical Resources Commission. If no facility is available, then all artifacts will be donated to the local tribe.

Program 4. The County will work with the developer of any "gated community" to ensure that the Native Americans are allowed future access, under reasonable conditions, to view and/or visit known sites within the "gated community." If a site is identified within a gated community project, and

preferably preserved as open space, the development will be conditioned by the County allow future access to Native Americans to view and/or visit that site.

Program 5. Because contemporary Native Americans have expressed concern over the handling of the remains of their ancestors, particularly with respect to archaeological sites containing human burials or cremations, artifacts of ceremonial or spiritual significance, and rock art, the following actions will be taken when decisions are made regarding the disposition of archaeological sites that are the result of prehistoric or historic Native American cultural activity:

a. The Native American Heritage Commission and local reservation, museum, and other concerned Native American leaders will be notified in writing of any proposed evaluation or mitigation activities that involve excavation of Native American archaeological sites, and their comments and concerns solicited.

b. The concerns of the Native American community will be fully considered in the planning process.

c. If human remains are encountered during grading and other construction excavation, work in the immediate vicinity will cease and the County Coroner will be contacted pursuant to the state Health and Safety Code.

d. In the event that Native American cultural resources are discovered during project development and/or construction, all work in the immediate vicinity of the find will cease and a qualified archaeologist meeting U.S. Secretary of Interior standards will be hired to assess the find. Work on the overall project may continue during this assessment period.

e. If Native American cultural resources are discovered, the County will contact the local tribe. If requested by the tribe, the County will, in good faith, consult on the discovery and its disposition with the tribe.

Goal M/CO 4. Protect cultural and paleontological resources within the Mountain Region.

Policy M/CO 4.1. Identify and protect significant cultural resources from damage or destruction.

Policy M/CO 4.2. Inventory Cultural Resources, encouraging inputs from the local historical society and committees.

Policy M/CO 4.3. Prepare a Historical/Archeological Overlay for community plan areas in developing land use designations and the formulation and evaluation of plan amendments and development proposals to provide a more systematic and streamlined method of protecting important cultural resources.

Goal D/CO 6. Protect cultural and paleontological resources within the Desert Region.

Policy D/CO 6.1. Identify and protect significant cultural resources from damage or destruction.

Policy D/CO 6.2. Inventory Cultural Resources, encouraging inputs from the local historical society and committees.

Policy D/CO 6.3. Prepare a Historical/Archeological Overlay for community plan areas in developing land use designations and the formulation and evaluation of plan amendments and development proposals to provide a more systematic and streamlined method of protecting important cultural resources.

GOAL OS 4. The County will preserve and protect cultural resources throughout the County, including parks, areas of regional significance, and scenic, cultural and historic sites that contribute to a distinctive visual experience for visitors and quality of life for County residents.

City of Hesperia General Plan (2010)

The City of Hesperia provides policies and goals for the protection of cultural and paleontological resources within the Conservation Element of the City's General Plan (2010).

Goal CN-5. The City shall establish policies and procedures in compliance with state and Federal laws and regulations to identify and properly protect found historical, cultural and paleontological artifacts and resources.

Implementation Policy: CN-5.1. Encourage the preservation of historical, paleontological and cultural resources.

Implementation Policy: CN-5.2. In those areas where surveys and records indicate historical, cultural or paleontological resources may be found, appropriate surveys and records searches shall be undertaken to determine the presence of such resources, if any.

Implementation Policy: CN-5.3. All historical, paleontological and cultural resources discovered shall be inventoried and evaluated according to CEQA regulations and the California Office of Historic Preservation.

Energy

No local Energy regulations applicable to the Proposed Project were identified

Geology and Soils

County of San Bernardino. The Safety Element section of the San Bernardino County General Plan provides for mitigation of geologic hazards through a combination of engineering, construction, land use and development standards. The Plan addresses the geologic hazards present within the county, including fault rupture, ground shaking, liquefaction, seismically generated subsidence, seiche and dam inundation, landslides/mudslides, non-seismic subsidence, erosion and volcanic activity. The county has prepared Hazard Overlay Maps to address fault rupture, liquefaction hazards and landslide hazards. Special consideration, including possible engineering/geologic evaluation, is required for development of sites within designated hazard areas on the maps. Additionally, the County Building and Safety Department enforces Building Standards adopted by the State of California and the County of San Bernardino including the California Building Code contained in Title 24 of the California Code of Regulations.

The Safety Element of the County of San Bernardino 2007 General Plan contains the following goals to address geologic and seismic hazards:

- ***Goal S 1:*** *The County will minimize the potential risks resulting from exposure of County residents to natural and man-made hazards in the following priority: loss of life or injury, damage to property, litigation, excessive maintenance and other social and economic costs*
- ***Goal S 6:*** *The County will protect residents from natural and manmade hazards*
- ***Goal S 7:*** *The County will minimize exposure to hazards and structural damage from geologic and seismic conditions*

The San Bernardino County General Plan (2007) directly addresses the preservation of its more than 3,000 fossil localities, catalogued in the Regional Paleontologic Locality Inventory maintained by the San Bernardino County Museum, in Chapter 5-Conservation Element. The following goals and policies address paleontological resources:

- ***Goal CO 3.*** *The County will preserve and promote its historic and prehistoric cultural heritage.*
- ***Policy CO 3.4, Program 4.*** *In areas of potential but unknown sensitivity, field surveys prior to grading will be required to establish the need for paleontologic monitoring.*
- ***Policy CO 3.4, Program 5.*** *Projects requiring grading plans that are located in areas of known fossil occurrences, or demonstrated in a field survey to have fossils present, will have all rough grading (cuts greater than 3 feet) monitored by trained paleontologic crews working under the direction of a qualified professional, so that fossils exposed during grading can be recovered and preserved. Fossils include large and small vertebrate fossils, the latter recovered by screen washing of bulk samples.*
- ***Policy CO 3.4, Program 6.*** *A report of findings with an itemized accession inventory will be prepared as evidence that monitoring has been successfully completed. A preliminary report will be submitted and approved prior to granting of building permits, and a final report will be submitted and approved prior to granting of occupying permits. The adequacy of paleontologic reports will be determined in consultation with the Curator of Earth Science, San Bernardino County Museum.*
- ***Goal M/CO 4.*** *Protect cultural and paleontological resources within the Mountain Region.*
- ***Goal D/CO 6.*** *Protect cultural and paleontological resources within the Desert Region.*

City of Hesperia General Plan 2010. The Safety Element of the City of Hesperia General Plan 2010 contains the following goals to address geologic and seismic hazards:

- ***Goal SF-1:*** *Minimize injury, loss of life, property damage and economic and social disruption caused by seismic shaking and other earthquake-induced hazards, and by geologic hazards such as slope instability, compressible and collapsible soils, and subsidence*
- ***Goal SF-5:*** *Plan for emergency response and recovery from natural disasters, especially from flooding, fire, and earthquakes, and from civil unrest that may occur following a natural disaster*

The City of Hesperia provides policies and goals for the protection of paleontological resources within the Conservation Element of the City's General Plan (2010):

- ***Goal CN-5.*** *The City shall establish policies and procedures in compliance with state and Federal laws and regulations to identify and properly protect found historical, cultural and paleontological artifacts and resources.*
- ***Implementation Policy: CN-5.1.*** *Encourage the preservation of historical, paleontological and cultural resources.*
- ***Implementation Policy: CN-5.2.*** *In those areas where surveys and records indicate historical, cultural or paleontological resources may be found, appropriate surveys and records searches shall be undertaken to determine the presence of such resources, if any.*
- ***Implementation Policy: CN-5.3.*** *All historical, paleontological and cultural resources discovered shall be inventoried and evaluated according to CEQA regulations and the California Office of Historic Preservation.*

City of Hesperia Building Code. The City of Hesperia has adopted Title 24 of the most current California Code of Regulations (CCR), which is based substantially on the IBC. Local governments are permitted to make local amendments to the CCR that address unique local climatic, geologic, and/or topographical conditions in their respective communities. The City of Hesperia Building Code does not contain any specific regulations that are relevant to the proposed project.

Greenhouse Gas Emissions

The San Bernardino County Regional Greenhouse Gas Reduction Plan (2013) was considered in evaluating GHG impacts. It is discussed in Section 5.8.2 Regulatory Background, for Greenhouse Gas Emissions.

Hazards and Hazardous Materials

County of San Bernardino, California. The Safety Element of the County San Bernardino 2007 General Plan contains the following goals to address hazards and hazardous materials:

- **Goal S 2:** The County will minimize the generation of hazardous waste in the County and reduce the risk posed by storage, handling, transportation, and disposal of hazardous wastes
- **Goal S 3:** The County will protect its residents and visitors from injury and loss of life and protect property from fires
- **Goal S 7:** The County will minimize exposure and potential of damage posed by aviation activity
- **Goal S 9:** The County's emergency evacuation routes will quickly and efficiently evacuate all residents in the event of wildland fires and other natural disasters, and will ensure adequate access of emergency vehicles to all communities

City of Hesperia, California. The Safety Element of the City of Hesperia General Plan 2010 contains the following goal to address hazards and hazardous materials:

- **Goal SF-4:** Reduce the potential for hazardous materials contamination in Hesperia

Hydrology and Water Quality

No local Hydrology and Water Quality regulations applicable to the Proposed Project were identified

Land Use and Planning

County of San Bernardino 2007 General Plan. The Land Use Element of the County of San Bernardino 2007 General Plan functions as a guide as to the ultimate pattern of development for the County of San Bernardino. The Proposed Project is located within the Desert Planning Region of San Bernardino County. The Land Use Plan Designations are listed in Table 5.11-1.

The General Plan includes an Energy Section with policies that include:

- maximizing the beneficial effects and minimizing the adverse effects associated with siting major energy facilities (Policy 8.1)
- requiring undergrounding of new and existing transmission lines when feasible (Policy 8.1)
- assisting in development and use of new designs for major transmission line towers that are aesthetically compatible with the environment from a close viewing distance (Policy 8.1)
- electric infrastructure is essential to serve growth and development in the County. Effective planning for electrical infrastructure requires collaboration between the major utilities and the County (Policy 10.1)
- The location of electric facilities should be consistent with the County's General Plan, and the General Plan should recognize and reflect the need for new and upgraded electric facilities (Policy 10.2)
- Plan transportation facilities (i.e. roads, freeways, rail, rapid transit) and utility systems to cross active fault traces a minimum number of times and to be designed to accommodate fault displacement without

major damage that would cause long-term and unacceptable disruption of service. Utility lines will be equipped with such mechanisms as flexible units, valving, redundant lines, or auto valves to shut off flows in the event of fault rupture. (Policy S 7.4 Program 5)

County of San Bernardino Development Code Section 85.02.050. Alternate Review Procedures. This Code states that unless preempted by State or Federal Law, the specific land uses [electric transmission lines] listed in the land use tables in Chapters 82.03 through 82.22 shall be allowed without a Conditional Use Permit when the following alternate review procedures have been completed to the satisfaction of the Director. Projects approved by the State Public Utilities Commission qualify as the alternate review authority and are acceptable alternate procedures.

City of Hesperia General Plan 2010 and the City of Hesperia Municipal Code. The Land Use Element of the City of Hesperia General Plan establishes the foundation for future development in the City of Hesperia. The Title 16: Development Code of the City of Hesperia's Municipal Code implements the city's General Plan. The Proposed Project is in a Utility Corridor designation within the City of Hesperia.

Mineral Resources

County of San Bernardino 2007 General Plan. The Land Use Element of the County of San Bernardino 2007 General Plan contains the following policy that is relevant to the proposed project:

- ***Policy LU 7.1:*** *Ensure that land use developments within the state-delineated Mineral Resource Zones (MRZs) are in accordance with the adopted mineral resources management policies of the County.*

The Conservation Element of the County of San Bernardino 2007 General Plan contains the following policy that is relevant to the proposed project:

- ***Policy CO 7.2:*** *Implement the state Mineral Resource Zone (MRZ) designations to establish a system that identifies mineral potential and economically viable reserves.*

County of San Bernardino Development Code. The development code states that mine development is encouraged in compatible areas before encroachment of conflicting uses. Mineral resource areas that have been classified by the DOC's Division of Mines and Geology or designated by the SMGB shall be protected from intrusion by incompatible land uses that may impede or preclude mineral extraction or processing, to the extent possible for consistency with the County of San Bernardino 2007 General Plan. This also applies to existing surface mining operations that remain in compliance with the provisions of Section 19.68.020 of the development code.

Noise

In determining Noise impacts, local regulations were considered. In general, the CPUC considers local noise regulations when determining if a project will have noise-related impacts. This regulations are presented in Section 5.13 Noise, Section 5.13.2 Regulatory Background.

Population and Housing

County of San Bernardino General Plan. The Housing Element of the County of San Bernardino General Plan sets forth planning strategies to support the production of housing consistent with the vision specified for the County. In addition, the Housing Element establishes goals, policies, and programs related to housing needs. The following Housing Element policy is relevant to the proposed project (County of San Bernardino, 2014):

- **Policy H-3.1.** Support the provision of adequate public services, infrastructure, open space, nonmotorized transportation routes, and public safety for neighborhoods in the unincorporated area that are consistent with community plans.

City of Hesperia General Plan 2010. The Housing Element of the City of Hesperia General Plan 2010 sets forth goals and policies addressing existing and future housing needs for residents of the City of Hesperia (City of Hesperia, 2010). The Housing Element does not contain any specific goals or policies that are relevant to the proposed project.

Public Services

County of San Bernardino 2007 General Plan. The Safety Element of the County of San Bernardino 2007 General Plan contains goals and policies for fire protection and emergency response. The Safety Element contains goals to protect residents and visitors from injury and loss of life, and to protect property from fires (County of San Bernardino, 2007). The Safety Element of the County of San Bernardino 2007 General Plan does not contain any specific goals or policies that are relevant to the proposed project.

City of Hesperia General Plan 2010. The Safety Element of the City of Hesperia General Plan 2010 contains policies and goals for fire prevention and police protection. The Safety Element contains policies to minimize potential risks to residents, workers, and visitors, and identifies procedures that the city can use in emergency situations (City of Hesperia, 2010). The Safety Element of the City of Hesperia General Plan 2010 does not contain any specific goals or policies that are relevant to the proposed project.

Recreation

No local Recreation regulations applicable to the Proposed Project were identified

Transportation

County of San Bernardino 2007 General Plan. The Circulation and Infrastructure Element within the County of San Bernardino 2007 General Plan contains goals and policies to ensure the timely development of public facilities, achieve adequate facility and service standards, and distribute new public facilities and services that increase and enhance the community's quality of life (County of San Bernardino, 2018). The following Circulation and Infrastructure Element policy is relevant to the Proposed Project:

- ***Policy D/CI 1.1.*** *The County shall ensure that all new development proposals do not degrade Levels of Service (LOS) on Major Arterials below LOS C in the Desert Region.*

Congestion Management Program for San Bernardino County. The 2016 Update to the Congestion Management Program for San Bernardino County (CMP) was developed by San Bernardino Associated Governments (SANBAG). The CMP LOS standards apply to AM and PM weekday peak-hours, except in recreational areas such as Big Bear Lake (SANBAG, 2016). For recreational areas, average traffic peaks occurring on weekends are be used. For the CMP roadway system, the LOS standard shall be E for all segments and intersections except those designated LOS F (SANBAG, 2016). The following CMP policies are relevant to the Proposed Project:

- ***Policy 2.3.1.*** *Establish LOS E or the current level, whichever is farthest from LOS A, as the LOS standard for intersections or segments on the CMP system of roadways.*

  If the 1992 LOS was F, then a 10 percent or more degradation in the quantitative measure used to determine the LOS (such as delay, V/C, or travel speed) will comprise a deficiency, which must be addressed by a deficiency plan.

- ***Policy 4.4.1.*** *Identify the transportation impacts of significant land use changes, regardless of jurisdictional location or political boundaries.*

City of Hesperia General Plan 2010. The Circulation Element of the City of Hesperia General Plan 2010 element identifies the broader issues on which the City bases its circulation and transportation policies and outlines the City's goals and implementation policies to provide a safe and efficient transportation system strategy (City of Hesperia, 2010). The current circulation policy calls for all roadways achieve and maintain a LOS D and LOS C at all intersections. The Circulation Element contains the following policy related to transportation that is relevant to the Proposed Project:

- ***Policy CI-1.10.*** *Ensure that new development provides for adequate road improvements to serve internal circulation needs, as well as to mitigate impacts of increased traffic on the existing road system.*
- ***Policy CI-1.14.*** *Coordinate with San Bernardino County Flood Control District and Southern California Edison Company to promote utilization of easements for the trail system.*
- ***Policy CI-2.1****. Strive to achieve and maintain a LOS D or better on all roadways and intersections: LOS E during peak hours shall be considered acceptable through freeway interchanges and major corridors (Bear Valley Road, Main Street/Phelan Road, Highway 395).*
- ***Policy CI-2.2.*** *Work with regional agencies which have authority over roadways within the City to ensure a minimum Level of Service D for roadways and a minimum Level of Service E for intersections.*
- ***Policy CI-4.3.*** *Discourage non-local traffic from using neighborhood streets through project design and traffic control measures.*
- ***Policy CI-4.5.*** *Develop an efficient and effective truck route system that is compatible with land uses and street improvement standards, and provide monitoring to ensure compatibility.*

Tribal Cultural Resources

See Cultural Resources, above.

Utilities and Service Systems

No local Utilities and Service System regulations applicable to the Proposed Project were identified

Wildfire

No local Wildfire regulations applicable to the Proposed Project were identified.

Appendix D

Biological Resources

Appendix D
Biological Resources

Sensitive Natural Communities

***Achnatherum speciosum* - Herbaceous Alliance.** Desert needlegrass (*Achnatherum speciosum*) is a native, perennial bunchgrass that occurs at a relative coverage of more than 50 percent in this herbaceous alliance. Emergent trees and shrubs may be present at a lower coverage. This alliance is found on lower slopes, in canyons, and on sandy or gravelly alluvial fans. Small stands are found in Antelope Valley in the Mojave Desert, but heavy grazing and exclusion from non-native annual grasses have likely reduced its range to mid- to upper-elevation desert areas.

***Cylindropuntia bigelovii* - Shrubland Alliance.** The *Cylindropuntia bigelovii* shrubland alliance exists where teddy-bear cholla (*Cylindropuntia begelovii*), a distinctive cholla that grows up to 5 feet tall, has a relative cover of more than 50 percent in the shrub layer. Other shrubs may be present at lower coverages, and the herbaceous layer is open with a crytobiotic crust and seasonal annuals. This alliance is found on alluvial fan deposits and gentle to moderate, south- or southwest-facing slopes of rocky highlands with soils ranging from coarse sands to loams. Stands occupy the warmest southerly sections of the Mojave Desert.

One stand of teddy-bear cholla was observed within the Project footprint on the southern end of the Newberry Mountains. It was located on a south-facing slope, approximately 1.8 miles northeast of the intersection of Old Government Road and Powerline Road.

***Ericameria paniculata* – Shrubland Alliance.** The *Ericameria paniculata* shrubland alliance is dominated by black-banded rabbitbrush (*Ericameria paniculata*), a medium-sized shrub. Brittlebush, ephedra, catclaw acacia, and other shrubs may be present at lower coverages. The shrub canopy may be closed and the herbaceous layer is open with seasonal annuals. This alliance occurs in intermittently flooded washes, and soils are sandy and usually well-drained. It is common in medium and large washes where flooding events occur every few years. It can be found from 300 to 3,600 feet in elevation.

***Prunus fasciculata* – *Salazaria mexicana* – Shrubland Alliance.** The *Prunus fasciculata* shrubland alliance is characterized by a total cover of 25 percent or more of desert almond (*Prunus fasciculata*), a winter-deciduous shrub. Desert almond can grow up to 9 feet tall and has a deep tap root that allows it to survive minor flood events. This alliance occurs in washes, arroyos, canyons, and on disturbed upland sites on granitic and calcareous substrates. Other shrubs, including catclaw acacia, may occur, but desert almond provides at least twice the cover of other species. This alliance receives higher precipitation and lower temperatures than other vegetation types and is often found in upper washes and canyons at elevations up to 6,200 feet. This shrubland alliance was entirely restricted to the Ord Mountains.

***Suaeda moquinii* – Shrubland Alliance.** The *Suaeda moquinii* shrubland alliance is dominated by bush seepweed (*Suaeda moquinii*), a small, short-lived shrub. Other shrubs, including saltbush, may be present, and the herbaceous layer is sparse to intermittent. This alliance is found in bajadas, playas, and toe slopes adjacent to alluvial fans at elevations from sea level to 4,200 feet. Soils are deep and saline or alkaline. Bush seepweed appears opportunistic in occupying roadsides and other recently disturbed areas. The USFWS National Wetland Inventory recognizes bush seepweed as a facultative plant species. This shrubland alliance was observed in two stands in Fifteenmile Valley within the BRSA.

***Yucca brevifolia* – Woodland Alliance.** The *Yucca brevifolia* woodland alliance is indicated by the presence of Joshua tree, an evergreen, branching tree that can reach 45 feet in height, with a coverage of one (1) percent or more. This alliance is found on gentle slopes and ridges from 2,500 to 6,000 feet in elevation.

Soils are generally coarse sands, very fine sands, gravel, or sandy loams. The alliance may often include other tree species, including California juniper and singleleaf pinyon pine, at low cover and can include white bursage (*Ambrosia dumosa*), creosote, and Mojave yucca (*Yucca schidigera*), among other species in the shrub and grass layers. The shrub layer and herbaceous layer are open to intermittent because of the relatively low cover of the tree canopy. This woodland alliance was observed in various stretches in the BRSA.

Riparian vegetation is evaluated here as a sensitive natural community because of its biological productivity, and the habitat it provides for multiple wildlife species, including special-status species. Riparian vegetation may occur along drainages that typically are subject to seasonal flooding. Limited riparian habitat is present in small, isolated stands within the BRSA. Less than 0.1 acres of CDFW-jurisdictional riparian vegetation was mapped within the BRSA and occurs in two isolated stands. One stand was located in Fenner Valley, in an unnamed wash along Powerline Road and approximately 9.4 miles east of Foshay Pass. The other stand was located in the Dead Mountains, in an unnamed wash located approximately 938 feet southwest of the intersection of Powerline Road and Old Government Road (SCE, 2018).

Sensitive Status Plant Species

Appressed muhly. Appressed muhly (*Muhlenbergia appressa*) is a CRPR 2B.2 annual grass that occurs on rocky slopes and open canyon bottoms in coastal scrub, Mojavean desert scrub, and valley/foothill grasslands from 65 feet in elevation. Within the BRSA, appressed muhly was observed in the Providence Mountains, California. A population of 327 individuals was observed on the steep, rocky, north-facing slopes and canyons of Foshay Pass, approximately 6 miles west of Essex Road in Clipper Valley. It could occur in project footprint areas anywhere in the vicinity.

Clokey's Cryptantha. Clokey's cryptantha (*Cryptantha clokeyi*) is a CRPR 1B.2 annual herb in the waterleaf family that is endemic to the Mojave Desert in California, although it may occur in other areas where conditions are favorable, and inhabits Mojavean desert scrub on rocky to gravelly slopes and ridges at elevations from 2,300 to 4,500 feet. Approximately 122 Clokey's cryptantha individuals were observed on rocky, south- and southwest-facing slopes in the BRSA in California. One population was observed near Chimney Rock in the Granite Mountains, approximately 0.5 miles northeast of the dry lakebed of Rabbit Lake. Another population was observed on a small, unnamed, rocky south-facing slope in North Lucerne Valley, California, approximately 0.8 miles east of the intersection of Powerline Road and Huff Road.

Coves' Cassia. Coves' cassia (*Senna covesii*) is a CRPR 2B.2 perennial herb in the legume family that occurs on dry, sandy desert washes and on slopes in the Sonoran desert scrub of Southern California, southern Nevada, Arizona, southwestern New Mexico, and northern Baja California at elevations from 1,080 to 2,500 feet. Approximately 298 individuals of Coves' cassia were observed in the northeastern section of the BRSA in Eldorado Valley, Nevada. This species was found on dry rocky slopes and desert washes along the Eldorado-Mohave 500 kV Transmission Line and west of Veterans Memorial Highway.

Johnson's Bee-Hive Cactus. Johnson's bee-hive cactus (*Sclerocactus johnsonii*) is a CRPR 2B.2 perennial stem succulent in the cactus family that occurs in granite substrates of Mojavean desert scrub at elevations between 1,600 to 4,000 feet. A population of 25 Johnson's bee-hive cactus was observed in the northeastern section of the BRSA in Eldorado and Piute Valleys in Nevada. This species was identified between the community of Searchlight, Nevada, and Steel Tower Transmission Line Road along the Eldorado-Mohave 500 kV Transmission Line, west of Veterans Memorial Highway.

Matted Cholla. Matted cholla (*Grusonia parishii*) is a CRPR 2B.2 perennial stem succulent in the cactus family that occurs in sandy, rocky substrates of Joshua tree woodland, Mojavean desert scrub, and Sonoran desert scrub at elevations from 1,000 to 5,000 feet. Approximately 399 matted cholla individuals

were observed in the northeastern section of the BRSA in Eldorado Valley and Piute Valley. This species was observed from the community of Cal-Nev-Ari, Nevada to the southern edge of Eldorado Valley Road along the Eldorado-Mohave 500 kV Transmission Line. Additional matted cholla individuals were observed approximately 3 miles southwest of Homer Mountain in Fenner Valley, California, along the Eldorado-Mohave 500 kV Transmission Line.

Mojave Menodora. Mojave menodora (*Menodora spinescens* var. *mohavensis*) is a BLM sensitive species and a CRPR 1B.2 perennial deciduous shrub in the olive family that occurs in andesite substrates of rocky desert hillsides and canyons of Mojavean desert scrub at elevations from 2,200 to 6,500 feet. Approximately 1,423 Mohave menodora individuals were observed growing in mountainous areas between the community of Lucerne Valley and Interstate 40 in the BRSA in California. One population was growing on rocky hillsides in the Rodman and Lava Mountains. Another population was observed growing on Iron Ridge, approximately 1 mile southwest of the Eldorado-Mohave 500 kV Transmission Line.

Mojave Milkweed. Mojave milkweed (*Asclepias nyctaginifolia*) is a CRPR 2B.1 perennial herb in the dogbane family that occurs in California, Arizona, New Mexico, and Nevada. It typically inhabits desert scrub and pinyon and juniper woodlands at elevations between 2,800 and 5,600 feet, though it may occur in other areas if conditions are favorable. Approximately 77 Mojave milkweed individuals were observed in the northeastern section of the BRSA in Piute Valley and near the community of Searchlight, Nevada. One of the populations was documented on the west side of Gulch Road, approximately 1.3 miles south of Nevada SR-164 in a small, unnamed side channel of the larger Piute Wash system. Another population was observed on the southern end of the Highland Range along Gas Pipeline Road, approximately 2.2 miles north of Nevada SR-164. These plants were seen in desert scrub habitat between Gas Pipeline Road to the east and the Eldorado-Mohave 500 kV Transmission Line to the west.

Narrow-Leaved Yerba Santa. Narrow-leaved yerba santa (*Eriodictyon angustifolium*) is a CRPR 2B.3 perennial evergreen shrub in the waterleaf family that occurs on slopes in pinyon juniper woodlands in California, Oregon, Washington, Arizona, Nevada, New Mexico, Colorado, and Idaho at elevations from 4,900 to 6,200 feet. In California, narrow-leaved yerba santa is only found in the New York and Granite Mountains. Within the BRSA, narrow-leaved yerba santa was observed in the Providence Mountains of California. A population of approximately 99 individuals was observed in an unnamed minor drainage, located north of the Lugo-Mojave 500 kV Transmission Line and east of Foshay Pass. This area is a transition zone from pinyon woodlands at higher elevations to desert scrub at lower elevations.

Playa Milk-Vetch. Playa mild-vetch (*Astragalus allochrous* var. *playanus*) is a CRPR 2B.2 perennial herb in the legume family that occurs in sandy soils in Mojavean desert scrub of California, Arizona, New Mexico, Texas, and Utah at elevations from 2,000 to 6,400 feet. One playa milk-vetch was observed at a location just outside of the community of Goffs, California. One individual was observed in an unnamed disturbed graded lot, approximately 0.1 miles west of Mountain Springs Road.

Rosy Two-Toned Beardtongue. Rosy two-toned beardtongue (*Penstemon bicolor* ssp. *roseus*) is a BLM sensitive species, an NNHP S3, and a CRPR 1B.2 perennial herb in the plantain family that occurs in gravelly, rocky, or disturbed soils in Mojavean desert scrub and Joshua tree woodland of California, Arizona, and Nevada at elevations from 2,300 to 5,000 feet. Twelve rosy two-toned beardtongue individuals were observed in the BRSA. A population of four individuals was found approximately 2.5 miles west of Veterans Memorial Highway along the Eldorado-Mohave 500 kV Transmission Line in Eldorado Valley, Nevada. A population of eight individuals was found in the BRSA in the foothills of the Providence Mountains and Foshay Pass in California.

Rusby's Desert-Mallow. Rusby's desert-mallow (*Sphaeralcea rusbyi* var. *eremicola*) is a CRPR 1B.2 perennial herb in the mallow family that occurs in Mojavean desert scrub and Joshua tree woodlands. It is endemic to California, and occurs at elevations from 3,200 to 5,400 feet. A population of approximately 2,149 Rusby's desert-mallow plants were observed in the BRSA in the foothills of the Providence Mountains and Foshay Pass in California.

Salina Pass Wild-Rye. Salina Pass wild-rye (*Elymus salina*) is a CRPR 2B.3 perennial rhizomatous herb in the grass family that occurs in rocky soils in pinyon and juniper woodlands in California, Arizona, Idaho, and Wyoming at elevations from 4,400 to 7,000 feet. Salina Pass wild-rye was observed in the Providence Mountains within the BRSA. A population of 1,055 Salina Pass wild-rye individuals was observed on the steep, north-facing slopes of Foshay Pass, California, approximately 6 miles west of Essex Road in Clipper Valley.

Short-Jointed Beavertail. Short-jointed beavertail (*Opuntia basilaris* var. *brachyclada*) is a BLM sensitive species and a CRPR 1B.2 perennial stem succulent in the cactus family that is endemic to California and occurs in Los Angeles and San Bernardino Counties. This cactus inhabits chaparral; Mojavean desert scrub; and Joshua tree, pinyon, and juniper woodlands ranging in elevation from 1,400 to 5,900 feet. A population of 122 short-joint beavertail individuals was found in the foothills west of the Mojave River along the Eldorado-Mohave 500 kV Transmission Line, south of the City of Hesperia, California.

Slender Cottonheads. Slender cottonheads (*Nemacaulis denudate* var. *gracilis*) is a CRPR 2B. 2 annual herb in the buckwheat family that occurs in coastal dunes, desert dunes, and Sonoran desert scrub in California, Arizona, and Baja California at elevations from 160 to 1,300 feet. A population of approximately 22 individuals was observed in the BRSA in California. The population was located along the southern edge of the Kelso Dunes, approximately 1 mile west of Kelso Dunes Road, off of Kelbaker Road.

Spiny Cliff-Brake. Spiny cliff-brake (*Pellaea truncata*) is a CRPR 2B. 3 perennial rhizomatous herb in the brake family that occurs in California, Arizona, Nevada, New Mexico, Utah, and Baja California at elevations from 4,000 to 7,000 feet. It inhabits the crevices and bases of granite or igneous rock in pinyon or juniper woodlands. Twenty-five spiny cliff-brake individuals were observed in the Providence Mountain of California within the BRSA. This population was observed on the north-facing slopes of Foshay Pass, approximately 6 miles west of Essex Road in Clipper Valley.

Spiny-Hair Blazing Star. Spiny-hair blazing star (*Mentzelia tricuspis*) is a CRPR 2B.1 annual herb in the loasa family that occurs in sandy, gravelly substrates on slopes and washes in the Mojavean desert scrub at elevations from 500 to 4,200 feet. Twenty spiny-hair blazing star individuals were observed in the eastern section of the BRSA, near the community of Laughlin, Nevada. One population was found in the eastern foothills of the Newberry Mountains in Nevada, approximately 1.8 miles northwest of Lugo Substation. The other population was observed in the Dead Mountains of California approximately 3.4 miles east of Veterans Memorial Highway along the Eldorado-Mohave 500 kV Transmission Line.

Sensitive Wildlife Species

Desert Bighorn Sheep. Desert bighorn sheep (*Ovis canadensis nelsoni*) is a BLM sensitive species and Fully Protected species that inhabits rocky, steep, and open terrain encompassing plateaus and springs. It occurs in desert mountain ranges in eastern California, much of Nevada, northwestern Arizona, New Mexico, southern Utah, southern Colorado, and Mexico. Desert bighorn sheep graze on a wide variety of plants, especially green, succulent grasses and forbs. They are often found in herds that are dependent on their proximity to water during the summer and may disperse during the winter. Desert bighorn sheep

are susceptible to livestock diseases, and entire herds may be lost to disease. They are also threatened by habitat loss and competition from feral ungulates and livestock for forage.

Within the BRSA, suitable habitat for desert bighorn sheep is limited to desert mountain ranges, including the Providence Mountains, the Dead Mountains, and the Newberry Mountains. Desert bighorn sheep were observed in 2016 within the BRSA in Nevada. In California, there are two recent CNDDB occurrence records within 0.25 miles of the BRSA. One of these occurrences identified a stable herd consisting of 30 individuals and another herd consisting of five individuals. In addition, a stable herd of 25 individuals was documented within one (1) mile, and a herd of 30 individuals was documented within 5 miles of the BRSA. All herds are presumed to be extant. A pair of desert bighorn sheep was observed within the BRSA in the Newberry Mountains in Nevada near Nevada SR-163 during botanical surveys in May 2016. Desert bighorn sheep could occur in any of the mountainous or lower foothill portions of the ELM route.

Desert Tortoise. The Mojave species of desert tortoise (*Gopherus agassizii*) is federally and state listed as threatened. The species includes those animals living north and west of the Colorado River, primarily in the Mojave Desert of California and Nevada, with small portions of the range occurring in northwestern Arizona and southwestern Utah. Desert tortoise inhabits sandy flats, rocky foothills, alluvial fans, washes, and canyons with sandy or gravelly soils. Soils must be loose for den construction, but firm enough that dens do not collapse. Desert tortoise occurs at elevations ranging from below sea level to 7,300 feet, but most optimal habitat exists between 1,000 and 3,000 feet. Desert tortoises could occur nearly anywhere along the ELM route, excluding urbanized areas. Fourteen live desert tortoises were observed within the BRSA during protocol-level surveys in October 2016. These observations were documented in Clipper Valley, the Dead Mountains, and in the vicinity of the Kelso Dunes. All tortoises were observed north of I-40. This species also has numerous recent NNHP occurrence records within 0.25 miles of the BRSA.

Banded Gila Monster. The banded Gila monster (*Heloderma suspectum cinctum*) is a BLM sensitive species, a California Species of Special Concern, and a Nevada Protected Reptile. The banded Gila monster inhabits rocky crevices and steep canyons associated with high-elevation desert mountain ranges. It utilizes desert washes and associated riparian vegetation for foraging, where it feeds on young mammals, birds, reptiles, and eggs. Banded Gila monster generally winters at more elevated locations on rocky slopes, and spends summers in adjacent valleys or bajadas. Banded Gila monsters face some pressure from habitat loss, due to their restrictive habitat needs.

Habitat for banded Gila monster in the BRSA is limited to desert mountain ranges, including the Providence Mountains, the Dead Mountains, and the Newberry Mountains in California; and the McCullough Range and the Highland Range in Nevada. Three general locations within the Proposed Project area contain suitable habitat to support the banded Gila monster and have nearby recent CNDDB or NNHP occurrence records.

A segment of the Lugo-Mohave 500 kV Transmission Line ROW within the Providence Mountains in the Mojave National Preserve in California contains suitable habitat to support the banded Gila monster. Specifically, this includes a majority of the work areas between Towers M114-T3 and M120-T3; helicopter landing zones (HLZs) near Towers M114-T4 through M121-T2; stringing sites associated with Towers M114-T4, M118-T1, and M118-T2; and all associated access roads.

Also, a segment of the Lugo-Mohave 500 kV Transmission Line ROW located in the Highland Range in Nevada contains suitable habitat to support the banded Gila monster. This includes work areas between Towers M7-T2 and M9-T3, and M36-T4 through M51-T4; helicopter LZs near Towers M36-T4, and M40-T1 through M53-T1; stringing sites associated with Towers M36-T4, M36-T4, M40-T1, M40-T1, M43-T3, M43-T3, M46-T3, M46-T3, and M49-T4; and all associated access roads.

A segment of the Eldorado-Mohave 500 kV Transmission Line ROW located in the Newberry Mountains in Nevada contains suitable habitat to support the banded Gila monster. This includes work areas between Towers M2-T2 and M11-T1; helicopter LZs near Towers M2-T3, M173-T2, M97-T2, M97-T1, and M5-T3 through M10-T5, as well as two LZs near the Mohave Substation; stringing sites associated with Towers M2-T1; M4-T1, M4-T1, M6-T2, M9-T3, and M9-T3; and all associated access roads.

Mojave Fringe-toed Lizard. Mojave fringe-toes lizard (*Uma scoparia*) is a BLM sensitive species and a California Species of Special Concern. It is known almost exclusively from California, primarily in San Bernardino and eastern Riverside Counties, but is also found to the north in southeastern Inyo County and historically to the west in northeastern Los Angeles County in California and in La Paz County in Arizona. Mojave fringe-toed lizard is found in arid, sandy, sparsely vegetated habitats. Sand dunes and sand fields are its primary habitat, although it can also be found on the margins of dry lakebeds and washes, and in or around isolated sand pockets against hillsides or at the margins of more extensive windblown sand systems. At a minimum, it requires scattered patches of fine, loose, windblown sand, into which it burrows to avoid predators and to thermoregulate. It has been documented in the CNDDB within 0.25 miles of the BRSA in California. Suitable habitat for Mojave fringe-toed lizard is located within the Project area in California, including large dune or sandfield systems at the Kelso Dunes. Additionally, suitable habitat is found in smaller, scattered areas of windblown sand and adjacent shrublands where sand accumulates. Mojave fringe-toed lizard may occur in or near any suitable windblown sand habitat within its geographic range along the ELM route.

Loggerhead Shrike. Loggerhead shrike (*Lanius ludovicianus*) is a California Species of Special Concern and a USFWS bird of conservation concern. It is an uncommon year-round resident throughout most of the southern portion of its range, including southern California. In southern California, loggerhead shrikes are generally much more common in interior desert regions than along the coast. In the Mojave Desert it appears to be most numerous in flat or gently sloping foothills and bajadas, especially along the eastern slopes of mountainous areas. Loggerhead shrike begins breeding in February and may continue with raising a second brood as late as July. Loggerhead shrike inhabits lowland, open habitat types, including creosote scrub and other desert habitats, sage scrub, non-native grasslands, chaparral, riparian, croplands, and areas characterized by open scattered trees and shrubs. Fences, posts, or other potential perches are typically present. It feeds on large insects, small birds, amphibians, reptiles, and small rodents over open ground within areas of short vegetation, usually by impaling prey on thorns, wire barbs, or sharp twigs to cache for later feeding. Suitable habitat for loggerhead shrike occurs throughout the scrub habitats within the project area and they have been observed during surveys for adjacent projects. They may occur anywhere along the project route, except perhaps the higher elevation mountain sites.

Bendire's Thrasher. Bendire's thrasher (*Toxostoma bendirei*) is a BLM sensitive species, a USFWS bird of conservation concern, and a California Species of Special Concern. In California, Bendire's thrasher is known from scattered locations in Kern, Inyo, San Bernardino, and Riverside Counties, and with one occurrence in San Diego County. Bendire's thrasher inhabits open grassland, desert scrub, shrubland, or woodland with scattered trees. It is closely associated with plants of the *Yucca* and *Opuntia* genera, and it selectively occupies areas with higher densities of these plants. Bendire's thrasher typically avoids rocky outcrops or areas with steep slopes, apparently favoring flat areas with densely packed dirt. It forages mainly on the ground, feeding on arthropods, seeds, and berries. This species is known to inhabit elevations from 1,900 to 5,800 feet, but mostly occurs between 3,100 and 5,000 feet.

Limited suitable habitat within the Bendire's thrasher species' range is present along the Eldorado-Lugo 500 kV Transmission Line ROW in Fifteenmile Valley, west of Lucerne Valley in the western portion of the

Proposed Project area. This includes work areas between Towers M19-T1 and M21-T3, helicopter LZs near Towers M18-T4 and M22-T2, the Bear Valley staging area, and all associated access roads.

Limited suitable habitat within the Bendire's thrasher species' range is present along the Eldorado-Lugo 500 kV Transmission Line ROW in Lucerne Valley near Tower M36-T3, helicopter LZ near Tower M36-T3, stringing sites associated with Towers M36-T1 and M36-T1, and all associated access roads.

Suitable habitat for Bendire's thrasher is scattered along the Lugo-Mohave 500 kV Transmission Line ROW in the eastern Mojave Desert in California, spanning approximately between Towers M108-T3 through M160-T1, between helicopter LZs near Towers M108-T2 through M160-T2, between stringing sites associated with Towers M111-T3 through M157-T1, and all associated access roads.

Limited suitable habitat within the Bendire's thrasher species' range is also present along the Lugo-Mohave 500 kV Transmission Line ROW in Fifteenmile Valley, west of Lucerne Valley in the western portion of the Proposed Project area. This includes work areas between Towers M19-T1 and M21-T3, helicopter LZs near Towers M18-T4 and M22-T2, the Bear Valley staging area, and all associated access roads.

Golden Eagle. Golden eagle (*Aquila chrysaetos*) is a BLM sensitive species and a USFWS bird of conservation concern. It is federally protected under the Bald and Golden Eagle Protection Act (BGEPA) and is a fully protected species by the State of California. Golden eagle is a year-round resident throughout most of its range in the western U.S., including the project region. In the southwest, it is more common during winter when eagles that nest in Canada migrate south into the region. It breeds from late January through August, mainly during late winter and early spring in the California deserts. In the desert, nests are typically in steep, rugged terrain, often on sites with overhanging ledges, cliffs, or large trees that are used as cover. Golden eagles have also been documented nesting on transmission line towers. The golden eagle prefers mountainous or hilly terrain, and hunts over open spaces for small mammals, snakes, birds, and some carrion. It may vacate hot deserts during the summer months to nest in desert mountains, then return to winter in basin areas. In the desert, an individual's territory may extend as far as 119 square miles.

Suitable foraging habitat for the golden eagle is present throughout the Proposed Project area in California and Nevada. Nesting habitat is present within mountainous and hilly areas, and possibly also on transmission towers, as indicated by recent and historic CNDDB and NNHP records of nests within 5 miles of the Proposed Project area. The entire Proposed Project area is located within suitable habitat, with the exception of urbanized areas that would lack a prey base.

Western Burrowing Owl. Western burrowing owl (*Athene cunicularia*) is a BLM sensitive species and a California Species of Special Concern. It is found across the Mojave and Colorado deserts of Inyo, eastern Kern, northern Los Angeles, San Bernardino, eastern Riverside, eastern San Diego, and Imperial Counties. Burrow sites occur in open, dry annual or perennial grasslands, deserts, and scrublands with low-growing vegetation. It nests in burrows that are often dug by small mammals, typically those of the California ground squirrel (*Otospermophilus beecheyi*). It can also occur in open areas of farmland, levee banks, and other disturbed or managed habitats where burrows or burrow-like refuges (e.g., small-diameter pipes, rock piles with voids, or similar hollow spaces) are present. It breeds from February 1 through August 30. Young are capable of full flight at six weeks of age and are fed by parents for approximately one year. Western burrowing owl is generally found at elevations from 200 to 5,000 feet.

The Project area is located within the breeding range of western burrowing owl in California and Nevada. Suitable habitat is present throughout the BRSA, and recent CNDDB occurrences were documented within 5 miles of the BRSA in California. An active burrow was incidentally observed near the BRSA near the

community of Ludlow during special-status plant surveys conducted in the spring of 2016. Burrowing owl surveys were conducted in 2018.

Pallid Bat. The pallid bat (*Antrozous pallidus*) is a BLM sensitive species, a California Species of Special Concern, and a Nevada Protected Mammal. The pallid bat inhabits low desert shrublands, juniper woodlands, grasslands, and cottonwood-riparian zones through western North America. It is generally found at elevations between 100 and 7,000 feet. It needs open, dry areas with rocky areas for roosting. Pallid bat may also roost in abandoned, man-made structures.

Suitable roosting habitat for the pallid bat is distributed throughout the Proposed Project area in California and Nevada in the many rocky areas and mineshafts. The abundance of open, dry areas surrounding the rocky areas provide ample foraging habitat throughout the Proposed Project area, as well. Due to the large range size of this species, the entire Proposed Project area is located within suitable habitat for the species, with the exception of disturbed and developed areas that would lack a prey base.

American Badger. American badger (*Taxidea taxus*) is a California Species of Special Concern that occupies open, uncultivated habitats. It occurs primarily in grasslands, parklands, farms, and other treeless areas with friable soil and a supply of rodent prey. It is also found in forest glades and meadows, marshes, brushy areas, hot deserts, and mountain meadows. It is sometimes found at elevations up to 12,000 feet, but is usually found at elevations lower and warmer than those characterized by coniferous forests. American badgers are occasionally found in open chaparral (with less than 50-percent plant cover) and riparian zones. American badgers create burrows for sleeping and concealment, protection from weather, and natal dens. Burrows typically range from 4 to 10 feet in depth and 4 to 6 feet in width. Breeding generally occurs between December and February, and cubs are born between March and April.

The proposed project is located within the range of American badger. Suitable habitat occurs throughout the project area, and recent occurrences have been documented within 5 miles of the BRSA in California.

Ringtail. The ringtail (*Bassariscus astutus*) is fully protected in California. Suitable habitat for ringtail is forest and shrubland with rocky areas, usually near permanent water and riparian areas. It could occur anywhere along the project alignment, particularly in steep rocky shrubland habitats, where springs, seeps, or anthropogenic water sources may provide drinking water. Ringtails den and rear their cubs in rock crevices, hollow logs, abandoned burrows, or woodrat middens.

Desert Kit Fox. The desert kit fox (*Vulpes macrostis arsipus*) is protected under Title 14 of the California Code of Regulations § 460 which prohibits the take of certain furbearing mammals. It is found throughout the Mojave and Colorado Deserts in California and occupies desert scrub habitat. The desert kit fox inhabits desert habitat where there is an abundance of small mammals, its main food source. It lives in burrows and burrow complexes and requires soils with appropriate composition for burrow construction. Desert kit fox is nocturnal and generally forages within a few miles of its den. Desert kit fox is generally found at elevations of 1,300 feet to 6,000 feet. Suitable habitat for desert kit fox occurs throughout the project area.