FINAL

Eldorado – Lugo – Mohave Series Capacitor Project

Raven Management Plan

Prepared for

Southern California Edison

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Applicable agencies

Bureau of Land Management
California Public Utilities Commission
National Park Service

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TABLES

Acronyms and Abbreviations

°F	Degrees Fahrenheit
APHIS	Animal and Plant Health Inspection Service
BGEPA	Bald and Golden Eagle Protection Act
BLM	Bureau of Land Management
BO	Biological Opinion
CAISO	California Independent System Operator
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CPUC	California Public Utilities Commission
FESA	Federal Endangered Species Act
kV	Kilovolt
MBTA	Migratory Bird Treaty Act
MM	Mitigation Measure
NBMP	Nesting Bird Management Plan
NDOW	Nevada Department of Wildlife
NEPA	National Environmental Policy Act
NPS	National Park Service
OPGW	Optical ground wire
RMP	Raven Management Plan
ROW	Right-of-Way
SCE	Southern California Edison
TSP	Tubular steel pole
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service

1 Introduction

Southern California Edison (SCE) will implement a Raven Management Plan (RMP or the Plan) to minimize avian predation on the Mojave Desert tortoise (*Gopherus agassizii*) during the construction of the proposed Eldorado – Lugo – Mohave Series Capacitor Project (the Project) and for 3 years following construction. The entire Project is located within the overall range of the Mojave Desert tortoise, and the majority of the Project is located within suitable habitat for the species (Insignia 2017). Thus, the RMP will be implemented Project-wide. The Bureau of Land Management (BLM) Southern Nevada District Office has prepared a Raven Management Plan for energy development (BLM 2016). This Plan notes where methods may differ in Nevada for consistency with the BLM's Raven Management Plan.

The goal of the RMP is to utilize methods to deter raven depredation of juvenile desert tortoises, in order to reduce the potential for the overall numbers of desert tortoises to decrease as a result of the Project. Because the Project involves addition of components and modification of structures along existing transmission lines, monitoring and adaptive management for this RMP will be conducted with the existing transmission lines considered to be the baseline conditions for comparing common raven nesting and predation rates. During construction and restoration, increased human presence and related subsidies could serve to attract common ravens to the Project sites. Therefore, this RMP details methods for raven nest surveys, pre-emptive nest removals in accordance with the Project's Nesting Bird Management Plan (NBMP), preconstruction surveys, monitoring that would identify signs of raven predation, coordination with the agencies, and management of offending ravens (those that prey on desert tortoises) if observed.

The RMP will incorporate an adaptive management strategy that will be implemented immediately following the initiation of construction activities for new infrastructure components (series capacitors and communication sites) and evaluated after 3 years of monitoring, or until SCE demonstrates—and California Public Utilities Commission (CPUC), BLM, National Park Service (NPS), U.S. Fish and Wildlife Service (USFWS), and California Department of Fish and Wildlife (CDFW) agree—that any or all of these actions are no longer necessary based on the results of the nest monitoring surveys. The following activities will be implemented as part of the RMP: (1) Common Raven Nest Monitoring, (2) Common Raven Nest Management, and (3) Construction and Operational Practices.

1.1 Project Description

1.1.1 Project Purpose Statement

SCE is a public utility that provides electric service to a population of approximately 15 million people within an approximately 50,000-square-mile service area that encompasses 180 cities throughout Southern California. SCE's Project was approved by the California Independent System Operator (CAISO) following recommendations for approval as a policy-driven upgrade through the CAISO's Transmission Planning Process. As a policy-driven upgrade, the purpose of the Project is to integrate renewable generation and relieve area deliverability constraints. The capability of the existing infrastructure is limited by the existing series capacitors and terminal equipment and needs to be upgraded to meet the Project objectives by increasing the import capability of the existing transmission lines. These upgrades have been approved as CAISO policy-driven upgrades in the 2012-2013 and 2013-2014 Transmission Plans.

1.1.2 Project Overview

This Project will increase capacity and power flow between SCE's existing Eldorado, Lugo, and Mohave Substations to safely deliver renewable power to the Los Angeles Basin from the Eldorado and Mohave Substations. SCE's Proposed Project would:

- Construct 2 new 500-kilovolt (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 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 right-of-way (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 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 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 (TSP) 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.
- 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.

1.1.3 Project Location

The Project is located in southern California and southern Nevada, within the Mojave Basin and Range Ecoregion. It will 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. The Project is located on land under the jurisdiction of the BLM, the Mojave National Preserve administered by the NPS, the Bureau of Reclamation, and the Department of Defense. Portions of the Project will also cross the City of Hesperia in California, as well as the unincorporated communities of Searchlight and Laughlin in Nevada. The majority of the Project will be constructed within existing SCE easements, fee-owned properties, and public franchise areas. SCE will need to acquire a minimum of 1.9 acres of additional ROW from the BLM to construct the proposed Newberry Springs Series Capacitors and a minimum of 1.6 acres of additional private property to construct the proposed Ludlow Series Capacitor.

1.1.4 Project Habitat Description

The existing transmission lines associated with the Project transect the Mojave Desert Geomorphic Province. The elevation of the Project ranges from 780 feet near Mohave Substation to 4,000 feet above mean sea level at various points. Between 1981 and 2010, rainfall records from the nearest climatological station to Eldorado Substation show an average annual rainfall of approximately 4.9 inches. Between 1981 and 2010, the average annual high temperature was approximately 80.1 degrees Fahrenheit (°F) and the average annual low temperature was 58.7°F.

The Project is within the Southern Mojave and Piute Wash Hydrological Units. With the exception of the Mojave River and several smaller intermittent streams, streams consist almost exclusively of ephemeral dry washes that only hold water for a short period of time as the result of seasonal precipitation. Major drainages crossed by the Project include the Mojave River, Budweiser Wash, and Piute Wash. Within the vicinity of the Lugo Substation, water generally flows from south to northeast, toward the Mojave River, and from there to closed basins in the interior of the Mojave. Near the Mohave Substation, water flows from west to east, toward the Colorado River. The Colorado River eventually empties to the Gulf of California, south of the U.S.-Mexico border. In the vicinity of the Eldorado Substation, water generally flows from southwest to northeast and into the Eldorado Dry Lake, a closed basin.

Vegetation in the Project area is generally characterized by the dominance of creosote bush (*Larrea tridentata*) shrubs, although other shrubs and emergent trees may be present at low densities. The habitat in the area supports a variety of wildlife species, consisting mainly of rodents and reptiles.

1.2 Lead, Cooperating, and Consulting Agencies

1.2.1 Lead Agencies

Lead agencies have discretionary approval over the Project and are responsible for reviewing aspects of the measures documented in this Plan. The CPUC is California's lead agency responsible for compliance with the California Environmental Quality Act (CEQA) for Project areas on non-federal lands. The CPUC issued an Initial Study/Mitigated Negative Declaration for the Project under CEQA. The BLM Desert District Office is the federal lead agency responsible for compliance with National Environmental Policy Act (NEPA) for the Project areas on federal lands.

1.2.2 Cooperating Agencies

Because the Project also crosses the Mojave National Preserve, the NPS elected to participate as a Cooperating Agency for the environmental review of the Project. Although the existing transmission lines associated with the Project also cross lands administered by the Bureau of Reclamation and the Department of Defense, the NPS represents the only federal cooperating agency at this time.

1.2.3 Consulting Agencies

Consulting agencies are public agencies, other than the lead agencies, that may provide guidance or information needed to satisfy the requirements of the measures contained in this Plan. Consulting agencies for select mitigation measures listed in Table 1 include the USFWS, CDFW, and Nevada Department of Wildlife (NDOW).

1.3 Regulatory Setting

There are a number of federal and state regulations that afford varying degrees of protection for birds and their nesting activities. The applicable regulations and permits are summarized below, along with the applicable mitigation measures (MMs) from the Project's environmental documents (Section 1.4), which together provide the regulatory framework within which Project activities must comply.

1.3.1 Federal Regulations

1.3.1.1 National Environmental Policy Act

Title I of NEPA (42 United States Code Section 4321) requires federal agencies to incorporate environmental considerations in their planning and decision-making processes. Federal agencies are to prepare detailed statements, Environmental Impact Statements and Environmental Assessments, assess the environmental impact of and alternatives to federal actions with the potential to significantly affect the environment. Title II of NEPA established the CEQ (40 Code of Federal Regulations Parts 1500-1508) to oversee NEPA implementation by ensuring that federal agencies meet their obligations under NEPA, overseeing federal agency implementation of the environmental impact assessment process, and issuing regulations and other guidance to federal agencies regarding NEPA compliance.

1.3.1.2 Federal Endangered Species Act

The federal Endangered Species Act (FESA) and its subsequent amendments provide guidance for the conservation of endangered and threatened species and the ecosystems on which they depend. FESA Section 9 lists activities prohibited by the act. Any federal agencies that are undertaking a discretionary action must consult with the NPS to ensure that its action is not likely to jeopardize the continued existence of listed species or destroy or adversely modify critical habitat. "Take" of any listed species is prohibited. The BLM and NPS consulted with the USFWS under Section 7 of the FESA to comply with the FESA. Take under FESA is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect or to attempt to engage in any such conduct.

1.3.1.3 Migratory Bird Treaty Act

The federal Migratory Bird Treaty Act (MBTA) is a law implemented as a result of treaties with Great Britain (on behalf of Canada), Mexico, the U.S.S.R. (now Russia), and Japan that makes it unlawful, except as formally permitted, to take (pursue, hunt, take, capture, or kill) migratory birds except under permits for special situations such as imminent threat to human safety or scientific research. The law currently applies to more than 1,000 species, including most native birds, and covers the destruction or removal of active nests of those species. These protections apply regardless of whether other entitlements are in place, such as approvals under CEQA.

1.3.1.4 Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act (BGEPA) was first enacted in 1940 to prohibit take, which here includes to kill, wound, or disturb Bald Eagles (*Haliaeetus leucocephalus*), except when permitted by the Secretary of the Interior. In 1962, the act was amended to afford the same level of protection to Golden Eagles (*Aquila chrysaetos*). Activities that could harm or harass golden eagles indirectly, including the removal of their nests or certain activities near their nests, are also prohibited under the BGEPA.

1.3.2 State of California Regulations

1.3.2.1 California Environmental Quality Act

The CEQA (Public Resources Code Section 15000, et seq.) requires identification of significant environmental effects of proposed projects (including impacts on biological resources) and avoidance (where feasible) or mitigation of the significant effects. CEQA applies to "projects" proposed to be undertaken or requiring approval by state and/or local governmental agencies. "Projects" are activities that have the potential to have a physical impact on the environment. For this Project, an Initial Study was conducted pursuant to Section 15063 of the CEQA Guidelines (Sections 15000–15387 of the California Code of Regulations), and it resulted with a Mitigated Negative Declaration.

1.3.2.2 California Fish and Game Code

<u>California Endangered Species Act</u>

The California Endangered Species Act (CESA) (California Fish and Game Code § 2050) generally parallels the main provisions of the FESA. Section 2080 of the California Fish and Game Code prohibits the take, possession, purchase, sale, and import or export of endangered, threatened, or candidate species, unless otherwise authorized by permit or in the regulations. Take is defined in Section 86 of the California Fish

and Game Code as to "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill." The CESA allows for take incidental to otherwise lawful projects. State lead agencies are required to consult with the CDFW to ensure that any action they undertake is not likely to jeopardize the continued existence of any endangered or threatened species or result in destruction or adverse modification of essential habitat. For projects that affect both a federally and state-listed species, compliance with the FESA will satisfy the CESA if the CDFW determines that the federal incidental take authorization is "consistent" with CESA under California Fish and Game Code Section 2080.1 (Consistency Determination). Should the CDFW not issue a Consistency Determination, a separate Incidental Take Permit under Section 2081 could be pursued, which is the approach that has been taken for the Project.

Sections 3511—Fully Protected Species

The legislature of the State of California designated species as "fully protected" prior to the creation of CESA. Lists of fully protected species were initially developed to provide protection to those animals that were rare or faced possible extinction and included fish, mammals, amphibians and reptiles, and birds. Most fully protected species have since been listed as threatened or endangered under CESA and/or FESA. These species may not be taken or possessed at any time, with the only exception being permits for limited scientific study. Golden eagles are a fully protected species.

Sections 3503, 3503.5, 3505, 3513, 3800, 3801.6—Native Birds

These California Fish and Game Code sections protect all birds, birds of prey, and all nongame birds, as well as their eggs and nests, for species that are not already listed as fully protected and that occur naturally within the state. Section 3503.5 specifically states that it is unlawful to take any raptors (e.g., hawks, owls, eagles, and falcons), or their nests and eggs. This RMP will be implemented in compliance with Section 3503.5.

In most cases, issues that will arise during construction of the Project will be associated with species protection under the MBTA and the California Fish and Game Code sections pertaining to native birds. Therefore, the management strategies presented in this Plan focus on those species protected under these regulations.

1.3.3 State of Nevada Regulations

1.3.3.1 Nevada Revised Statutes

Chapter 503 (Hunting, Fishing and Trapping; Miscellaneous Protective Measures)

Nevada Revised Statutes 503.620 affirms in state law the protections provided under the federal MBTA for migratory birds, including their parts, eggs, and nests.

1.4 Measures and Conditions from Environmental Documents and Permits

The mitigation measures and conservation measures addressed in this Plan are listed in Table 1. Implementation of these measures is a condition of the Project's approvals. Additional mitigation measures will be added to updates of this RMP as appropriate.

Table 1. Mitigation Measures and Conservation Measures Addressed	
Measure	**Description**
Programmatic Biological Opinion (BO) for the Desert Renewable Energy Conservation Plan BLM Land Use Plan Amendment Conservation Management Actions	
LUP-BIO-6	Subsidized predator standards, approved by BLM, in coordination with the USFWS and CDFW, will be implemented during all appropriate phases of activities, including but not limited to renewable energy activities, to manage predator food subsidies, water subsidies, and breeding sites including the following: • Common Raven management actions will be implemented for all activities to address food and water subsidies and roosting and nesting sites specific to the Common Raven. These include identification of monitoring reporting procedures and requirements; strategies for refuse management; as well as design strategies and passive repellant methods to avoid providing perches, nesting sites, and roosting sites for Common Ravens. • The application of water and/or other palliatives for dust abatement in construction areas and during project operations and maintenance will be done with the minimum amount of water necessary to meet safety and air quality standards and in a manner that prevents the formation of puddles, which could attract wildlife and wildlife predators. - Following the most recent national policy and guidance, BLM will take actions to not introduce, dispose of, or release any non- native species into areas of native habitat, suitable habitat, and natural or artificial waterways/water bodies containing native species. All activity work areas will be kept free of trash and debris. Particular attention will be paid to "micro-trash" (including such small items as screws, nuts, washers, nails, coins, rags, small electrical components, small pieces of plastic, glass or wire, and any debris or trash that is colorful or shiny) and organic waste that may subsidize predators. All trash will be covered, kept in closed containers, or otherwise removed from the project site at the end of each day or at regular intervals prior to periods when workers are not present at the site. • In addition to implementing the measures above on activity sites, each activity will provide compensatory mitigation that contributes to LUPA-wide raven management.
LUPA-TRANS-BIO-1	Where feasible and appropriate for resource protection, site transmission activities along roads or other previously disturbed areas to minimize new surface disturbance, reduce perching opportunities for the Common Raven, and minimize collision risks for birds and bats.
Southern Nevada District Office's Programmatic BO Reasonable and Prudent Measures	
RPM 2: Predator Control	2.a. Litter control; applies to all projects—A litter control program will be implemented to reduce the attractiveness of the area to opportunistic predators such as desert kit foxes, coyotes, and common ravens. Trash and food items will be disposed of properly in predator-proof containers with predator-proof lids and emptied daily. 2.b. Deterrence — The project proponent will implement measures to discourage the presence of predators on site (coyotes, ravens, etc.), including elimination of available water sources, designing structures to discourage potential nest sites, and use of hazing to discourage raven presence.

Table 1. Mitigation Measures and Conservation Measures Addressed	
Measure	**Description**
	2.c. Monitoring and predator control — The project proponent will implement BLM's Raven Management Plan to monitor for the increased presence of ravens and other potential human-subsidized predators. 2.d. Evaporation ponds and open water sources — Tortoise-proof fencing should be installed to prevent tortoises from entering the ponds.
BLM Mitigation Measures	
BR-8 (9): Desert Tortoise Protection Measures	Prepare and implement an RMP.
CPUC Mitigation Measures	
BR-7: Ensure wildlife impact avoidance and minimization	**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.
BR-9: Conduct surveys and avoidance for special-status reptiles	**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 3 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 USDA, 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.
CDFW Mitigation Measures	
ITP 8.2: Raven Management	Permittee shall develop and implement a raven monitoring, management, and control plan (Raven Management Plan; RMP) to identify and minimize avian predation of Covered Species. The RMP shall specify actions to minimize Project-related predator subsidies and prevent any increases in raven numbers or activity within Covered Species habitat resulting from Project activities. The RMP shall also identify contingency measures to be implemented in the event that predation persists. The RMP shall be implemented throughout the Project term, including restoration, and its efficacy evaluated on an annual basis. Permittee shall submit to CDFW annual reports documenting monitoring and management efforts made throughout the prior term. Alternatively, this project may be folded into SCE's programmatic raven management plan once reviewed by CDFW and approved by all applicable agencies.

1.5 Measures and Conditions by and Project Phases

The measures described in this Plan and listed in Table 1 are applicable for the following periods of the Project, as shown in Table 2.

Table 2. Timing of Mitigation Measure Applicability			
Measure	**Period**		
	Preconstruction (Mobilization)	**During Construction (Active)**	**Post-construction (Restoration)**
LUPA-BIO-6	☐	☒	☒
LUPA-TRANS-BIO-1	☒	☐	☐
RMP 2	☐	☒	☒
BLM MM BR-8 (9)	☐	☒	☒
CPUC MM BR-7 excerpt	☐	☒	☒
CPUC MM BR-9 (10)	☐	☒	☒
CDFW ITP 8.2	☐	☒	☒

2 Construction Practices

2.1 Minimizing Raven Subsidies

Construction activities (including restoration) have the potential to attract common ravens to any supplemental resources such as food and water, which can result in local increases in predation pressure on desert tortoises. Construction will be conducted in a way that minimizes availability of food and water to common ravens. Water use for dust control will be limited to the minimum amount necessary to comply with air quality objectives. Vehicle washing stations and supplemental watering on restoration sites will be monitored to ensure that surface water is not available to common ravens.

During construction, a trash collection system will be established to ensure that all food and other trash that could attract tortoise predators is properly disposed of in self-closing, sealable trash containers with lids that latch to prevent wind, common ravens, and mammals from opening containers. All trash receptacles will be regularly inspected and emptied to prevent spillage and maintain sanitary conditions. Trash receptacles in temporary work areas will be removed from the Project footprint when construction activities are complete.

Road-killed animals or other carcasses detected by Biological Monitors along unpaved access roads within SCE's ROW during construction activities will be moved out of the roadway if possible, even if the mortality was not a result of Project activities. If a construction crew discovers a carcass, a biologist will be notified to identify the carcass. The Qualified Biologist or Field Contact Representative will determine a response for non-special-status species carcasses. Generally, response will be to report the location to the appropriate local animal control agency within 24 hours. In the interim, the carcass will be moved and/or covered to prevent scavenging if possible. Large carcasses or those in remote areas may require special consideration. SCE will contact the BLM, USFWS, and CDFW or NDOW if a carcass cannot be immediately removed or made inaccessible to ravens.

For special-status species carcasses, the Qualified Biologist or Field Contact Representative will contact the BLM, USFWS, and CDFW or NDOW within 1 working day of identification of the carcass for guidance on disposal or storage of the carcass. Handling of migratory bird carcasses, if necessary, will be conducted under the terms of SCE's Special Purpose Utility Permit (MB728480-0).

During construction, Biological Monitors will incorporate into their daily sweeps a search for prey remains under common raven nests present on Project structures. If desert tortoise remains are found, SCE will

notify the BLM, USFWS, and CDFW or NDOW verbally (via phone call) and in writing (via email or fax) within 24 hours of identifying the remains.

Surveys for and treatment of active common raven nests, as well as deterrent methods, will otherwise be addressed consistently with the Project's NBMP.

2.2 Nest Management, Removals, and Deterrents

Biological Monitors will record the presence of common raven nests during preconstruction sweeps and construction monitoring, with nest locations recorded in the Project's environmental database to provide a record of preconstruction baseline conditions as well as changes in common raven presence during construction. Surveys for and treatment of active common raven nests will be addressed consistently with the Project's NBMP.

Inactive nests of common ravens may be removed at SCE's discretion outside the nesting season according to the Project's NBMP. Prior to the start of construction, during construction, and outside of the avian breeding season (January 1 through August 31), SCE may remove previously documented raven nests from transmission structures that are a part of the Project by removing nests from the towers in a manner that makes the material unrecognizable as a nest. The nesting material will be disposed of so that it is no longer available for use for nest building (e.g., removal to a landfill or disposal at SCE facility). SCE will remove nesting material from all nest sites documented to be used by offending ravens.

During the non-breeding-season, nests documented as raven nests during the breeding season immediately preceding the non-breeding season may be removed according to the NBMP (Section 2.6.3). Given that raptors and ravens may use the same nests and inactive raven and raptor nests may be indistinguishable, the procedures for raptors in the NBMP (Section 2.6.1) would be used for nest removal during the non-breeding season if species from the breeding season immediately preceding the nest removal is unknown. During the breeding season, SCE may remove raven nests following the protocol for removing inactive raptor nests, provided the nests are determined to be inactive by a qualified biologist. The nests will be removed in accordance with the NBMP to prevent take of active nests when Project structures are removed or modified during construction. The incidental benefit is that the risk of raven nesting and potential predation of tortoises would be reduced.

Regardless of the breeding season, SCE may also install nest deterrents (e.g., buoys) before and during construction, as needed, in potential raven nests not previously removed, provided the nest is determined to be inactive according to the NBMP by a qualified biologist. Raven nest removal and deterrent installation will be scheduled in a manner that does not impact personnel safety or system reliability. The potential types of nest deterrents and more information regarding nest deterrents can be found in Section 2.5 of the NBMP.

3 Post-Construction Raven Monitoring and Management

3.1 Post-Construction Monitoring and Management Purpose

When considering miles of desert tortoise habitat crossed (as opposed to acreage), the Project primarily consists of modifications and improvements to existing transmission lines. Thus, while impacts to desert tortoise habitat are anticipated, minimal change is anticipated to the existing baseline of manmade structures that can support common raven nests.

Construction of new facilities is focused around existing substations and at the proposed series capacitor stations. For the linear portions of the project, no new structures that may provide additional nesting or perching substrates (e.g., transmission structures) will be added, and no facilities or activities that might result in long-term anthropogenic food subsidies will occur. Raven density in the Mojave Desert appears to be more closely dependent on the presence of food sources rather than the presence of nest sites (Kristan and Boarman 2007), indicating that nests sites are less likely than access to food or water to be a limiting resource. The presence of food and water will be addressed during the construction and restoration phase as described in Section 2.

Construction of the Series Capacitor Stations, associated facilities, and three fiber-optic repeater stations represent the primary new, permanent disturbance associated with the Project and where the Project would potentially result in a long-term change from the baseline conditions related to common raven density through the creation of new structures that could provide nesting substrates. No Project components or activities are otherwise likely to create long-term subsidies such as supplemental food or water for common ravens.

The focus of the RMP's monitoring will be to determine whether the construction of the Ludlow and Newberry Springs Series Capacitor Stations, associated facilities, and the Barstow, Kelbaker, and Lanfair fiber optic repeater facilities has resulted in new opportunities for common raven nesting and an increase in predation on desert tortoises over the preconstruction baseline. Monitoring will begin independently at each of those Project features at the beginning of construction activities at each site. Monitoring and management under this RMP will be conducted to address any observed increases in common raven nesting and predation risk on desert tortoises and other wildlife within 300 feet of the Series Capacitor Stations and repeater stations (the study area).

3.2 Common Raven Nest Surveys

A Qualified Biologist(s) with expertise identifying common raven nests and desert tortoise remains (e.g., carcass, shell, and bone fragments) will conduct surveys for the presence of common raven nests on transmission, subtransmission, and distribution structures within the study area and for the presence of desert tortoise remains within a 100-foot radius of each common raven nest. Nearby features within 300 feet of the nest that may serve as perches (e.g., other structures, Joshua trees) may be searched at the surveyor's discretion.

In California, surveys will begin in February and will continue through May, occurring between the 15th and last day of each month. In Nevada, surveys will begin in February and will continue through the end of the nesting season in September (BLM 2016). If an active common raven nest is located, searches for the presence of desert tortoise remains within a 100-foot radius of the nest will be conducted.

The name and qualifications of the Qualified Biologist will be submitted to the BLM (in cooperation with USFWS), NPS (in cooperation with USFWS), CPUC, and CDFW or NDOW (as appropriate) for approval 30 days before the commencement of monitoring each year. Nest surveys will be conducted once per month during the primary common raven nest building period in California and the entire nesting season in Nevada, and will begin the first common raven nesting season following the completion of Project activities affecting transmission structures in desert tortoise habitat. Nest survey methods may include vehicular windshield surveys or pedestrian surveys, as appropriate.

If desert tortoise remains are found under any of the surveyed raven nests, SCE will notify the BLM, USFWS, and CDFW or NDOW verbally (via phone call) and in writing (via email or fax) within 24 hours of identifying the remains.

3.3 Common Raven Nest Monitoring

In the event a common raven is documented initiating a new nesting attempt during the surveys, follow up visits to that nest will be made in the subsequent months to establish whether or not the pair is bringing desert tortoises back to the nest. Throughout the survey period, if desert tortoise remains are found below an active nest, SCE will document the presence of the remains and verify the nesting status of the common ravens (e.g., incubating, feeding nestlings), herein referred to as offending ravens, and notify the BLM, USFWS, and CDFW or NDOW verbally (via phone call) and in writing (via email or fax) within 24 hours of documenting the remains.

SCE will submit a report on the survey and monitoring effort and a GIS layer to the USFWS of all the nests recorded during the year within 90 days of the last survey effort. The USFWS will be responsible for sharing the nest information with the Common Raven Management Work Group.

Nest monitoring and removal, searches for desert tortoise remains, and common raven removal will be conducted for 3 years beginning at the commencement of construction of each new Project facility.

3.4 Common Raven Management and Nest Removal

Upon being notified of the presence and location of an offending common raven, SCE will notify the USFWS and USDA Wildlife Services. Wildlife Services will determine the appropriate response, including potential removal of the offending common raven(s) in California. In Nevada, removal of offending ravens will be considered a 'last resort' after habitual predation on desert tortoises and failure of other deterrent methods (BLM 2016).

SCE will establish a Cooperative Service agreement with USDA's Animal and Plant Health Inspection Service (APHIS), allowing for APHIS Wildlife Services to conduct the removal efforts of offending common raven(s) using Project structures. SCE will be responsible to APHIS for expenses attributed to removal of offending ravens nesting on the Project structures and other components (e.g., substations).

At least once per year outside of the avian breeding season, SCE will remove all previously documented offending inactive raven nests from all Project features and completely dispose of the nesting material so that it is no longer available for use for nest building (e.g., removal to a landfill or disposal at a SCE facility). Inactive raven nest removal will be scheduled in a manner that does not impact personnel safety or system reliability.

4 Plan Approval

This Plan will be implemented following approval or concurrence by the CPUC, the BLM, NPS, the USFWS, CDFW, and NDOW. Any proposed revision or amendment must be reviewed by BLM and CPUC to confirm consistency with mitigation measures adopted by the lead and cooperating agencies in the BLM, NPS, and CPUC decision documents, and by USFWS and CDFW or NDOW to confirm consistency with the respective federal and state wildlife statutes.

An evaluation of the effectiveness of this Plan will be reviewed by SCE, the CPUC, BLM, NPS, USFWS, and CDFW or NDOW on an annual basis, beginning after the completion of the first nesting season following the initiation of construction, in order to develop and implement appropriate adaptive measures for the Project for the next breeding season. The frequency and type of surveys implemented may increase or decrease depending on survey results and the effectiveness of the monitoring and removal.

Minor amendments or clarifications to the Plan will be implemented following receipt of email concurrence from CPUC, BLM, USFWS, CDFW, and NDOW staff. Major amendments to this plan that may result from changes in applicable regulations, which alter the procedures outlined in this plan, will be submitted to the CPUC, BLM, CDFW, and USFWS for concurrence prior to implementation. Following concurrence of minor or major amendments, a revised version of the plan with date of revision will be provided to CDFW, USFWS, CPUC, NDOW, and BLM.

SCE is currently working on a programmatic RMP to systematically address raven predation on desert tortoises across its service territory. This is a collaborative effort involving USFWS, BLM, NPS, USFS, USDA, CDFW, and NDOW. The programmatic RMP is being developed to better focus efforts in areas where they are needed the most for desert tortoise conservation. The plan includes adaptive management based on results of efforts and development of new technologies and strategies. This Project-specific RMP prepared for ELM may be folded into SCE's programmatic RMP once reviewed and approved by all applicable agencies. Should this Plan be folded into the programmatic RMP, this Plan will be closed out at that time.

5 References

Bureau of Land Management (BLM). 2016. Common Raven Management Plan for Energy Development within the BLM Southern Nevada District Office. 15 pp. + attachments.

Insignia Environmental. 2017. Desert Tortoise Pre-Project Survey Report for the Eldorado – Lugo – Mohave Series Capacitor Project. 13 pp. + attachments.

Kristan, W.B. III, and W.I. Boarman. 2007. Effects of anthropogenic developments on common raven nesting biology in the west Mojave Desert. Ecological Applications 17 (6): 1703-1713.

Kristan, W.B. III, W.I. Boarman, and J.J. Crayon. 2004. Diet composition of common ravens across the urban-wildland interface of the west Mojave Desert. Wildlife Society Bulletin 32 (1): 244-253.

U.S. Fish and Wildlife Service, U.S. Department of Agriculture, U.S. Department of Defense, Bureau of Interior. 2008. Environmental Assessment to Implement a Desert Tortoise Recovery Plan Task: Reduce Common Raven Predation on the Desert Tortoise. Ventura Fish and Wildlife Office. Ventura, California.