Chapter 5: Environmental Impact Assessment Summary

5.0 Introduction to Environmental Impact Assessment Summary

As stipulated in Section 21083.7 of the California Environmental Quality Act (CEQA), when a project has both an environmental impact report (EIR) prepared pursuant to CEQA and an environmental impact statement (EIS) prepared pursuant to the National Environmental Policy Act of 1969 (NEPA), whenever possible, the CEQA Lead Agency shall use the EIS as the EIR (as provided in Section 21083.5 of CEQA). As further indicated in Section 15221 of the State CEQA Guidelines, when a project will require compliance with both CEQA and NEPA, State or local agencies should use the EIS rather than preparing a new EIR if the following conditions occur: (1) an EIS will be prepared before an EIR would otherwise be completed for the project; and (2) the EIS complies with the provisions of the State CEQA Guidelines.

As evidenced by FERC's release of the "Final Environmental Impact Statement for Hydropower License – Lake Elsinore Advanced Pumped Storage Project, FERC Project No. 11858, FERC/EIS-0191F" (FEIS), dated January 2007, NEPA documentation for the two Project components examined in this PEA are as generally described in the FEIS. Similarly, the Project, as described in this PEA, is as generally described in the CPUC's and BLM's January 2008 "Draft Environmental Impact Report/Environmental Impact Statement and Proposed Land Use Amendment – San Diego Gas & Electric Company Application for the Sunrise Powerlink Project, SCH No. 2006091071, DOI Control No. DES-07-58" and July 2008 "Recirculated Draft Environmental Impact Report/Supplemental Draft Environmental Impact Statement – San Diego Gas & Electric Company Application for the Sunrise Powerlink Project, SCH No. 2006091071, DOI Control No. DES-07-58" (Sunrise DEIR/DEIS).

The "LEAPS transmission-only alternative" (identified as the TE/VS Interconnect herein) was identified, described, and evaluated in the Sunrise DEIR/DEIS (Alternative E.7.1). The "LEAPS generation and transmission alternative" (identified as LEAPS herein) was also identified, described, and evaluated in the Sunrise DEIR/DEIS (Alternative E.7.2).

As indicated in the CPUC's "Information and Criteria List": "The PEA may incorporate material by reference when to do so would reduce bulk without impeding agency or public review. Any such incorporation shall, however, include a summary of the matter to which reference is made and an explanation of its relevance to the project. No material may be incorporated by reference unless it is reasonably available, or is made reasonably available for inspection by the Commission and potentially interested members of the public. All or any part of any Environmental Impact Statement prepared pursuant to the National Environmental Policy Act of 1969 (NEPA), or any EIR or Master Environmental Assessment prepared pursuant to CEQA, may be submitted in lieu of all or any part of the PEA required by this rule, provided the requirements of all applicable sections of these Information and Criteria Lists are fully satisfied."

Since the Project (inclusive of LEAPS and the TE/VS Interconnect) examined in this PEA is as generally described and contemplated in the FEIS, the Applicant has elected to avail itself of that authorization (utilization of NEPA documentation) and incorporates the FEIS and its environmental review record by reference herein. Similarly, since the Project (inclusive of LEAPS and the TE/VS Interconnect) examined in this PEA is as generally described and

contemplated in the Sunrise DEIR/DEIS, the Applicant, as authorized under Section 15150 of the State CEQA Guidelines (14 CCR 15150), has incorporated the Sunrise DEIR/DEIS and its administrative record by reference herein. Document references and citations are as presented in the Sunrise DEIR/DEIS.

For ease of reference, Table 5.0-1 (CEQA Compliance Documents Cross-Reference Matrix) indicates where each of the elements required for an adequate environmental impact report (EIR), identified in Sections 15122-15130 of the State CEQA Guidelines, are addressed in the FEIS, in the Sunrise DEIR/DEIS, and in this PEA. Beyond what is presented herein, the additional relevant information from the FEIS and Sunrise DEIR/DEIS provides further documentation supporting the derivation of the preliminary findings of this PEA.

Since the headings utilized to group the issues examined in the FEIS (following NEPA) are not always the same as the headings utilized to group the issues in either this or the Sunrise DEIR/DEIS (following CEQA), Table 5.0-2 (CEQA/NEPA Cross Reference Guide) presents a guide cross-referencing the individual issues between the Sunrise DEIR/DEIS, the FEIS, and this PEA. The terms "sections" and "chapters" are used interchangeably herein.

With regard to a proposed project, as stipulated in Sections 15126.2(a)-(b) of the State CEQA Guidelines, the CEQA documentation shall identify and focus on the significant environmental effects, including those significant effects that cannot be avoided if the project is implemented. The listing of potential environmental impacts presented herein is based, in part, on the list of environmental impacts identified by the Commission for the LEAPS and TE/VS Interconnect, as presented in the Sunrise DEIR/DEIS. For ease of reference, the numbering system assigned to each identified impact uses the same nomenclature as presented therein. The environmental impacts examined in this PEA and attributable to the LEAPS and TE/VS Interconnect are presented in Table 5.0-3 (TE/VS Interconnect/Talega-Escondido Upgrades – Potential Environmental Impacts) and Table 5.0-4 (LEAPS – Potential Environmental Impacts).

With regards to each impact, a preliminary determination is presented of the level of significance of each effect. The following notation system is used: (1) Class I (Significant and Unavoidable Impact - Cannot be Mitigated to a Less-than-Significant Level); (2) Class II (Less-than-Significant Impact with Mitigation); (3) Class III (Adverse but a Less-than-Significant Impact); and/or (4) Class IV (No Impact). In deriving the conclusions presented, it is assumed that each of the articles, conditions, and measures which have been imposed or which are slated for imposition by the various resource agencies with jurisdiction over LEAPS, as listed in Attachment 4 (Articles, Conditions, and Measures), are incorporated in and made a part of LEAPS. Since those actions are already a part of LEAPS, they are not again cited herein.

With regard to wildfire hazards, the "fuel and fire management" analysis conducted by the CPUC/BLM for the TE/VS Interconnect (Section E.7.1.15 and Appendix 3 in the Sunrise DEIR/DEIS) and for LEAPS (Section E7.2.15 and Appendix 3 in the Sunrise DEIR/DEIS) and the additional assessment presented for the separate and independent Sunrise Powerlink (SRPL) (Section D.15 and Appendix 3 in the Sunrise DEIR/DEIS) are incorporated by reference herein and serve as the Applicant's response to comments submitted to the Applicant by the Commission (letter from Jensen Uchida) on November 16, 2007 regarding "fire hazards."

Table 5.0-1. CEQA Compliance Documents Cross-Reference Matrix

Content (State CEQA Guidelines)	**FEIS**	**Sunrise DEIR/DEIS**	**PEA**
Summary (14 CCR 15123)	▪ Executive Summary	▪ Executive Summary	▪ Chapter 1.0 (Proponent's Environmental Assessment Summary)
Project Description (14 CCR 15124)	▪ Section 1.0 (Purpose of Action and Need for Power); ▪ Section 2.0 (Proposed Action and Alternatives); and ▪ Appendix B.2.1 (TE/VS Transmission Line)	▪ Chapter E.7.1 (LEAPS Transmission-Only Alternative Description); and ▪ Chapter E.7.2 (LEAPS Generation and Transmission Alternative)	▪ Chapter 1.0 (Proponent's Environmental Assessment Summary); ▪ Chapter 2.0 (Project Purpose and Need); and ▪ Chapter 3.0 (Projects Description)
Environmental Setting (14 CCR 15125)	▪ Section 3.0 (Environmental Consequences)	▪ Chapter D.1 thru D.15	▪ Chapter 4.0 (Environmental Setting)
Significant Environmental Effects of the Proposed Project (14 CCR 15126[a])	▪ Section 3.0 (Environmental Consequences); and ▪ Section 5.0 (Staff Conclusions)	▪ Chapter E.7.1 (LEAPS Transmission-Only Alternative Description); ▪ Chapter E.7.2 (LEAPS Generation and Transmission Alternative); and ▪ Appendices 3, 7-10, and 13	▪ Chapter 6.0 (Detailed Discussion of Significant Impacts)
Significant Environmental Effects which Cannot be Avoided (14 CCR 15126[b])	▪ Section 3.0 (Environmental Consequences); and ▪ Section 5.0 (Staff Conclusions)	▪ Chapter F (Other CEQA and NEPA Requirements)	▪ Chapter 6.0 (Detailed Discussion of Significant Impacts)
Significant Irreversible Environmental Changes (14 CCR 15126[c])	▪ Section 3.4 (Irreversible and Irretrievable Commitment of Resources)	▪ Chapter F (Other CEQA and NEPA Requirements)	▪ Chapter 6.0 (Detailed Discussion of Significant Impacts)
Growth-Inducing Impacts (14 CCR 15126[d])	▪ Section 3.3.8.2 (Environmental Consequences)	▪ Chapter F (Other CEQA and NEPA Requirements)	▪ Chapter 6.3 (Growth-Inducing Impacts)
Mitigation Measures (14 CCR 15126[e])	▪ Section 2.3.6 (Proposed Environmental Measures)	▪ Chapter E.7.3 (Mitigation Monitoring, Compliance, and Reporting Table) ▪ Appendix 12 (Full Text of All Mitigation Measures)	▪ Chapter 6.1 (Mitigation Measures Proposed to Minimize Significant Effects); ▪ Attachment 4 (Articles, Conditions, and Environmental Protection and Enhancement Measures); and ▪ Attachment 5 (Applicant Proposed Measures)
Alternatives (14 CCR 15126[f])	▪ Section 2.0 (Proposed Action and Alternatives)	▪ Chapter C (Alternatives); ▪ Chapters E.1 thru E.8; Chapter H (Comparison of Alternatives); ▪ Appendix A (Alternatives Screening Report)	▪ Chapter 6.2 (Description of Project Alternatives and Impact Analysis)
Effects not Found to be Significant (14 CCR 15128)	▪ Section 5.0 (Staff Conclusions)	▪ Chapter E.7.1 (LEAPS Transmission-Only Alternative Description); and ▪ Chapter E.7.2 (LEAPS Generation and Transmission Alternative)	▪ Chapter 5 (Environmental Impact Assessment Summary)
Organizations and Persons Consulted (14 CCR 15129)	▪ Appendix E	▪ Chapter J (Public Participation); ▪ Appendix 4 (Persons & Organizations Consulted); and ▪ Appendix 5 (Preparers of this Document)	▪ Table 3-9 (Discretionary Permits, Approvals, and Consultation)
Cumulative Impacts (14 CCR 15130)	▪ Section 3.0 (Environmental Consequences)	▪ Chapter G (Cumulative Scenario and Impacts)	▪ Chapter 5.17 (Cumulative Impacts)

Source: The Nevada Hydro Company, Inc.

Table 5.0-2. CEQA/NEPA Cross-Reference Guide

Environmental Issue	FEIS[1]	Sunrise DEIR/DEIS	PEA
Aesthetics	■ Section 3.3.7 ■ Section 5.2.9 ■ Appendix D	■ Chapter D.3 ■ Chapters E.7.1.3 and E.7.2.3	■ Chapter 4.3 ■ Chapter 5.1
Air Quality	■ Section 3.3.10 ■ Section 3.3.7	■ Chapter D.11 ■ Chapters E.7.1.11 and E.7.2.11	■ Chapter 4.5 ■ Chapter 5.3
Biological Resources	■ Section 3.3.3 thru 3.3.5 ■ Section 5.2.5 thru 5.2.7 ■ Appendix G	■ Chapter D.2 ■ Chapters E.7.1.2 and E.7.2.2	■ Chapter 4.6 ■ Chapter 5.4
Cultural Resources	■ Section 3.3.9 ■ Section 5.2.10	■ Chapter D.7 ■ Chapters E.7.1.7 and E.7.2.7	■ Chapter 4.7 ■ Chapter 5.5
Geology, Soils, and Seismicity	■ Section 3.3.1 ■ Section 5.2.3	■ Chapter D.13 ■ Chapters E.7.1.13 and E.7.2.13	■ Chapter 4.8 ■ Chapter 5.6
Hazards and Hazardous Materials	■ Section 3.3.1 ■ Section 3.3.7	■ Chapters D.10 and D.15 ■ Chapters E.7.1.10 and E.7.2.10	■ Chapter 4.9 ■ Chapter 5.7
Hydrology and Water Quality	■ Section 3.3.2 ■ Section 5.2.4	■ Chapter D.12 ■ Chapters E.7.1.12 and E.7.2.12	■ Chapter 4.10 ■ Chapter 5.8
Land Use and Planning	■ Section 3.3.7 ■ Section 5.2.9	■ Chapters D.4 and D.6 ■ Chapters E.7.1.4 and E.7.2.4 ■ Chapters E.7.1.6 and E.7.2.6	■ Chapter 4.11 ■ Chapter 5.9
Mineral Resources	■ Section 3.3.7	■ Chapter D.13	■ Chapter 4.12 ■ Chapter 5.10
Noise	■ Section 3.3.10	■ Chapter D.8 ■ Chapters E.7.1.8 and E.7.2.8	■ Chapter 4.13 ■ Chapter 5.11
Population and Housing	■ Section 3.3.8	■ Chapter D.14 ■ Chapters E.7.1.14 and E.7.2.14	■ Chapter 4.14 ■ Chapter 5.12
Public Services	■ Section 3.3.4	■ Chapter D.15 ■ Chapters E.7.1.15 and E.7.2.15	■ Chapter 4.15 ■ Chapter 5.13
Recreation	■ Section 3.3.6 ■ Section 5.2.8	■ Chapter D.5 ■ Chapters E.7.1.5 and E.7.2.5 ■ Chapters E.7.1.14 and E.7.2.14	■ Chapter 4.16 ■ Chapter 5.14
Transportation and Traffic	■ Section 3.3.7	■ Chapter D.9 ■ Chapters E.7.1.9 and E.7.2.9	■ Section 4.17 ■ Section 5.15
Utilities and Service Systems	■ Section 3.3.7	■ Chapter D.14 ■ Chapters E.7.1.14 and E.7.2.14	■ Section 4.18 ■ Section 5.16
Cumulative Analysis	■ Section 3.2 ■ Section 3.3.2.3 ■ Section 3.3.3.3 ■ Section 3.3.4.3 ■ Section 3.3.5.3	■ Chapter F.2	■ Chapter 5.17
Growth-Inducing Impacts	■ Section 3.3.8.2		■ Chapter 5.18

1. References are not inclusive of additional relevant information contained in Appendix C (Revised U.S. Forest Service Preliminary Section 4[e] Conditions) and Appendix E (Comments on the Draft Environmental Impact Statement for the Lake Elsinore Advanced Pumped Storage Project, Project No. 11858), as presented in the FEIS.

Source: The Nevada Hydro Company, Inc.

Table 5.0-3. TE/VS Interconnect/Talega-Escondido Upgrades – Potential Environmental Impacts

Impact	Description	Significance[1]
	Biological Resources	
B-1	Construction activities would result in temporary and permanent losses of native vegetation.	I, II
B-2	Construction activities would result in adverse effects to jurisdictional waters and wetlands through vegetation removal, placement of fill, erosion, sedimentation, and degradation of water quality.	II
B-3	Construction and operation/maintenance activities would result in the introduction of invasive, non-native, or noxious plant species.	II
B-4	Construction activities would create dust that would result in degradation of vegetation.	II
B-5	Construction activities would result in direct or indirect loss of listed or sensitive plants or a direct loss of habitat for listed or sensitive plants.	I
B-6	Construction, including the use of access roads, would result in disturbance to wildlife and result in wildlife mortality.	III
B-7	Construction activities would result in direct or indirect loss of listed or sensitive wildlife or a direct loss of habitat for listed or sensitive wildlife (includes Impacts B-7A through B-7O for individual wildlife resources).	I, II, IV
B-8	Construction activities would result in a potential loss of nesting birds (violation of the Migratory Bird Treaty Act).	II
B-9	Construction or operational activities would adversely affect linkages or wildlife movement corridors, the movement of fish, and/or native wildlife nursery sites.	I, II, III, IV
B-10	Presence of transmission lines may result in electrocution of, and/or collisions by, listed or sensitive bird species.	I, II, III
B-11	Presence of transmission lines may result in increased predation of listed and sensitive wildlife species by ravens that nest on transmission towers.	III
B-12	Maintenance activities would result in disturbance to wildlife and could result in wildlife mortality.	II, III
	Visual Resources	
V-S-1	Long-term visibility of land scars in arid and semi-arid landscapes.	I, II
V-S-2	Introduction of the switchyard and transmission line structures contrast, industrial character, view blockage, and skylining when viewed from Key Viewpoint L1, on DePalma Frontage Road and southbound I-15 Freeway.	I
V-S-3	Introduction of structure contrast and industrial character associated with the TE/VS Interconnect, when viewed from Key Viewpoint L2 on Lake Elsinore and the I-15 Freeway.	I
V-S-4	Inconsistency with USFS Scenic Integrity Objective due to the introduction of transmission line structure contrast, industrial character, view blockage, and skylining when viewed from Key Viewpoint L3, southbound on South Main Divide Road.	I
V-S-5	Inconsistency with USFS Scenic Integrity Objective due to the introduction of transmission line structure contrast, industrial character, view blockage, skylining, and unnatural vegetative clearing when viewed from Key Viewpoint L4, northbound on South Main Divide Road.	I
V-S-6	Inconsistency with the USFS Scenic Integrity Objective due to the introduction of transmission line structure contrast, industrial character, view blockage, and skylining when viewed from Key Viewpoint L5, on Ortega Highway.	I
V-S-7	Inconsistency with the USFS Scenic Integrity Objective due to the introduction of transmission line structure contrast, industrial character, view blockage, and skylining when viewed from Key Viewpoint L6, on Hombre Lane in La Cresta.	I
V-S-8	Inconsistency with the USFS Scenic Integrity Objective due to the introduction of transmission line structure contrast, industrial character, view blockage, and skylining when viewed from Key Viewpoint L7, at Tenaja Trailhead to San Mateo Canyon Wilderness.	I
V-S-9	Introduction of structure contrast and industrial character associated with the Talega-Escondido 230-kV transmission line and substations upgrade.	III
V-S-10	Introduction of structure contrast and industrial character associated with the Pala-Lilac 69-kV subtransmission line upgrade, when viewed from Key Viewpoint L8, at West Lilac Road.	III
	Land Use and Planning	
L-1	Construction would temporarily disturb land uses at or near the alignment.	II, III
L-2	Presence of a transmission line or substation would divide an established community or disrupt land uses at or near the alignment.	II, III

Impact	Description	Significance[1]
	Mineral Resources	
G-2	Unique geologic features would be damaged due to construction activities	IV
	Wilderness and Recreation	
WR-1	Construction activities would temporarily reduce access and visitation to recreation or wilderness areas.	IV
WR-2	Presence of a transmission line or substation would permanently change the character of a recreation area, diminishing its recreational value.	I
WR-3	Presence of a transmission line would permanently preclude recreational activities.	III, IV
	Agricultural Resources	
AG-1	Construction activities would temporarily interfere with Active Agricultural Operations.	III
	Cultural and Paleontological Resources	
C-1	Construction of the project would cause an adverse change to known historic properties.	II
C-3	Construction of the project would cause an adverse change to unknown significant buried prehistoric and historical archaeological sites or buried Native American human remains.	I, II
C-4	Construction of the project would cause an adverse change to Traditional Cultural Properties.	I, II
C-5	Operation and long-term presence of the project would cause an adverse change to known historic properties.	I, II
C-6	Long-term presence of the project would cause an adverse change to known historic architectural (built environment) resources.	II
PAL-1	Construction of the transmission line would destroy or disturb significant paleontological resources.	II
	Noise	
N-1	Construction noise would substantially disturb sensitive receptors and violate local rules, standards, and/or ordinances.	II
N-2	Construction activity would temporarily cause ground-borne vibration.	III
N-3	Permanent noise levels would increase due to corona noise from operation of the transmission lines and noise from other project components.	I, II, III
N-4	Routine inspection and maintenance activities would increase ambient noise levels.	II, III
	Transportation and Traffic	
T-1	Construction would cause temporary road and lane closures that would temporarily disrupt traffic flow.	II, IV
T-2	Construction would temporarily disrupt the operation of emergency service providers.	II
T-4	Construction would temporarily disrupt pedestrian and/or bicycle movement and safety.	II
T-5	Construction vehicles and equipment would potentially cause physical damage to roads in the project area.	II
T-6	Construction activities would cause a temporary disruption to rail traffic or operations.	II
T-7	Construction would result in the short-term elimination of parking spaces.	II
T-9	Construction would generate additional traffic on the regional and local roadways.	III
T-11	Construction of the transmission lines would penetrate airport influence area.	II, III
	Public Health and Safety	
P-1	Improper handling and/or storage of hazardous materials during construction could cause soil or groundwater contamination.	II
P-2	Residual pesticides and/or herbicides could be encountered during grading or excavation in agricultural areas.	II
P-3	Unanticipated preexisting soil and/or groundwater contamination could be encountered during excavation or grading.	III
P-4	Areas used by the military may contain unexploded ordnance and could explode and injure workers during construction.	II
P-5	Soil or groundwater contamination could result from accidental spill or release of hazardous materials during operation and maintenance.	II

Impact	Description	Significance[1]
P-6	Herbicides used for vegetation control around towers and other project facilities could result in adverse health effects to the public or maintenance workers.	II
P-7	Excavation or grading could result in mobilization of existing soil or groundwater contamination from known sites.	II
	Air Quality	
AQ-1	Construction would generate dust and exhaust emissions of criteria pollutants and toxic air contaminants.	I
AQ-2	Operation, maintenance, and inspections would generate dust and exhaust emissions of criteria pollutants and toxic air contaminants.	III
AQ-3	Power generated during transmission line operation would cause emissions from power plants.	III
AQ-4	Project activities would cause a net increase of greenhouse gas emissions.	I
	Water Resources	
H-1	Construction activity could degrade water quality due to erosion and sedimentation.	II
H-2	Construction activity could degrade water quality through spills of potentially harmful materials.	II
H-3	Excavation could degrade groundwater quality in areas of shallow groundwater.	II
H-5	Creation of new impervious areas could cause increased runoff resulting in flooding or increased erosion downstream.	III
H-6	Transmission towers or other aboveground project features located in a floodplain or watercourse could result in flooding, flood diversions, or erosion.	II
	Geology, Soils, and Seismicity	
G-1	Erosion would be triggered or accelerated due to construction activities.	II
G-3	Project would expose people or structures to potential substantial adverse effects as a result of problematic soils.	II
G-4	Project would expose people or structures to potential substantial adverse effects as a result of seismically-induced groundshaking and/or ground failure.	II
G-5	Project would expose people or structures to potential substantial adverse effects as a result of surface fault rupture at crossings of active faults.	II
G-6	Project would expose people or structures to potential substantial adverse effects as a result of slope instability created during excavation and/or grading.	II
G-7	Project would expose people or structures to potential substantial adverse effects as a result of landslides, earthflows, debris flows, and/or rockfall.	II
	Socioeconomics	
S-1	Project construction and/or transmission line presence would cause a change in revenue for businesses, tribes, or governments.	III, IV
S-3	Project construction and operation would increase the need for public services and facilities.	III
S-4	Property tax revenues from project presence would substantially benefit public agencies.	IV
S-5	Presence of the project would decrease property values.	III
	Public Services and Utilities	
S-2	Construction would disrupt the existing utility systems or cause a collocation accident	II
S-3	Project construction and operation would increase the need for public services and facilities	III
	Fuels and Fire Management	
F-1	Construction and/or maintenance activities would significantly increase the probability of a wildfire.	I
F-2	Presence of the overhead transmission line would significantly increase the probability of a wildfire.	I
F-3	Presence of the overhead transmission line would reduce the effectiveness of firefighting.	I
F-4	Project activities would introduce non-native plants which would contribute to an increased ignition potential and rate of fire spread.	II

1. Significance designations: I - Significant; II - Less than Significant with Mitigation; III - Less than Significant; and IV - No Impact

Source: The Nevada Hydro Company, Inc.

Table 5.0-4. LEAPS – Potential Environmental Impacts

Impact	Description	Significance[1]
	Biological Resources	
B-1	Construction activities would result in temporary and permanent losses of native vegetation.	I, II
B-2	Construction activities would result in adverse effects to jurisdictional waters and wetlands through vegetation removal, placement of fill, erosion, sedimentation, and degradation of water quality.	II
B-3	Construction and operation/maintenance activities would result in the introduction of invasive, non-native, or noxious plant species.	II
B-4	Construction activities would create dust that would result in degradation of vegetation.	II
B-6	Construction, including the use of access roads, would result in disturbance to wildlife and result in wildlife mortality.	III
B-7	Construction activities would result in direct or indirect loss of listed or sensitive wildlife or a direct loss of habitat for listed or sensitive wildlife (includes Impacts B-7A through B-7O for individual wildlife resources).	I, II, IV
B-8	Construction activities would result in a potential loss of nesting birds (violation of the Migratory Bird Treaty Act).	II
B-9	Construction or operational activities would adversely affect linkages or wildlife movement corridors, the movement of fish, and/or native wildlife nursery sites.	I, II, III, IV
B-12	Maintenance activities would result in disturbance to wildlife and could result in wildlife mortality.	II, IV
	Visual Resources	
V-S-11	Construction of reservoir and associated facilities on National Forest System lands would cause medium-term visibility of construction activities, equipment, and night lighting and an increase in industrial character.	I
V-S-12	Short-term visibility of construction activities, equipment and night lighting associated with construction of the powerhouse and transmission lines.	III
V-S-13	Introduction of structure contrast and industrial character associated with the LEAPS Powerhouse, when viewed from Key Viewpoint L9 on Grand Avenue.	III
V-S-14	Inconsistency with USFS Scenic Integrity Objective due to long-term visibility of a non-natural landscape feature (reservoir facilities) from Key Viewpoints L3 and L10, on South Main Divide Road and from Key Viewpoint L5, Ortega Highway.	I
	Land Use and Planning	
L-1	Construction would temporarily disturb land uses at or near the alignment.	II, III
L-2	Presence of a transmission line or substation would divide an established community or disrupt land uses at or near the alignment.	II, III
	Mineral Resources	
G-2	Unique geologic features would be damaged due to construction activities	IV
	Wilderness and Recreation	
WR-1	Construction activities would temporarily reduce access and visitation to recreation or wilderness areas.	III
WR-2	Presence of a transmission line or substation would permanently change the character of a recreation area, diminishing its recreational value.	III, IV
	Cultural and Paleontological Resources	
C-1	Construction of the project would cause an adverse change to known historic properties.	II
C-3	Construction of the project would cause an adverse change to unknown significant buried prehistoric and historical archaeological sites or buried Native American human remains.	I, II
C-4	Construction of the project would cause an adverse change to Traditional Cultural Properties.	I, II
C-5	Operation and long-term presence of the project would cause an adverse change to known historic properties.	I, II
C-6	Long-term presence of the project would cause an adverse change to known historic architectural (built environment) resources.	II
PAL-1	Construction of the transmission line would destroy or disturb significant paleontological resources.	II

Impact	Description	Significance[1]
	Noise	
N-1	Construction noise would substantially disturb sensitive receptors and violate local rules, standards, and/or ordinances.	II, III
N-2	Construction activity would temporarily cause ground-borne vibration.	II
N-3	Permanent noise levels would increase due to corona noise from operation of the transmission lines and noise from other project components.	III
N-4	Routine inspection and maintenance activities would increase ambient noise levels.	III
	Transportation and Traffic	
T-1	Construction would cause temporary road and lane closures that would temporarily disrupt traffic flow.	II
T-2	Construction would temporarily disrupt the operation of emergency service providers.	II
T-4	Construction would temporarily disrupt pedestrian and/or bicycle movement and safety.	II
T-5	Construction vehicles and equipment would potentially cause physical damage to roads in the project area.	II
T-7	Construction would result in the short-term elimination of parking spaces.	II
T-9	Construction would generate additional traffic on the regional and local roadways.	II, IV
	Public Health and Safety	
P-1	Improper handling and/or storage of hazardous materials during construction could cause soil or groundwater contamination.	II
P-5	Soil or groundwater contamination could result from accidental spill or release of hazardous materials during operation and maintenance.	II
P-6	Herbicides used for vegetation control around towers and other project facilities could result in adverse health effects to the public or maintenance workers.	II
P-7	Excavation or grading could result in mobilization of existing soil or groundwater contamination from known sites.	II
P-8	Project construction would result in noxious gas release.	III
P-9	Project construction would require use of a toxic substance, resulting in public exposure.	III
P-10	Generation could cause contamination of project waters with hazardous materials.	II
	Air Quality	
AQ-1	Construction would generate dust and exhaust emissions of criteria pollutants and toxic air contaminants.	I
AQ-2	Operation, maintenance, and inspections would generate dust and exhaust emissions of criteria pollutants and toxic air contaminants.	III
AQ-3	Power generated during transmission line operation would cause emissions from power plants.	I
AQ-4	Project activities would cause a net increase of greenhouse gas emissions.	I
	Water Resources	
H-7	Accidental releases of contaminants from project facilities could degrade water quality.	II
H-9	Project construction or operation would potentially impact local water supply.	II
H-10	Project construction would deliver sediment resulting in increased turbidity.	II
H-11	Project reservoir would capture runoff.	III
H-12	Project operations could impact the quantity and quality of groundwater recharge.	II
H-13	Project operations could change water quality parameters.	III, IV
H-14	Project operations could degrade water quality in San Juan Creek.	II
H-15	Project operations could result in dam breach and a consequent loss of human life.	II
	Geology, Soils, and Seismicity	
G-1	Erosion would be triggered or accelerated due to construction activities.	II

Impact	Description	Significance[1]
G-4	Project would expose people or structures to potential substantial adverse effects as a result of seismically-induced groundshaking and/or ground failure.	II
G-7	Project would expose people or structures to potential substantial adverse effects as a result of landslides, earthflows, debris flows, and/or rockfall.	II, III
G-10	Project construction would result in geologic waste material.	III
	Socioeconomics	
S-1	Project construction and/or transmission line presence would cause a change in revenue for businesses, tribes, or governments.	III, IV
S-2	Construction would disrupt the existing utility systems or cause a collocation accident.	II
S-3	Project construction and operation would increase the need for public services and facilities.	III
S-1CA	Labor force requirements would create a substantial demand for labor or a change in local employment.	IV
	Public Services and Utilities	
S-2	Construction would disrupt the existing utility systems or cause a collocation accident	II
S-3	Project construction and operation would increase the need for public services and facilities	III
	Fuels and Fire Management	
F-1	Construction and/or maintenance activities would significantly increase the probability of a wildfire.	I
F-4	Project activities would introduce non-native plants which would contribute to an increased ignition potential and rate of fire spread.	II
1. Significance designations: I - Significant; II - Less than Significant with Mitigation; III - Less than Significant; and IV - No Impact		

Source: The Nevada Hydro Company, Inc.

Presented in the following sections is an assessment of the potential environmental effects of the Project's construction, operation, and maintenance. For the purpose of this evaluation, the TE/VS Interconnect, Talega-Escondido 230-kV Transmission and Substation Upgrades, and LEAPS are both separately and cumulatively examined.

5.1 Visual Resources

Impacts on visual resources attributable to the TE/VS Interconnect are discussed in Section 5.1.1. Visual Resource impacts associated with LEAPS are presented in Section 5.1.2. Potential cumulative impacts on visual resources relating to the Project (inclusive of both transmission and generation) are presented in Section 5.1.3.

5.1.1 TE/VS Interconnect – Visual Resource Impacts

TE/VS Interconnect

In general, the TE/VS Interconnect can be considered as consisting of two major components: (1) a new approximately 32-mile 500-kV circuit connecting the new Lake Switchyard and Case Springs Substation; and (2) the Talega-Escondido 230-kV Transmission and Substation Upgrade, consisting of an approximately 52-miles of 230-kV circuit to be strung on existing steel lattice towers located between SDG&E's existing Talega and Escondido Substations (Talega-Escondido No. 2), new wood and/or steel poles and a rebuild and relocated 69-kV subtransmission circuit extending approximately 7.8-miles between the existing Pala and Lilac Substations, associated upgrades to the Talega and Escondido Substations, and such other ancillary and incidental improvements and upgrades as may be associated therewith.

The existing transmission right-of-way for SDG&E's existing Talega-Escondido 230-kV circuit was previously permitted by the Commission which provides for the reconductoring proposed in this PEA and the existing Large Generator Interconnect Agreement (LGIA) between the Applicant and SDG&E.

Although collectively part of the same action, in order to facilitate an understanding of potential environmental effects, the TE/VS Interconnect and Talega-Escondido 230-kV Transmission and Substation Upgrades are separately examined in the following sections.

This transmission line would cross primarily undeveloped lands characterized by forests, chaparral, and coastal sage habitats, sometimes in the vicinity of single-family homes or other land uses, such as a private airstrip and the Wildomar Off-Highway Vehicle (OHV) area. This stretch of primarily National Forest System (NFS) land provides a natural area with limited development in close proximity to densely populated urbanized areas, a large portion of which is located less than a one-hour drive away (FERC, 2007).

The "Cleveland National Forest Land Management Plan" (USFS, 2006) designates almost all of the forest lands that this transmission line would cross as having a High Scenic Integrity Objective (SIO). In areas of High SIO, deviations may be present but must repeat the form, line, color, texture, and pattern common to the landscape character so completely and at such a scale that they are not visually evident. This is the minimum level of visual quality to which any National Forest landscape with a High SIO is to be managed from an aesthetics standpoint.

While all the CNF lands in the northern portion of TE/VS Interconnect are designated High SIO, the southern portion of the proposed transmission line would cross small and scattered areas designated as Moderate SIO. Moderate lands represent only about 2-3 percent of the entire line.

One or more Key Viewpoints (KVPs) have been established from which detailed setting characterizations have been developed to represent visual resources along that component. The location of each KVP for the TE/VS Interconnect is shown on Figure 5.1.1-1 (TE/VS Interconnect – Key Viewpoints).

After each viewpoint heading, one of the following notations is made: (VRM), (SMS), or (VS-VC). These designations indicate the methodology to which that particular viewpoint is subject and references the BLM's "Visual Resource Management" (VRM), the Forest Service's "Scenery Management System" (SMS), or the "Visual Sensitivity-Visual Change" (VS-VC) (non-BLM or non-USFS lands) methodologies (Section D.3.4.1 in the Sunrise DEIR/DEIS).

- **KVP L1: DePalma Frontage Road and Interstate 15 (VS-VC)**. As illustrated in Figure 5.1.1-2 (KVP L1 – Existing View), KVP L1 was established on southbound DePalma Road, a frontage road to the I-15 Freeway, just south of Indian Truck Trail and across the freeway from the proposed Lake Switchyard. From this viewpoint, existing views to the northeast toward steep mountains in the foreground, middle ground, and background exhibit barren, rocky mountainsides that are mostly devoid of woody vegetation, and are covered only with seasonal grasses. North of the I-15 Freeway, the TE/VS Interconnect would entail a looped 500-kV transmission line (two parallel transmission lines) in the foreground and middle ground and the proposed switchyard in the foreground. This location was selected to

generally characterize the existing landscape in the vicinity of the I-15 Freeway crossing north of Lake Elsinore.

◊ **Visual Quality** (Moderate). The foreground, middle ground and background views from the I-15 Freeway near Indian Truck Trail are constrained by steep, barren, rocky mountainsides that are brown and tan in color. Rockforms and landforms are distinctive, but vegetation is lacking. The water surface of the existing Lee (Corona) Lake is visible from KVP-L1, as is the dam that impounds the water. Vertical lines of existing electric transmission and subtransmission lines are present in the landscape, as are barren and graded roadway medians and undeveloped freeway-commercial and light industrial sites. The lack of vegetation and barren graded sites detract from the distinctive landforms, resulting in an overall moderate visual quality.

◊ **Viewer Concern** (Moderate). Travelers on the I-15 Freeway and DePalma Road are provided distinct mountain views as the terrain encroaches upon the freeway from both right and left (north and south), creating a "narrowing" portal effect. Although there are some commercial and light industrial uses along the freeway frontage and near this location, any addition of industrial character to the predominantly natural appearing landscape or blockage of views to more valued landscape features (rocky mountain slopes) would be seen as an adverse visual change.

◊ **Viewer Exposure** (High). There is no vegetative or topographic screening for the proposed loop 500-kV transmission line or the Lake Switchyard; however, the gas-insulated switchyard (GIS) equipment would be enclosed within a concrete building. Viewing distances allow details to be seen in the foreground and context to be evaluated in the middle ground. Sometimes, atmospheric conditions (smog, haze, fog) mute the colors and textures of this landscape, as displayed in the existing condition photograph. Viewing times are brief for travelers on DePalma Road and the I-15 Freeway, but are extended for residents located just west of KVP-1 in a new residential subdivision. The number of viewers would be high and the duration of view would be extended given that the loop transmission line and switchyard would be visible within the primary cone of vision (45 degrees either side of the primary direction of view) for a considerable distance on approach to the crossing from either the northbound or southbound I-15 Freeway. Consequently, viewer exposure is high.

◊ **Overall Visual Sensitivity** (Moderate-to-High). For travelers on DePalma Road and the I-15 Freeway in the vicinity of the loop transmission line and Lake Switchyard, combining the equally moderate visual quality, moderate viewer concern, and high viewer exposure lead to a moderate-to-high overall visual sensitivity of the visual setting and viewing characteristics.

- **KVP L2: Lake Elsinore (SMS)**. As illustrated in Figure 5.1.1-3 (KVP L2 – Existing View) and in Figure 5.1.1-4 (KVP L2 – Existing View), KVP L2 was established on the lake surface of Lake Elsinore near the boat ramp at the east shore. Views to the TE/VS Interconnect as it would cross the face of the mountains west of Lake Elsinore are similar from many vantage points in the City of Lake Elsinore, on the lake surface, on city streets, and along the I-15 Freeway. Two specific vantage points (I-15 Freeway and Lake Elsinore) would view

the same target landscape (the front zone of Lake Elsinore and the National Forest) and visual effects would be similar.

The I-15 Freeway is a federal interstate highway located less than one mile at its closest point to the east shore of Lake Elsinore and receives heavy commercial as well as non-commercial travel use. The towers, conductors, and resulting footprint of the TE/VS Interconnect would be visible from the I-15 Freeway and the City of Lake Elsinore. This would introduce additional structure contrast and industrial character to an otherwise primarily natural appearing landscape (though existing utility transmission and subtransmission lines are visible in portions of the suburban interface zone).

Boaters on Lake Elsinore are afforded 360-degree views of the lake in the foreground and the mountains in almost all directions in the distance. Due to the hazy conditions that often predominate at Lake Elsinore, the TE/VS Interconnect would be somewhat obscured, depending on weather conditions. The presence of water in this landscape increases visual quality, and with the contrasting vertical landforms southwest of the lake, visual variety is considered Class A. Visual sensitivity is high, based on a high number of viewers who value and appreciate scenic quality of the surrounding landscape from their homes, streets, highways, and businesses.

Although KVP-L2 was established on the shoreline of Lake Elsinore outside the CNF, the affected landscape is NFS land. When establishing scenic integrity objectives, the Forest Service considered views onto NFS lands from outside the National Forest, such as from Lake Elsinore, as well as views to NFS lands from inside the National Forest. The "Cleveland National Forest Land Management Plan" has established a High SIO for this target landscape, and any activities in this landscape should not be visually evident, but should repeat naturally established form, line, color, texture, and scale.

- **KVP L3: South Main Divide Road near North Transition Station (SMS)**. As illustrated in Figure 5.1.1-5 (KVP L3 – Existing View), KVP L3 was established on the South Main Divide Road looking southeast, near where the TE/VS Interconnect would leave the Lake Elsinore viewshed and cross over into the San Mateo Canyon Wilderness viewshed. The existing visual quality is high in this area, with only visible deviations being the South Main Divide Road and Elsinore Peak Electronic Site on the skyline to the left in this photo. Landforms are gently rolling mountains with a predominance of horizontal lines on ridge tops and the skyline. Vegetation is low growing chemise and chaparral with only small clumps of trees scattered in ravines. Granitic rock outcrops add visual interest to the skyline of San Mateo Canyon Wilderness in the background and one foreground rock outcrop. This scene has high existing scenic integrity and the Forest Service has designated this entire area as Very High SIO inside the wilderness and High SIO outside the wilderness boundary.

- **KVP L4: South Main Divide Road near South Transition Station (SMS)**. As illustrated in Figure 5.1.1-6 (KVP L4 – Existing View), KVP L4 was established on the South Main Divide Road looking northwest, near where the underground 500-kV transmission line would "transition" from underground to overhead. The existing visual quality is high in this area, with only visible deviations being the South Main Divide Road which is just out-of-frame on the right of this photograph, and cut slopes in the middle ground/background. Like KVP-L3,

landforms are gently rolling mountains with a predominance of horizontal lines on ridge tops and the skyline in the foreground. Background landforms are more rugged, looking to the northwest. Vegetation is mature oaks in this ravine, in the immediate foreground, and middle ground mountainsides have low growing chemise and chaparral. A small pile of rocks are evident in the immediate foreground (possibly a remnant of construction in Rancho Capistrano, which is just behind the camera position to the south). This scene has high existing scenic integrity and the Forest Service has designated this entire area as Very High SIO inside the wilderness and High SIO outside the wilderness boundary.

- **KVP L5: Ortega Highway (SMS)**. As illustrated in Figure 5.1.1-7 (KVP L5 – Existing View), KVP L5 was established on the Ortega Highway looking northeast up Decker Canyon to the South Main Divide Road and the skyline, near the North Transition Station (NTS) site. Like KVPs L3 and L4, the existing visual quality is high in this area, with only visible deviations being this Forest Adventure Pass parking area along Ortega Highway in the immediate foreground and the South Main Divide Road cut slopes in the middle ground. This is a parking area for wilderness access, forest recreation, and sight-seeing. Landforms are gently rolling mountains with a predominance of horizontal lines on the skyline in the middle ground. Small rock outcrops are evident in the middle ground, adding visual variety to this intact scene. This scene has high existing scenic integrity and the Forest Service has designated this entire area as Very High SIO inside the wilderness and High SIO outside the wilderness boundary.

- **KVP L6: Hombre Lane in La Cresta (SMS and VS-VC)**. As illustrated in Figure 5.1.1-8 (KVP L6 – Existing View), KVP L6 was established on Hombre Lane in La Cresta, looking north into the CNF. The overhead 500-kV transmission line would follow the road in the middle-left of this photograph, which is the boundary of the National Forest, then proceed for a short distance to avoid a location where the San Mateo Canyon Wilderness boundary and National Forest boundary are nearly contiguous. The existing visual quality of the NFS lands is high and very high in this area, with only visible deviations being cut slopes of the Wildomar Road which has evident cut slopes in the middle ground. Background mountain landforms are more rugged on the left, in the San Mateo Canyon Wilderness, and more horizontal on the right near the Elsinore Peak Electronic Site. Vegetation in the National Forest is predominantly continuous chaparral and chemise with no openings. In the foreground, roads have created openings in the brush and, in the ravine near the bottom of Hombre Lane, native Sycamores line the draw in the immediate foreground. NFS lands in this scene have very high and high existing scenic integrity, and the Forest Service has designated this entire area as Very High SIO inside and High SIO outside the wilderness boundary. For areas outside the CNF in La Cresta, visual sensitivity is evaluated as follows.

  ◊ **Visual Quality** (High). The foreground is dominated by Hombre Lane and its cut slopes. Landforms in the foreground are sloping but lack distinctive contrasts and are covered by continuous dark-green chaparral and chemise. There is no water evident in this landscape. The lack of vegetation patterns and barren graded roadway detracts from the scene, resulting in an overall low visual quality for the private land in this scene. However, adjacent scenery inside the CNF boundary affects the rating of visual quality along Hombre Lane, and cultural landscapes that have been created by home owners in

La Cresta, out of view of this photograph, and that has raised the visual quality to high for the overall environment.

◊ **Viewer Concern** (High). Residents in La Cresta and travelers on Hombre Lane are provided distinct mountain views of the San Mateo Canyon Wilderness and the roaded portion of the National Forest. Any addition of industrial character to the predominantly natural appearing landscape of the National Forest or blockage of views to more valued landscape features (San Mateo Canyon Wilderness) would be seen as an adverse visual change.

◊ **Viewer Exposure** (High). There is no vegetative or topographic screening for the proposed 500-kV transmission line as seen from Hombre Lane. Foreground and middle ground viewing distances would allow details to be seen and context to be evaluated. Viewing times are brief for travelers on Hombre Lane but are extended for residents of La Cresta along Hombre Lane and other neighborhood roads that would look directly at the transmission line. The number of viewers would be moderate and the duration of view would be extended. Consequently, viewer exposure is high.

◊ **Overall Visual Sensitivity** (High). For travelers on Hombre Lane and residents of La Cresta in the vicinity of the 500-kV transmission line, combining the low visual quality, high viewer concern, and high viewer exposure would normally lead to a moderate-to-high overall visual sensitivity of the visual setting and viewing characteristics. However, because of the extreme value of the undisturbed landscape on the CNF, it is anticipated that the overall visual sensitivity of this scene will be high, based on public response and scoping comments. Therefore, the low visual quality rating of the lands visible from KVP-L6, as described above, will be over-ridden by the visual quality of NFS lands and the visual quality rating will be raised to high. This will result in an overall visual sensitivity rating of high.

- **KVP L7: Tenaja Trailhead (SMS)**. As illustrated in Figure 5.1.1-9 (KVP L7 – Existing View), KVP L7 was established at the Tenaja Trailhead to the San Mateo Canyon Wilderness and near the Tenaja Ranger Station which is situated just south of this site. The existing visual quality in this area is high, with the only visible deviations in this landscape being the Forest Service trailhead and facilities, including a parking area, in the foreground. Landforms are steep mountains with widely scattered, large granitic boulders that create high visual variety. There are no water features present in this landscape, but large oak trees create welcome shade and visual variety in the foreground. This scene has high existing scenic integrity, and the Forest Service has designated this entire area as High SIO outside the wilderness boundary. The transmission line would cross this skyline and proceed out of frame to the right, and would be very visually evident.

Talega-Escondido 230-kV Transmission and Substation Upgrades

The visual quality of the existing Talega-Escondido transmission line area is predominantly Class A and Class B. Between the Escondido and Escondido Substations, the landscape character varies from urban developments to open mountainous terrain. Urban community areas are crossed in Escondido, while dispersed rural residential areas predominate most of the

Peninsular Range landscape between the Escondido and Escondido Substations. Overall, the rural areas are Class A scenery due to the dramatic mountainous terrain, granitic rock outcroppings, visual diversity and intactness of the rural agricultural areas that support orchards and nurseries. Class B areas are generally associated with the more urban landscapes.

From the Escondido Substation to the Talega Substation, the transmission line initially traverses through semi-rural residential developments near Rainbow and crosses the I-15 Freeway. Landscape qualities vary from hills and valleys characterized by dense chaparral and granitic rock outcroppings to intensive orchard developments. To the west of the I-15 Freeway, the corridor primarily crosses undeveloped mountains, hills and valleys on United States Marine Corps Base Camp Joseph H. Pendleton (Camp Pendleton). Visual characteristics in this stretch are generally representative of the Peninsular Range. The visual integrity and intactness of the natural landscapes are generally high, except where base activities are evident. The presence of the existing 230-kV transmission line and widely scattered rural roads are the primary cultural features through much of this area. East of the Talega Substation, the visual character of the area is heavily influenced by both the natural landscapes of Camp Pendleton to the south and urbanized San Clemente to the north. Areas of potentially sensitive viewers are concentrated in Escondido, Rainbow, and San Clemente, and at the crossing of the I-15 Freeway.

- **KVP L8: West Lilac Road (VS-VC)**. As illustrated in Figure 5.1.1-10 (KVP L8 – Existing View), KVP L8 was established on West Lilac Road, east of the I-15 Freeway and between the Pala and Old Castle Road interchanges, looking north along the existing 230-kV transmission line on private property. The new 69-kV transmission line would follow this existing 230-kV line in the middle of this photograph. The approximately 7.8-mile portion of this rebuilt 69-kV subtransmission line, where the line would be relocated to new wood and/or steel poles, is situated in the Class A rural agricultural area.

    ◊ **Visual Quality** (Moderate). The foreground is dominated by West Lilac Road and its pavement, while the middle ground has scattered large-lot residences, residential landscaping, and scattered avocado groves. The foreground landform slopes dramatically away from the viewpoint, and middle ground landforms are gently rolling with distinct horizontal lines at the skyline. Existing 230-kV transmission towers protrude above the skyline and dominate the view. There is no water evident in this landscape, although irrigation is obviously evident at cultural landscapes. The resulting visual quality has an overall rating of moderate in this scene.

    ◊ **Viewer Concern** (High). Residents along West Lilac Road and other residential areas along the approximately 7.8-mile stretch of rebuilt 69-kV subtransmission line would have high concern for scenic quality. Any addition of industrial character to the rural-agricultural landscape or additional blockage of skyline views would be seen as an adverse visual change.

    ◊ **Viewer Exposure** (Moderate-to-High). There is no vegetative or topographic screening for the proposed 69-kV transmission line as seen from West Lilac Road. Foreground and middle ground viewing distances would allow details to be seen and context to be evaluated. Viewing times are brief for travelers on West Lilac Road but are extended for residents throughout the approximately 7.8-mile stretch of rebuilt 69-kV subtransmission

line which includes other neighborhood roads that would provide vantage points to that line. The number of viewers would be moderate and the duration of view would be extended for residents, brief for travelers on this narrow, twisting road. Consequently, viewer exposure is moderate-to-high.

◊ **Overall Visual Sensitivity** (Moderate-to-High). For travelers on West Lilac Road and nearby residents in the vicinity of the rebuilt 69-kV line, combining the moderate visual quality, high viewer concern, and high viewer exposure would lead to a moderate-to-high overall visual sensitivity of the visual setting and viewing characteristics.

Potential visual resource impacts associated with the TE/VS Interconnect and Talega-Escondido 230-kV Transmission and Substations Upgrades are summarized in Table 5.1.1-1 (TE/VS Interconnect/ Talega-Escondido Upgrades – Visual Resource Impacts). The TE/VS Interconnect and Talega-Escondido 230-kV Transmission and Substations Upgrades are separately examined below.

Table 5.1.1-1. TE/VS Interconnect/Talega-Escondido Upgrades – Visual Resource Impacts

Impact	Description	Significance[1]
V-S-1	Long-term visibility of land scars in arid and semi-arid landscapes.	I, II
V-S-2	Introduction of substation and transmission line structure contrast, industrial character, view blockage, and skylining when viewed from Key Viewpoint L1, on DePalma Frontage Road and southbound I-15 Freeway.	I
V-S-3	Introduction of structure contrast and industrial character associated with the TE/VS Interconnect, when viewed from Key Viewpoint L2 on Lake Elsinore and I-15Freeway.	I
V-S-4	Inconsistency with USFS Scenic Integrity Objective due to the introduction of transmission line structure contrast, industrial character, view blockage, and skylining when viewed from Key Viewpoint L3, southbound on South Main Divide Road.	I
V-S-5	Inconsistency with USFS Scenic Integrity Objective due to the introduction of transmission line structure contrast, industrial character, view blockage, skylining, and unnatural vegetative clearing when viewed from Key Viewpoint L4, northbound on South Main Divide Road.	I
V-S-6	Inconsistency with USFS Scenic Integrity Objective due to the introduction of transmission line structure contrast, industrial character, view blockage, and skylining when viewed from Key Viewpoint L5, on Ortega Highway.	I
V-S-7	Inconsistency with USFS Scenic Integrity Objective due to the introduction of transmission line structure contrast, industrial character, view blockage, and skylining when viewed from Key Viewpoint L6, on Hombre Lane in La Cresta.	I
V-S-8	Inconsistency with USFS Scenic Integrity Objective due to the introduction of transmission line structure contrast, industrial character, view blockage, and skylining when viewed from Key Viewpoint L7, at Tenaja Trailhead to San Mateo Canyon Wilderness.	I
V-S-9	Introduction of structure contrast and industrial character associated with the Talega-Escondido 230-kV transmission line upgrade.	III
V-S-10	Introduction of structure contrast and industrial character associated with the Pala-Lilac 69-kV transmission line upgrade, when viewed from Key Viewpoint L8, at West Lilac Road.	III

Source: The Nevada Hydro Company, Inc.

Impact V-S-1: Long-term visibility of land scars in arid and semi-arid landscapes (Class I for CNF land; Class II for other lands) (SMS and VS-VC).

Construction of approximately 32 miles of new transmission line and an estimated 167 towers would require a network of access and spur roads. Constructing the access and spur roads in mountainous terrain would cause visible scars, especially where there would be side-casting of waste materials along the roads, where trees would be felled, or where linear swaths would be

cleared through thick brush. The presence of new road cuts and a new transmission line would introduce linear elements into the predominantly natural appearing mountainsides within the CNF and affected private lands. Furthermore, the vegetation type consists of generally low-growing chaparral and chemise shrubs whose effectiveness at screening these tall industrial structures and linear features would be marginal (FERC, 2007). Such land scarring would be long-lasting (several years) in arid and semi-arid environments where vegetation recruitment and growth are slow. In-line views of linear land scars or newly bladed roads are particularly problematic and introduce adverse visual change and contrast by causing unnatural vegetative lines and soil color contrast from newly exposed soils.

Laying the underground portion of the TE/VS Interconnect would, unless constructed through tunneling (rather than ground surface disturbance), require exposing a linear trench in close proximity to South Main Divide Road requiring the clearing of existing vegetation and re-contouring the immediate area. Construction would significantly alter the landscape character along South Main Divide Road and would dominate the foreground views along the road between Ortega Highway and Rancho Capistrano where the underground segment of the transmission line would be buried. Traffic counts conducted by the Applicant registered 515 vehicles on a single day in July 2002 at the intersection of South Main Divide Road and Ortega Highway. It is likely that the majority of these vehicles originate from the Rancho Capistrano residential community and from recreational day-users of the CNF, and these people would see the construction work on a daily basis for a period of two or more years (FERC, 2007).

A portion of the TE/VS Interconnect would run on the face of the mountains, parallel the top of the mountains just west of the ridgeline, and wrap around the mountains. Because portions of this route would cross both the face and near the top of the ridgeline, construction activities would be visible during the two-year construction period.

From the City of Lake Elsinore, views of the proposed transmission alignment would generally be in the middle ground and background. Along the I-15 Freeway, Ortega Highway, South Main Divide Road, and Wildomar Road, segments of the 500-kV transmission line route would be close to or cross these travel ways. Consequently, on NFS lands, there are numerous points where the transmission structures, access roads, spur roads, and land scars would be visible in the foreground, middle ground, and background, conflicting with the High SIO designation and resulting in significant effects (Class I). These effects would be partially mitigated through implementation of the mitigation measures listed below, particularly Mitigation Measure V-2d, which would require helicopter construction in lieu of creating access roads. However, the land scarring from transmission towers could remain in conflict with the High SIO designation, and this impact would likely remain significant.

On non-NFS lands, the new transmission line structures and conductors would be prominently visible from numerous vantage points throughout the approximately 52-mile length, and would introduce additional industrial character into the landscape. The structures and conductors would be skyline (extend above the horizon line) and cause view blockage of background sky and distant mountains from numerous vantage points. As a result, visual contrast would be high and TE/VS Interconnect facilities would appear co-dominant with the existing landscape features (primarily the undeveloped mountain ranges). View blockage of background sky and mountains would vary from none-to-high, depending on structure locations and viewing angles. The overall

visual change would be moderate-to-high and, in the context of the existing landscape's moderate-to-high visual sensitivity, the resulting visual impact would be adverse and potentially significant (Class II).

On non-NFS lands, the longer duration of land scarring impacts would generally constitute a potentially significant visual impact (Class I) in the short-term. It is recommended that the following "Applicant Proposed Measures" (APMs) be implemented: APMs V-2a, V-2b, and V-2d. While the implementation of those measures would not likely result in the achievement of a High SIO on NFS lands, they will result in a lessening of short-term visual impacts.

In the long-term, visual impact would be mitigable to a less-than-significant level (Class II) through the implementation of APM V-2c. The full text of these APMs can be found in Attachment 5 (Applicant Proposed Measures).

Impact V-S-2: Introduction of the switchyard and transmission line structures contrast, industrial character, view blockage, and skylining when viewed from Key Viewpoint L1, on DePalma Frontage Road and southbound I-15 Freeway (Class I).

The following viewpoint analysis is representative of views of the TE/VS Interconnect from DePalma Road and the southbound and northbound lanes of the I-15 Freeway.

Two parallel aboveground transmission lines would be clearly visible from northbound and southbound travelers on DePalma Road and the I-15 Freeway, as would the new Lake Switchyard. As illustrated in Figure 5.1.1-11 (KVP L1 - Simulation), almost the entire length (approximately two-miles) of these two parallel transmission lines would be visible from KVP-L1. Several new subdivisions are being developed in the general vicinity, just north of this viewpoint, and certain streets and houses would have views similar to KVP-1. The new 500-kV Lake Switchyard would be visible from these viewpoints, as it would be situated between the I-15 Freeway and Lee (Corona) Lake, and there is no topographic or vegetative screening for the switchyard or transmission lines.

As shown in the simulation, the new transmission line structures and conductors, plus the Lake Switchyard, would be prominently visible from DePalma Road and the I-15 Freeway, and would introduce additional industrial character into the I-15 corridor. The structures and conductors would be skyline (extend above the horizon line) and cause view blockage of background sky and distant mountains. As a result, visual contrast would be high and TE/VS Interconnect facilities would appear co-dominant with the existing landscape features (primarily the undeveloped mountain ranges). View blockage of background sky and mountains would be moderate. The overall visual change would be moderate-to-high and in the context of the existing landscape's moderate-to-high visual sensitivity, the resulting visual impact would be significant (Class I) and not likely mitigable to a less-than-significant level.

The high level of change that would result from the two new parallel transmission lines and new switchyard would be very visually evident in this barren, rocky landscape that is almost devoid of woody vegetation. Because there is no tall woody vegetation in this vicinity, and rockforms are readily apparent on the surface of these mountains, no access or spur roads should be

constructed on these steep slopes. APM V-7a recommends that transmission structures be constructed by helicopter and that no new access or spur roads be built in areas with steep slopes. The relatively open terrain that is totally lacking in tall vegetation and available sightlines do not offer opportunities for better screening of these tall, industrial-scale structures. Relocation of the loop transmission line to an area 1,000 feet southeast where there is a landform backdrop would greatly reduce visual contrast, however this would place a longer segment of the line through the Lake Mathews–Estelle Mountain Reserve and is, therefore, not recommended. Visual impacts from KVP L1 would likely remain significant and unavoidable (Class I). APMs V-2c, V-2d, and V-7a would, however, reduce the visual impact of the transmission facilities to the maximum extent feasible. The full text of these APMs can be found in Attachment 5 (Applicant Proposed Measures).

Impact V-S-3: Introduction of structure contrast and industrial character associated with the TE/VS Interconnect, when viewed from Key Viewpoint L2 on Lake Elsinore and the I-15 Freeway (Class I).

Views to the TE/VS Interconnect as it would cross the face of the mountains west of Lake Elsinore are similar from many vantage points in the City of Lake Elsinore, on the lake surface, on city streets, and along the I-15 Freeway. Two specific vantage points (I-15 Freeway and Lake Elsinore) would view the same landscape. Visual effects would be similar and are analyzed in detail herein.

The I-15 Freeway is a federal interstate highway located less than one mile at its closest point to the east shore of Lake Elsinore and receives heavy commercial as well as non-commercial travel use. The towers, conductors, and resulting footprint of the corridor would be visible from the I-15 Freeway and the City of Lake Elsinore. This would introduce additional structure contrast and industrial character to an otherwise primarily natural appearing landscape (though existing utility lines are visible in portions of the suburban interface zone).

Boaters on Lake Elsinore are afforded 360-degree views of the lake in the foreground and the mountains in almost all directions in the distance. Due to the hazy conditions that often predominate at Lake Elsinore, the TE/VS Interconnect would be somewhat obscured, depending on weather conditions. As illustrated in Figure 5.1.1-12 (KVP L2 - Simulation) and Figure 5.1.1-13 (KVP L2 - Simulation), the presence of the transmission line may introduce a modest degree of structure contrast and industrial character to the mountains that serve as a scenic backdrop to residents and recreationists in Lake Elsinore. Skylining from key scenic viewpoints would not occur due to the placement of the transmission line on mountain faces (side-slopes) rather than ridgelines. Not illustrated in this simulation is the aboveground 500-kV transmission line extending southward from the proposed Santa Rosa Substation to a new transition station to be structured near the mountain crest. That line would be undergrounded as part of the tunneling operations associated with the construction of LEAPS.

As shown in the simulations, the TE/VS Interconnect would introduce prominent built structures with substantial industrial character into a predominantly natural landscape absent similar features. The resulting visual contrast would be substantial. The openness of the terrain and large scale of the structures would allow distant views of the transmission line structures and conductors from Lake Elsinore and the I-15 Freeway, and would allow foreground views to these

structures from adjacent forest lands. View blockage of the surrounding hills would also occur, as would skylining (extending above the horizon as seen from other foreground locations). Skylining would exacerbate structure prominence and the transmission line would reduce the integrity of the existing landscape. The resulting level of change would be moderate to high.

The moderate-to-high level of change that would result could be deemed by the Forest Service to be inconsistent with Aesthetic Management Standard S9 of the "Cleveland National Forest Land Management Plan" (requiring activities to meet the applicable SIO). Specifically, the transmission line would not repeat the form, line, color, texture, and pattern common to the landscape character so completely and at such scale that it is not evident, as required by the applicable High SIO. Since the structures would become prominent landscape features, the resulting visual effects would be significant (Class I) and not likely mitigable to a less-than-significant level.

Impact V-S-4: Inconsistency with the USFS Scenic Integrity Objective due to the introduction of transmission line structure contrast, industrial character, view blockage, and skylining when viewed from Key Viewpoint L3, southbound on South Main Divide Road (Class I).

The following viewpoint analysis is representative of views of TE/VS Interconnect from South Main Divide Road and Wildomar Road.

The aboveground transmission lines would be clearly visible from north- and south-facing vistas along South Main Divide Road, specifically along the road between the intersection with Ortega Highway and the proposed transition station where the 500-kV line would go underground, near the hang-gliding launching area. The proposed transmission line would cross overhead above the viewer and proceed to the North Transition Station (NTS) where it would "transition" from overhead to underground and would proceed underground for approximately 1½ miles. Overhead transmission structures would be very visually evident and would dominate the view, with large size and industrial character that does not meet the High SIO. Skyline blockage and interference would occur at each lattice tower and at the transition station, and views to higher value landscapes (San Mateo Canyon Wilderness) would be blocked or impaired. As illustrated in Figure 5.1.1-14 (KVP L3 - Simulation), unless constructed by tunneling (rather than ground surface disturbance), the underground portion of 500-kV transmission line would create an unnatural straight-edged opening in existing vegetation approximately 200-feet-wide and 2¼ miles long.

The high level of change that would result could be deemed by the Forest Service to be inconsistent with Aesthetic Management Standard S9 of the "Cleveland National Forest Land Management Plan" (requiring activities to meet the applicable SIO). Specifically, the transmission line would not repeat the form, line, color, texture, and pattern common to the landscape character so completely and at such scale that it is not evident, as required by the applicable High SIO. Indeed, the structures would be prominent features in the landscape. Furthermore, the transmission line would not qualify for the following exceptions of: (1) minor adjustment (one level reduction with approval) to the SIO; or (2) temporary drop of more than one SIO not to exceed three years in duration, as required in Aesthetic Management Standard S10. The resulting visual impact would be significant (Class I) and not likely mitigable to a less-than-significant level.

The relatively open terrain and available sightlines do not offer opportunities to either better screen the structures from view or blend them more effectively with a different background. Localized reroutes would, therefore, not be effective. APM V-3a is, however, recommended to reduce the visual impact along the TE/VS Interconnect alignment to the maximum extent feasible. While implementation of this measure would not achieve the High SIO, it would nonetheless enable achievement of the highest scenic integrity feasible.

Impact V-S-5: Inconsistency with the USFS Scenic Integrity Objective due to the introduction of transmission line structure contrast, industrial character, view blockage, skylining, and unnatural vegetative clearing when viewed from Key Viewpoint L4, northbound on South Main Divide Road (Class I).

As illustrated in Figure 5.1.1-15 (KVP L4 - Simulation), about a quarter mile of the proposed overhead 500-kV transmission lines would also be visible from vistas off northbound South Main Divide Road near Rancho Capistrano. However, because the lines would be positioned on the northeast face of the mountains in this area, the visual effect would be somewhat less than if they were placed along the ridgeline. The southern extent of the approximately 1.7-mile-long underground transmission line would terminate at the STS in an ephemeral stream channel in the vicinity of KVP L4. This location would help to reduce visual prominence of the transition station, as compared to other possible locations on ridge tops near KVP L4, which are all higher in elevation and more visually prominent. Unless constructed through tunneling (rather than ground surface disturbance), a high level of visual change would result due to a the straight-edged approximately 1.7-mile-long and 200-foot-wide clearing for undergrounding in mature vegetation that would be very visually evident as an unnatural occurrence, and would not re-vegetate to this mature size quickly in this drought-prone area.

As was the case for KVP L3, unless constructed through tunneling (rather than ground surface disturbance), the high level of visual change that would result from the underground 500-kV transmission line and STS could be deemed by the Forest Service to be inconsistent with Aesthetic Management Standard S9 of the "Cleveland National Forest Land Management Plan" (requiring activities to meet the High SIO). The resulting visual impact would be significant (Class I) and not likely mitigable to a less-than-significant level.

The stations position in an ephemeral stream offers topographic screening and the large trees offer vegetative screening for this structure as seen from South Main Divide Road and Rancho Capistrano. However, unless constructed through tunneling (rather than ground surface disturbance), the straight-edged approximately 1.7-mile-long and 200-foot-wide clearing for undergrounding in mature vegetation would be very visually evident as an unnatural occurrence, and would not re-vegetate to this mature size quickly in this drought-prone area. APM V-3a is, however, recommended to reduce the visual impact along this alignment to the maximum extent feasible. While implementation of this measure would not achieve the High SIO, it would nonetheless enable achievement of the highest scenic integrity feasible.

Impact V-S-6: Inconsistency with the USFS Scenic Integrity Objective due to the introduction of transmission line structure contrast, industrial character, view blockage, and skylining when viewed from Key Viewpoint L5, on Ortega Highway (Class I).

The following viewpoint analysis is representative of views of the TE/VS Interconnect alignment from Ortega Highway.

State Route 73 (SR-73 or Ortega Highway) is a two-lane, paved State highway connecting Riverside and Orange Counties. This heavily traveled route is popular for scenic driving as well as commuting. Travel speeds on Ortega Highway play a strong roll in the ability to view details in the surroundings as traffic flow is typically above the 35 miles per hour (mph) posted speed limit. Further limiting the views on Ortega highway west of South Main Divide are the numerous turns, vegetation, and steep canyon walls on both sides of the road as the highway nears the crest. East of South Main Divide Road the landscape views open up as the highway descends the mountains with numerous vistas of Lake Elsinore and beyond (FERC, 2007). The towers, conductors, and resulting footprint of the corridor would be visible from Ortega Highway, introducing structure contrast and industrial character to an otherwise primarily natural-appearing landscape. As illustrated in Figure 5.1.1-16 (KVP L5 - Simulation), KVP L5 was established at a gravel turnout on the eastbound lane of Ortega Highway at a "Forest Adventure Pass Parking" Area.

The moderate-to-high level of change that would result could be deemed by the Forest Service to be inconsistent with Aesthetic Management Standard S9 of the "Cleveland National Forest Land Management Plan" (requiring activities to meet the applicable SIO). Specifically, the transmission line would not repeat the form, line, color, texture, and pattern common to the landscape character so completely and at such scale that it is not evident, as required by the applicable High SIO. Indeed, the structures would be prominent features in the landscape. Furthermore, the transmission line would not qualify for the following exceptions: (1) minor adjustment (one level reduction with approval) to the SIO; or (2) temporary drop of more than one SIO not to exceed three years in duration, as required in Aesthetic Management Standard S10.

The relatively open terrain and available sightlines do not offer opportunities to either better screen the structures from view or blend them more effectively with a different background. Therefore, localized reroutes would not be effective. The resulting visual impact would likely be significant (Class I). APMs V-2b and V-3a would, however, reduce visual impacts along this alignment. While implementation of these measures would not achieve the High SIO, they would nonetheless allow for the achievement of the highest scenic integrity feasible.

Impact V-S-7: Inconsistency with USFS Scenic Integrity Objective due to the introduction of transmission line structure contrast, industrial character, view blockage, and skylining when viewed from Key Viewpoint L6, on Hombre Lane in La Cresta (Class I).

The following viewpoint analysis is representative of views of the TE/VS Interconnect alignment from many roads in La Cresta.

KVP L6 was established on Hombre Lane in La Cresta, looking north toward the CNF, including Wildomar Road and above the road, the San Mateo Canyon Wilderness. The La Cresta area is a rural-residential community with large lot sizes (mostly 5-acre minimum) (FERC, 2007). The towers, conductors, and resulting footprint of the corridor would be visible from Hombre Lane and numerous other roads in the La Cresta area, introducing high visual contrast of large structures with industrial character to an otherwise primarily natural-appearing landscape. As

illustrated in Figure 5.1.1-17 (KVP L6 - Simulation), the transmission line would dominate the view from Hombre Lane and other vantage points within La Cresta and would block or impede views to valued landscapes (San Mateo Canyon Wilderness and NFS lands), resulting in a high level of change.

The high level of change that would result could be deemed by the Forest Service to be inconsistent with Aesthetic Management Standard S9 of the "Cleveland National Forest Land Management Plan" (requiring activities to meet the applicable SIO). Specifically, the transmission line would not repeat the form, line, color, texture, and pattern common to the landscape character so completely and at such scale that it is not evident, as required by the applicable "High" SIO. Indeed, the transmission line structures would be prominent features in the landscape and would protrude above the skyline as seen from this and other locations in La Cresta. Furthermore, the transmission line would not qualify for the following exceptions: (1) minor adjustment (one level reduction with approval) to the SIO; or (2) temporary drop of more than one SIO not to exceed three years in duration, as required in Aesthetic Management Standard S10. The resulting visual impact on NFS lands would likely be significant (Class I).

The new transmission line structures and conductors would be prominently visible from Hombre Lane and other vantage points within La Cresta, and would introduce a new industrial character into the landscape. The structures and conductors would be skyline (extend above the horizon line) and cause view blockage of background sky and distant mountains. As a result, visual contrast would be high and the Project would appear co-dominant with the existing landscape features (primarily the undeveloped mountain ranges). View blockage of background sky and mountains would be moderate-to-high.

The relatively open terrain and available sightlines do not offer opportunities to either better screen the structures from view or blend them more effectively with a different background. Therefore, localized reroutes would not be effective. The overall visual change would be moderate-to-high and, in the context of the existing landscape's high visual sensitivity, the resulting visual impact would likely be significant (Class I). APMs V-2b and V-3a would, however, reduce the visual impact along this alignment to the maximum extent feasible. While implementation of these measures would not achieve the High SIO, they would nonetheless allow for the achievement of the highest scenic integrity feasible.

Impact V-S-8: Inconsistency with the USFS Scenic Integrity Objective due to the introduction of transmission line structure contrast, industrial character, view blockage, and skylining when viewed from Key Viewpoint L7, at Tenaja Trailhead to San Mateo Canyon Wilderness (Class I).

The following viewpoint analysis is representative of views of this alignment from the Tenaja Trailhead, Tenaja Trail, San Mateo Canyon Wilderness, and Tenaja Ranger Station.

KVP L7 was established at the paved parking area near the comfort station, hand-pump well, and interpretive signage. Tenaja Trailhead is a popular destination for scenic driving and a starting point for visitors to the San Mateo Canyon Wilderness. Views from the trailhead, paved parking, and picnic areas are to granitic rock outcroppings, mature shade trees, and open meadows with rustic fencing. The Tenaja Ranger Station is nearby to the south. The visual analysis of Tenaja

Trailhead is also applicable to the Tenaja Ranger Station. The towers, conductors, and resulting footprint of the corridor would be visible from Tenaja Trailhead, Tenaja Trail, San Mateo Canyon Wilderness, and Tenaja Ranger Station, introducing high structure contrast and industrial character to an otherwise primarily natural-appearing landscape. As illustrated in Figure 5.1.1-18 (KVP L7 - Simulation), structures would be skyline, creating co-dominance with the natural landform and rockforms and moderate-to-high skyline blockage.

The high level of change that would result could be deemed by the Forest Service to be inconsistent with Aesthetic Management Standard S9 of the "Cleveland National Forest Land Management Plan" (requiring activities to meet the applicable SIO). Specifically, the transmission line would not repeat the form, line, color, texture, and pattern common to the landscape character so completely and at such scale that it is not evident, as required by the applicable High SIO. Indeed, the structures would be prominent features in the landscape. Furthermore, the transmission line would not qualify for the following exceptions: (1) minor adjustment (one level reduction with approval) to the SIO; or (2) temporary drop of more than one SIO not to exceed three years in duration, as required in Aesthetic Management Standard S10.

The relatively open terrain and available sightlines do not offer opportunities to better screen the structures from view of the trailhead or historic guard station. The resulting visual impact would likely be significant (Class I). APMs V-2b and V-3a would, however, reduce the resulting visual impact along this alignment to the maximum extent feasible. While implementation of these measures would not achieve the High SIO, they would nonetheless allow for the achievement of the highest scenic integrity feasible.

Talega-Escondido 230-kV Transmission and Substation Upgrades

Impact V-S-9: Introduction of structure contrast and industrial character associated with the Talega-Escondido 230-kV transmission line and substation upgrades (Class III).

The Talega-Escondido 230-kV transmission and substation upgrades include the installation of a second 230-kV circuit on the vacant position of SDG&E's existing Talega-Escondido 230-kV transmission line and upgrades to the existing Talega and Escondido Substations. However, in order to accommodate an additional 230-kV conductor on existing lattice steel towers, it would be necessary to rebuild an approximately 7.8-mile section (interconnecting SDG&E's existing Pala and Lilac Substations) of the existing 69-kV subtransmission circuit on new 69-kV wood and/or steel pole structures. New conductor wire would be strung on the new 69-kV single poles. The 69-kV poles would be wood and/or steel and vary between 60 and 120 feet in height.

Visual impacts associated with the changes to the existing 230-kV Talega-Escondido transmission line would be minimally noticeable as no new structures are proposed. However, the visual impacts of the new structures associated with the rebuilt approximately 7.8-mile Pala-Lilac 69-kV subtransmission line would be noticeable (Impact V-S-10). These changes would be subordinate to the existing structures and conductors. The visual contrasts of the additional conductors would be weak. Overall, the visual impact of the Talega-Escondido 230-kV transmission upgrade would be adverse but less than significant (Class III) and no mitigation is required.

Impact V-S-10: Introduction of structure contrast and industrial character associated with the Pala-Lilac 69-kV transmission line upgrade, when viewed from Key Viewpoint L8, at West Lilac Road (Class III).

As discussed under Impact V-S-9, in order to accommodate an additional 230-kV conductor on existing double-circuit steel towers, it would be necessary to rebuild and relocate an approximately 7.8-mile section of the existing 69-kV subtransmission circuit (Talega-Escondido No. 2) on new 69-kV wood and/or steel pole structures. New 69-kV conductors would be strung on new 69-kV single wood and/or steel poles varying between 60 and 120 feet in height.

Visual impacts of the new wood and/or steel single-pole structures associated with the rebuilding and relocation of the approximately 7.8-mile Pala-Lilac 69-kV subtransmission line would be noticeable. These changes would be subordinate to the existing 230-kV lattice steel structures and conductors. As illustrated in Figure 5.1.1-19 (KVP L8 - Simulation), the visual contrasts of the additional single-poles would be noticeable but weak because of the travel speeds and curving alignment of West Lilac Road. Nearby property owners in the rural residential areas would have longer viewing times, but the shorter wood poles would be subordinate to the larger lattice steel structures that already exist in the landscape, thereby decreasing the visual effect of the new single poles. Overall, the visual impact of the Pala-Lilac 69-kV transmission upgrade would be adverse but less-than-significant impact (Class III) and no mitigation is required.

5.1.2 LEAPS – Visual Resource Impacts

Analysis of visual resources impacts of LEAPS are described below. Visual impacts related to LEAPS would be similar to those presented for the TE/VS Interconnect in Section 5.1.1, above, and would be similar for all areas except Decker Canyon, and the analysis and descriptions for KVPs L1, L2, L4, L6, L7, and L8 are applicable and complete (Section 5.1.1). Because a open surface water reservoir would be constructed and operated at Decker Canyon near the crest of the Santa Ana (Elsinore) Mountains and south of South Main Divide Road, visual impacts for KVPs L3 and L5 would be different for the LEAPS and TE/VS Interconnect components, and KVP L10 would show a unique view of the proposed upper reservoir. Also, at the foot of the Elsinore Mountains, there would be a new LEAPS Powerhouse visible from Grand Avenue (KVP L9). Key viewpoints are shown on Figure 5.1.1-20 (LEAPS Key Viewpoints).

LEAPS facilities include, but may not be limited to, existing Lake Elsinore (afterbay), new Decker Canyon Reservoir (forebay), new LEAPS Powerhouse, construction laydown areas, overhead transmission lines extending from the LEAPS Powerhouse to a new transition station located between the NTS and STS, and water conduits including power shafts, power tunnel, penstocks, tailrace tunnels, and an inlet/outlet structure. The proposed Decker Canyon Reservoir site is located on NFS lands; however, all or portions of the LEAPS Powerhouse, associated electrical and water conduits (e.g., power shafts, power tunnels, penstocks, tailrace tunnels, and inlet/outlet structures) extending between the upper reservoir and the powerhouse, are located on privately-owned lands located within the Congressional boundaries of the CNF. The National Forest is almost entirely surrounded by urban development and serving as a scenic backdrop valued as an important open space and visual resource.

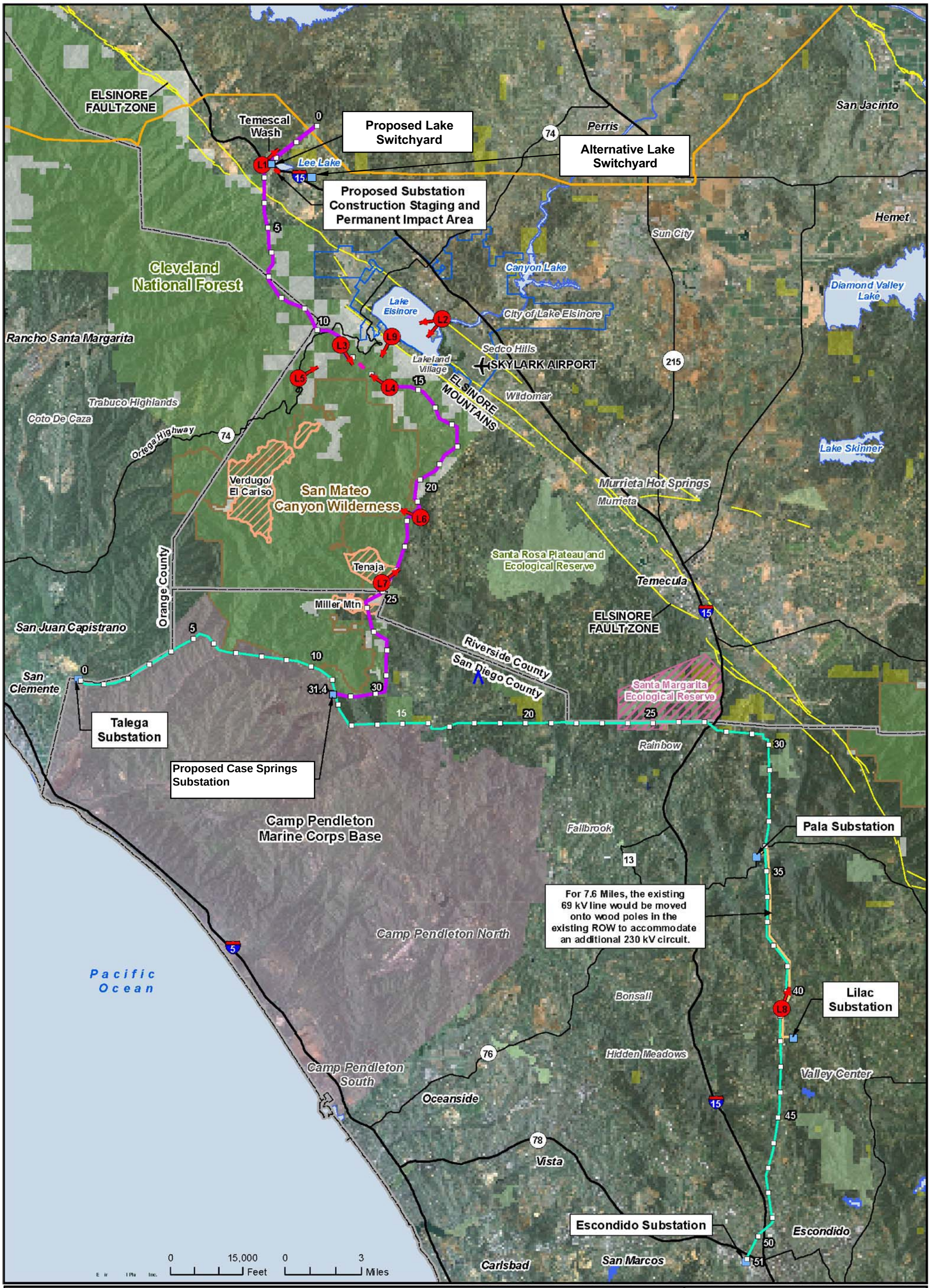
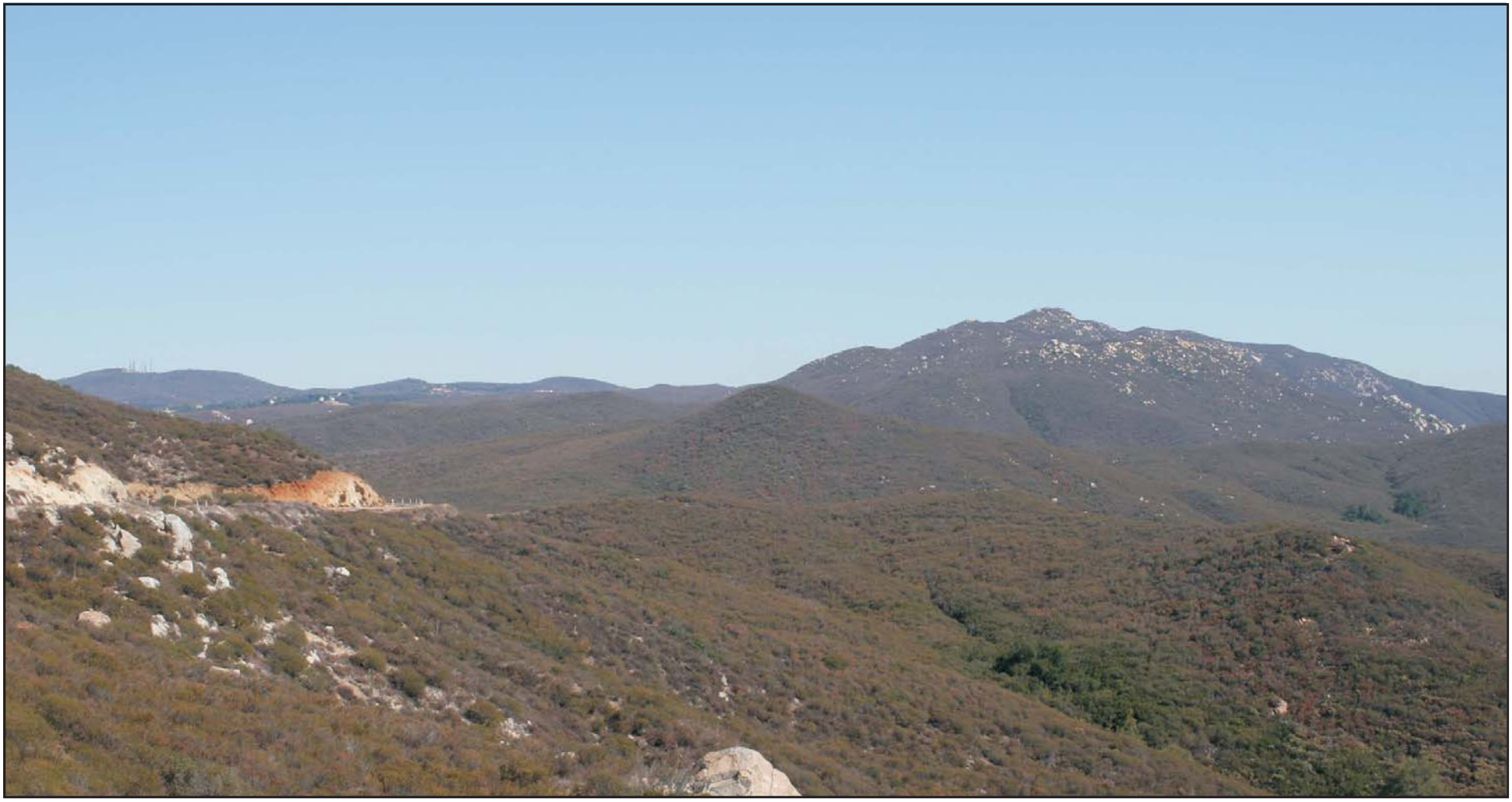


Figure 5.1.1-1
LEAPS Transmission Only Alternative: Key Viewpoints

Source: Sunrise DEIR/DEIS, 2008	The **existing view** to the northeast on southbound DePalma Road, a frontage road to I-15, just souh of the Indian Truck Trail Interchange and across the freeway from the proposed Lake Substation. The LEAPS Transmission-Only Alternative would entail a looped 500 kV transmission line (two parallel transmission lines) in the foreground and middleground and a proposed substation in the foreground.	**LEAPS Key Viewpoint L1 – DePalma Frontage Road and Interstate 15**	Figure 5.1.1-2 LEAPS KVP L1 Existing View

Source: Sunrise DEIR/DEIS, 2008	The **existing view** to the southwest at the eastern edge of Lake Elsinore in Lakepoint Park in the City of Lake Elsinore. The LEAPS Transmission-Only Alternative would introduce a 500 kV transmission line to the face of the mountains that serve as a scenic backdrop to residents and recreationists in the vicinity of the lake.	**LEAPS Key Viewpoint L2 – Lake Elsinore**	Figure 5.1.1-3 LEAPS KVP L2 Existing View

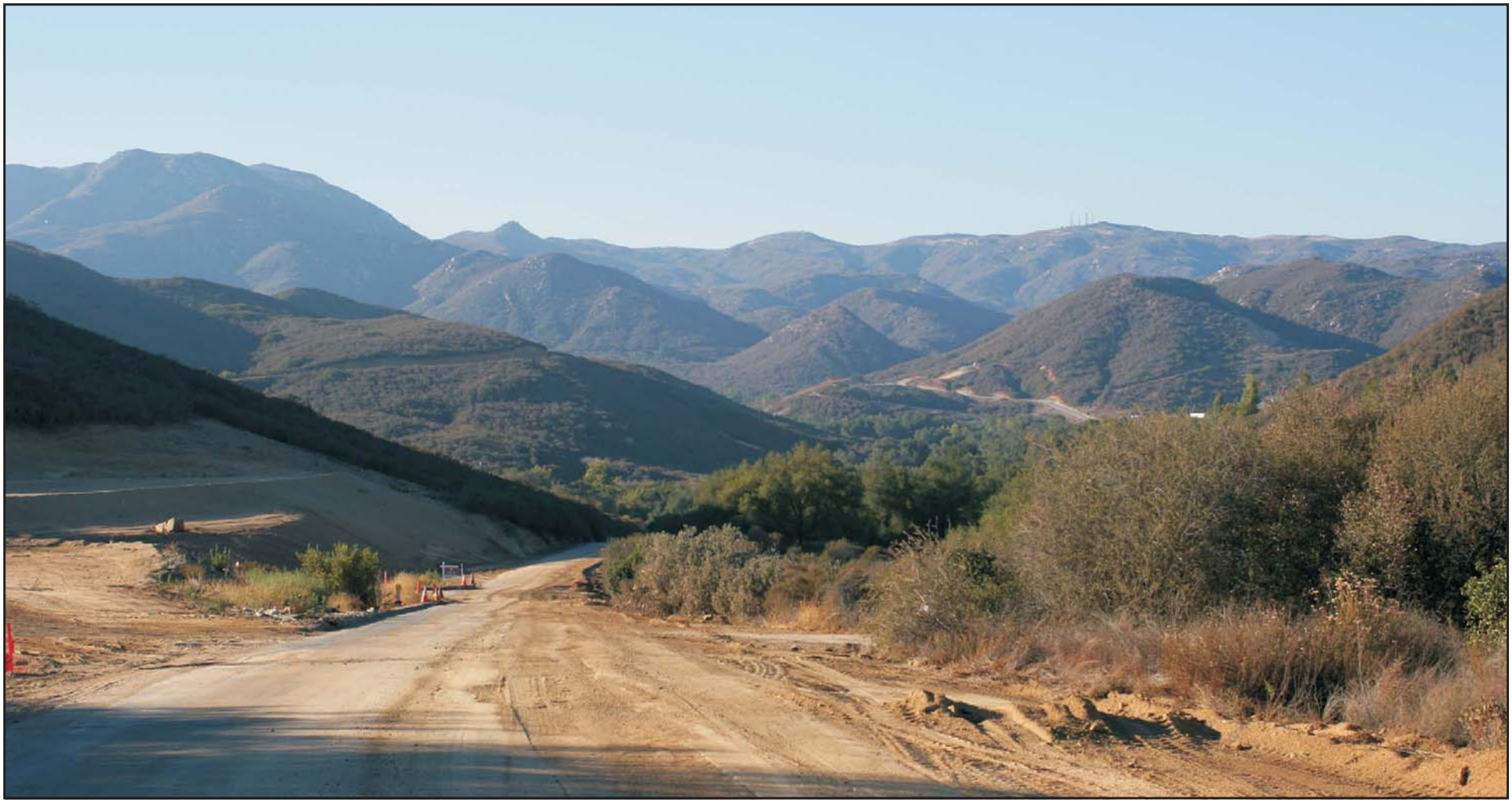
Source: Sunrise DEIR/DEIS, 2008	The **existing view** to the west at the eastern edge of Lake Elsinore in Lakepoint Park in the City of Lake Elsinore. The LEAPS Transmission-Only Alternative would introduce a 500 kV transmission line to the face of the mountains that serve as a scenic backdrop to residents and recreationists in the vicinity of the lake.	**LEAPS Key Viewpoint L2 – Lake Elsinore**	Figure 5.1.1-4 LEAPS KVP L2 Existing View



Source: Sunrise DEIR/DEIS, 2008	The **existing view** of the Cleveland National Forest looking southeast on South Main Divide Road, near where the 500 kV transmission line would leave the Lake Elsinore viewshed and cross over into the San Mateo Canyon Wilderness viewshed. The existing visual quality is high, with only visible deviations being South Main Divide Road and the Elsinore Peak Electronic Site on the skyline to the left. The Forest Service has designated the SIO inside the wilderness boundary as Very High and outside the wilderness boundary as High.	**LEAPS Key Viewpoint L3 – South Main Divide Road Near North Transition Station**	Figure 5.1.1-5 LEAPS KVP L3 Existing View

Source: Sunrise DEIR/DEIS, 2008	The **existing view** of the Cleveland National Forest to the north on South Main Divide Road, near the proposed South Transition Station and underground transmission line in the center of a tree-lined swale. The existing visual quality is high, with no visible deviations. The Forest Service has designated the SIO of this area as High.	**LEAPS Key Viewpoint L4 – South Main Divide Road Near South Transition Station**	Figure 5.1.1-6 LEAPS KVP L4 Existing View

Source: Sunrise DEIR/DEIS, 2008	The **existing view** to the northeast from Ortega Highway up Decker Canyon toward South Main Divide Road and the skyline, near the proposed North Transition Station site. The view of CNF has a high visual quality with the only visible deviations being this Forest Adventure Pass parking area along Ortega Highway in the immediate foreground and the South Main Divide Road cutslopes in the middleground. The SIO of the area within the wilderness boundary is Very High, and outside of the wilderness boundary the SIO is High.	**LEAPS Key Viewpoint L5 – Ortega Highway**	Figure 5.1.1-7 LEAPS KVP L5 Existing View



Source: Sunrise DEIR/DEIS, 2008	The **existing view** to the north into the Cleveland National Forest from Hombre Lane in the LaCresta Subdivision. The existing visual quality of the Forest System lands is high and very high in this area, with only visible deviations being cutslopes of the Wildomar Road which has evident cutslopes in the middleground. Background mountain landforms are more rugged on the left, in the San Mateo Wilderness, and more horizontal on the right near the Elsinore Peak Electronic Site.	**LEAPS Key Viewpoint L6 – Hombre Lane in LaCresta Subdivision**	Figure 5.1.1-8 LEAPS KVP L6 Existing View

Source: Sunrise DEIR/DEIS, 2008	The **existing view** to the northeast from the Tenaja Trailhead paved parking area near where the Lake-Pendleton transmission line would pass overhead within the Cleveland National Forest boundary. Views from the trailhead, paved parking, and picnic areas are to granitic rock outcroppings, mature shade trees, and open meadows with rustic fencing. This area is designated by the Forest Service as having a high SIO.	**LEAPS Key Viewpoint L7 – Tenaja Trailhead**	Figure 5.1.1-9 LEAPS KVP L7 Existing View

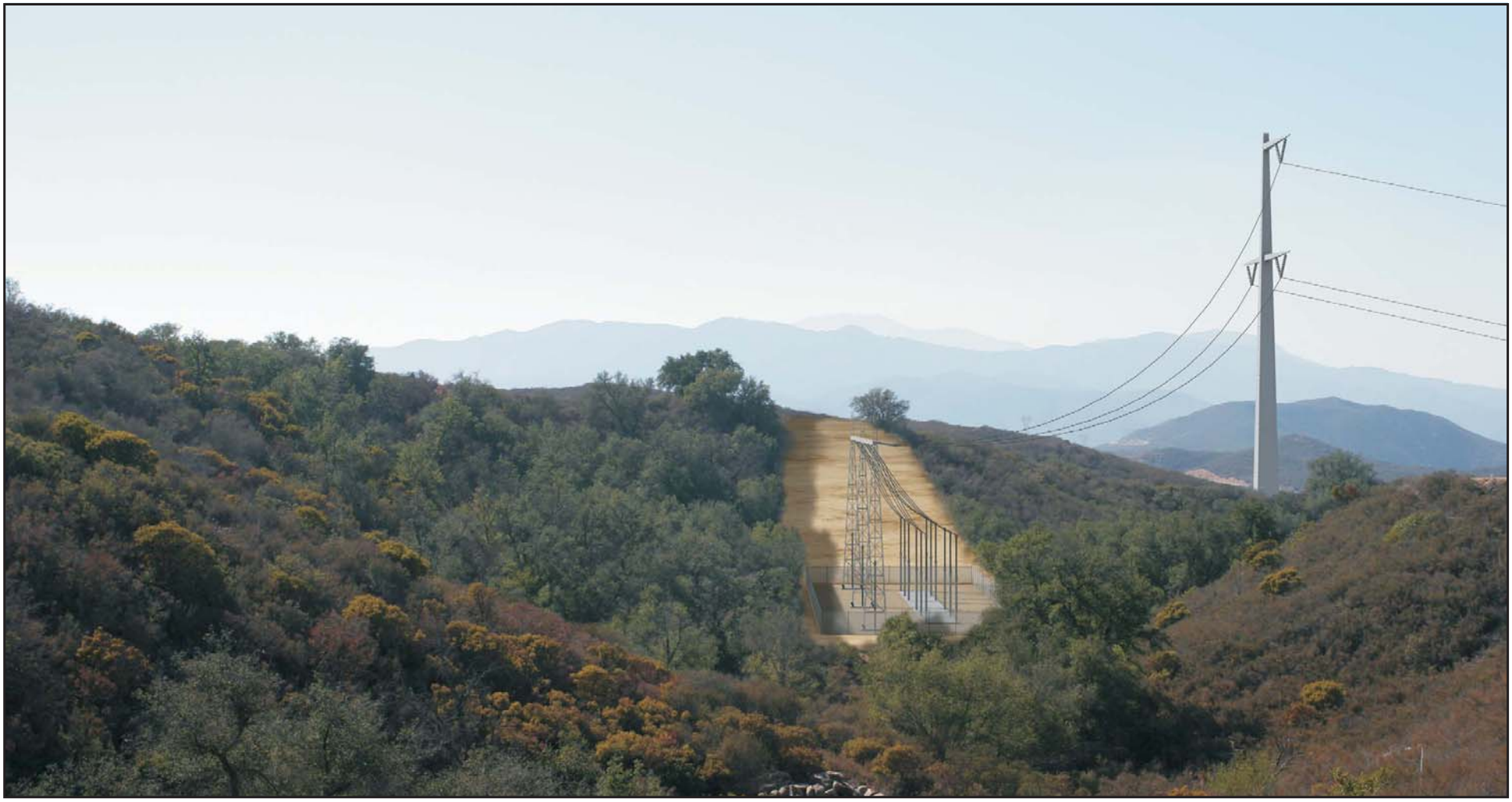
Source: Sunrise DEIR/DEIS, 2008	The **existing view** to the north on West Lilac Road. The existing 230 kV transmission line is prominent, and the new 69 kV transmission line would follow this existing line in the middle of this photo. There is no vegetative or topographic screening for the proposed 69 kV transmission line as seen from West Lilac Road.	**LEAPS Key Viewpoint L8 – West Lilac Road**	Figure 5.1.1-10 LEAPS KVP L8 Existing View

Source: Sunrise DEIR/DEIS, 2008	A **visual simulation** of the LEAPS Transmission-Only Alternative from Key Viewpoint L1 on DePalma Road, a frontage road to I-15, just south of the Indian Truck Trail Interchange. The new transmission line structures and conductors and the Lake Substation would be prominently visible from DePalma Road and I-15, and would introduce additional industrial character into the I-15 corridor. The structures and conductors would introduce high visual contrast and cause moderate view blockage of background sky and distant mountains.	**LEAPS Key Viewpoint L1 – DePalma Frontage Road and Interstate 15**	Figure 5.1.1-11 LEAPS KVP L1 Simulation

Source: Sunrise DEIR/DEIS, 2008	A **visual simulation** of the LEAPS Transmission-Only Alternative from Key Viewpoint L2 at Lakepoint Park in the City of Lake Elsinore. The access roads, towers, conductors, and resulting footprint of the 500 kV transmission line would be visible. This would introduce additional structure contrast and industrial character to an otherwise primarily natural-appearing landscape.	**LEAPS Key Viewpoint L2 – Lake Elsinore**	Figure 5.1.1-12 LEAPS KVP L2 Simulation

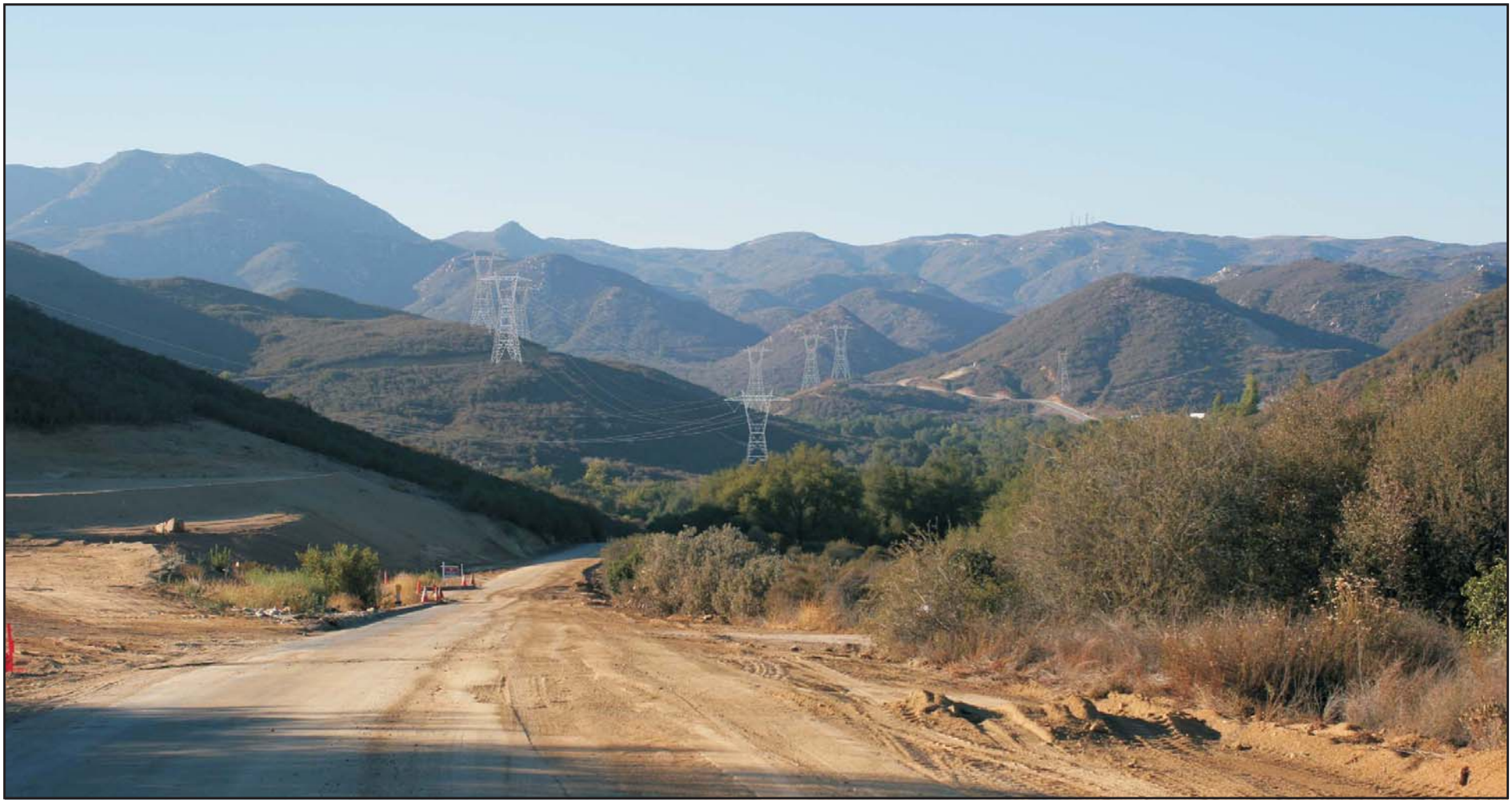
Source: Sunrise DEIR/DEIS, 2008	A **visual simulation** of the LEAPS Transmission-Only Alternative from Key Viewpoint L2 at Lakepoint Park in the City of Lake Elsinore. The access roads, towers, conductors, and resulting footprint of the 500 kV transmission line would be visible. This would introduce additional structure contrast and industrial character to an otherwise primarily natural-appearing landscape.	**LEAPS Key Viewpoint L2 – Lake Elsinore**	Figure 5.1.1-13 LEAPS KVP L2 Simulation

Source: Sunrise DEIR/DEIS, 2008	A **visual simulation** of the LEAPS Transmission-Only Alternative from Key Viewpoint L3, on South Main Divide Road. The transmission line would be clearly visible crossing overhead above the viewer, proceeding to the North Transition Station where it would 'transition' from overhead to underground. Overhead transmission structures would be very visually evident and would dominate the view, with their large size and industrial character. Skyline blockage and interference would occur at each lattice tower and at the transition station, and views to higher value landscapes (San Mateo Wilderness) would be blocked or impaired.	**LEAPS Key Viewpoint L3 – South Main Divide Road Near North Transition Station**	Figure 5.1.1-14 LEAPS KVP L3 Simulation



Source: Sunrise DEIR/DEIS, 2008	A **visual simulation** of the proposed southern transition station of the LEAPS Transmission-Only Alternative from Key Viewpoint L4, on South Main Divide Road near the community of Rancho Capistrano. The scar of vegetation removal for the underground 500 kV transmission line and the introduction of the South Transition Station would result in a high level of visual contrast and industrial character, and would be inconsistent with the High SIO.	**LEAPS Key Viewpoint L4 – South Main Divide Road Near South Transition Station**	Figure 5.1.1-15 LEAPS KVP L4 Simulation

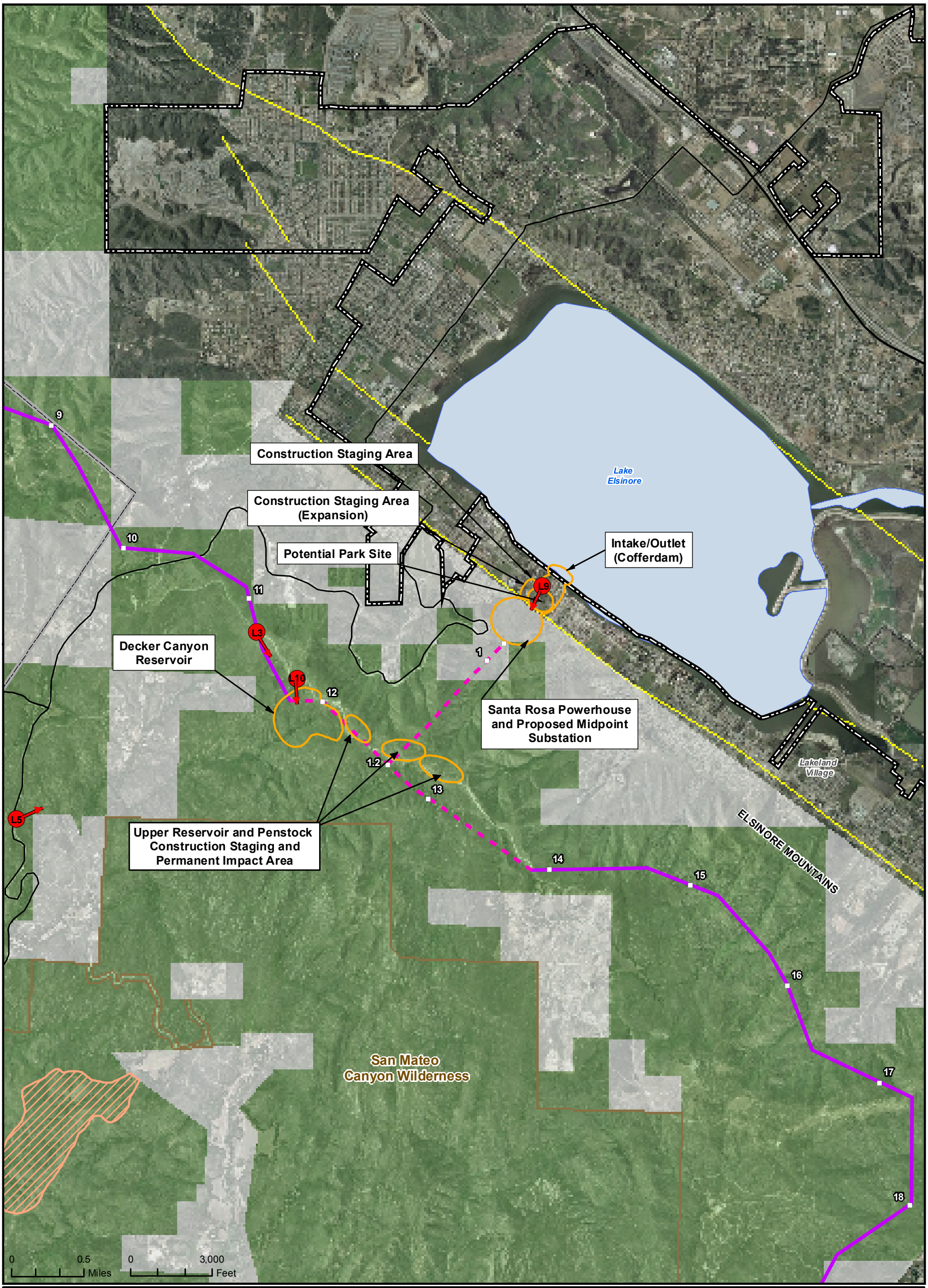
Source: Sunrise DEIR/DEIS, 2008	A **visual simulation** of the LEAPS Transmission-Only Alternative from Key Viewpoint L5, on Ortega Highway. The towers, conductors, and resulting footprint of the corridor would be visible from Ortega Highway, introducing structure contrast and industrial character to an otherwise primarily natural-appearing landscape. The moderate-to-high level of change that would result from the transmission line would not be consistent with the SIO.	**LEAPS Key Viewpoint L5 – Ortega Highway**	Figure 5.1.1-16 LEAPS KVP L5 Simulation



Source: Sunrise DEIR/DEIS, 2008	A **visual simulation** of the LEAPS Transmission-Only Alternative from Key Viewpoint L6, on Hombre Lane. The towers, conductors, and resulting footprint of the corridor would be visible from Hombre Lane and numerous other roads in the LaCresta Subdivision, introducing high visual contrast of large structures with industrial character to an otherwise primarily natural-appearing landscape. The transmission line would dominate the view from Hombre Lane and other vantage points within LaCresta, and would block views to valued landscapes (San Mateo Wilderness and CNF lands), resulting in a high level of change.	**LEAPS Key Viewpoint L6 – Hombre Lane in LaCresta Subdivision**	Figure 5.1.1-17 LEAPS KVP L6 Simulation

Source: Sunrise DEIR/DEIS, 2008	A **visual simulation** of the LEAPS Transmission-Only Alternative from Key Viewpoint L7, at the Tenaja trailhead and parking lot, one of the four entrances to the San Mateo Canyon Wilderness. The towers, conductors, and resulting footprint of the corridor would be visible from Tenaja Trailhead, Tenaja Trail, San Mateo Wilderness, and Tenaja Guard Station, introducing high structure contrast and industrial character to an otherwise primarily natural-appearing landscape. Structures would be skylined, creating co-dominance with the natural landform and rockforms and moderate-to-high skyline blockage. The project would conflict with the High SIO in this view.	**LEAPS Key Viewpoint L7 – Tenaja Trailhead**	Figure 5.1.1-18 LEAPS KVP L7 Simulation

Source: Sunrise DEIR/DEIS, 2008	A **visual simulation** of the LEAPS Transmission-Only Alternative from Key Viewpoint L8, on West Lilac Road. Visual impacts of the new wood or steel single-pole structures associated with the rebuild of the 7.7-mile Pala-Lilac 69 kV transmission line would be noticeable. These project-related changes would be subordinate to the existing 230 kV lattice steel structures and conductors. The visual contrasts of the additional single-poles would be noticeable but weak because of the travel speeds and curving alignment of West Lilac Road. Nearby property owners in the rural residential areas would have longer viewing times, but the shorter wood poles would be subordinate to the larger lattice steel structures that already exist in the landscape.	**LEAPS Key Viewpoint L8 – West Lilac Road**	Figure 5.1.1-19 LEAPS KVP L8 Simulation


Construction Staging Area
Construction Staging Area (Expansion)
Potential Park Site
Intake/Outlet (Cofferdam)
Decker Canyon Reservoir
Santa Rosa Powerhouse and Proposed Midpoint Substation
Upper Reservoir and Penstock Construction Staging and Permanent Impact Area
Lake Elsinore
Lakeland Village
ELSINORE MOUNTAINS
San Mateo Canyon Wilderness
9
10
11
12
13
14
15
16
17
18
1
1.2
L3
L5
L9
L10
0 0.5 Miles
0 3,000 Feet
LEAPS Transmission Alternative, Overhead Portion
LEAPS Transmission Alternative, Underground Portion
Milepost
Key Viewpoints
Major Road / Interstate
Fault Lines
Construction Staging and Permanent Impact Area
Incorporated Town
Federal Wilderness Area
U.S. Forest Service Land
Non-Forest System Land
Grazing Allotments
Major Water Body
N

The Scenic Integrity Objective (SIO) for the lands where the proposed upper reservoir site and construction staging areas would be located is designated by the Forest Service as High SIO based on the public preferences for natural-appearing landscapes. The San Mateo Canyon Wilderness, located approximately 0.5 miles from the upper reservoir site, is designated Very High SIO and only ecological changes are allowed within the wilderness.

The view of Decker Canyon from South Main Divide Road consists of riparian vegetation in the canyon bottom surrounded by mountain tops with chamise-dominated chaparral vegetation and rock outcroppings. The construction staging area would be on the north side of South Main Divide Road in an area that is currently partly barren and used, in part, for the launching of hang gliders. Maximum viewable distances across Decker Canyon from South Main Divide Road terminate at interior mountains higher than the viewpoint in the San Mateo Canyon Wilderness about 0.5 miles away. A portion of the view from the top of Decker Canyon extends southwest toward the confluence of Decker and San Juan Creek Canyons about five miles away; however, vegetation, canyon topography, and at times, atmospheric haze largely obstruct the view.

The LEAPS Powerhouse site would be situated on privately held parcels within the Congressional boundaries of the CNF but outside of USFS jurisdiction, and an SIO is, therefore, not designated. The land uses along Grand Avenue dictate the aesthetic feel of the powerhouse site area, which includes single-family residences, small commercial establishments, multi-family residential development, and vacant property. The proposed LEAPS Powerhouse site consists primarily of non-native grasses with occasional shrubs, bare land, and numerous trails or dirt roads traversing the area. The general character of this area is open space within an urban environment. This characterization is derived from the property's fairly large size and lack of development; however, it is surrounded on the north, east, and west by the urbanized areas of Lakeland Village and is subject to informal recreation uses (numerous dirt trails and roads traversing the parcel and visual evidence of illegal dumping). The landscape and visual aesthetics of this site are not unusual, but they are accentuated by the properties's proximity to the mountains and the striking backdrop they provide to all parcels along Grand Avenue (FERC, 2007).

- **KVP L3: South Main Divide Road near Decker Canyon Reservoir (SMS)**. As illustrated in Figure 5.1.1-21 (KVP L3 – Existing View), KVP L3 was established on the South Main Divide Road looking southeast, near where the 500-kV transmission line would leave the Lake Elsinore viewshed and cross over into the San Mateo Canyon Wilderness viewshed. The existing visual quality is high in this area, with only visible deviations being the South Main Divide Road and Elsinore Peak Electronic Site on the skyline to the left. Landforms are gently rolling mountains with a predominance of horizontal lines on ridge tops and the skyline. Vegetation is low growing chemise and chaparral with only small clumps of trees scattered in ravines. Granitic rock outcrops add visual interest to the skyline of San Mateo Canyon Wilderness in the background and one foreground rock outcrop. This scene has high existing scenic integrity, and the Forest Service has designated this entire area as Very High SIO inside the wilderness and High SIO outside the wilderness boundary.

- **KVP L5: Ortega Highway (SMS)**. As illustrated in Figure 5.1.1-22 (KVP L5 – Existing View), KVP L5 was established on the Ortega Highway looking northeast up Decker Canyon to the South Main Divide Road and the skyline, near the Decker Canyon Reservoir site. Like

KVPs L3 and L4, the existing visual quality is high in this area, with only visible deviations being this Forest Adventure Pass parking area along Ortega Highway in the immediate foreground and the South Main Divide Road cut slopes in the middle ground. This is a parking area for wilderness access, forest recreation, and sight-seeing. Landforms are gently rolling mountains with a predominance of horizontal lines on the skyline in the middle ground. Small rock outcrops are evident in the middle ground, adding visual variety to this intact scene. This scene has high existing scenic integrity, and the Forest Serice has designated this entire area as Very High SIO inside the wilderness and High SIO outside the wilderness boundary.

- **KVP L9: Grand Avenue (VS-VC)**. As illustrated in Figure 5.1.1-23 (KVP L9 – Existing View), KVP L9 was established on Grand Avenue in the City of Lake Elsinore. Views perpendicular to the road, looking southwest, reveal a relatively flat, open space leading to the foot of the Elsinore Mountains in the CNF. Just northwest of this site, along Grand Avenue, is an apartment complex, then Butterfield Elementary Visual and Performing Arts Magnet School and the Ortega Trails Youth Center, all on the same side of the street. Continuing south on Grand Avenue, there are scattered residential uses.

  Proposed is the construction and operation of the Santa Rosa Substation in the middle of this photograph. The entire site would be surrounded by an 8 to 10-foot-high concrete block wall and would be visible with foreground detail.

  ◊ **Visual Quality** (Moderate). The foreground, with its relatively level plain and scattered trees, has minimal visual quality, but when taken in context with the mountains in the middle ground, the overall visual quality is moderate. Predominant colors are brown and tan soils, and gray-green to dark-green vegetation. Rockforms are non-distinctive, and water is lacking. Horizontal lines of existing electric transmission and subtransmission system are present in this view, as are derelict fencing and roadside litter, resulting in an overall moderate visual quality.

  ◊ **Viewer Concern** (Moderate). Travelers on Grand Avenue, and also representing viewers at the apartment complex (Santa Rosa Mountain Villa Apartments) and elementary school, are provided with distinct mountain views as they pass this property. Although there are some commercial land uses along Grand Avenue, the neighborhood is primarily residential in nature and any addition of industrial character to the predominantly natural appearing landscape or blockage of views to more valued landscape features (open space and mountain slopes) would be seen as an adverse visual change.

  ◊ **Viewer Exposure** (High). There is no vegetative or topographic screening for the proposed Santa Rosa Substation, and viewing distances allow details to be seen in the foreground and context to be evaluated against the middle ground mountainside, resulting in high visibility. Viewing times are brief for travelers on Grand Avenue but are extended for residents located along Grand Avenue and at the elementary school, and for pedestrians walking along Grand Avenue. The number of viewers would be moderate and the duration of view would be brief for travelers on Grand Avenue and extended for residents and school children. Consequently, viewer exposure is high.

- ◊ **Overall Visual Sensitivity** (Moderate-to-High). For travelers on Grand Avenue and residents/school children in the neighborhood in the vicinity of the Santa Rosa Substation, combining the moderate visual quality, low-to-moderate viewer concern, and high viewer exposure leads to a moderate-to-high overall visual sensitivity of the visual setting and viewing characteristics.

- **KVP L10: South Main Divide Road near Decker Canyon Reservoir (SMS)**. As illustrated in Figure 5.1.1-24 (KVP L10 – Existing View), KVP L10 was established on South Main Divide Road looking south, adjacent to where the Decker Canyon Reservoir would be located. The existing visual quality is high in this area, with only visible deviation being South Main Divide Road. Landforms are gently rolling mountains with a predominance of horizontal lines on ridge tops and the skyline. Vegetation is low growing chemise and chaparral with only small clumps of trees scattered in ravines. Granitic rock outcrops add visual interest. This scene has high existing scenic integrity and the Forest Service has designated this area as Very High SIO (inside the San Mateo Canyon Wilderness) and High SIO (outside the San Mateo Canyon Wilderness).

Potential visual resource impacts associated with LEAPS are summarized in Table 5.1.2-1 (LEAPS – Visual Resource Impacts).

Table 5.1.2-1. LEAPS – Visual Resource Impacts

Impact	Description	Significance[1]
V-S-11	Construction of reservoir and associated facilities on National Forest System lands would cause medium-term visibility of construction activities, equipment, and night lighting and an increase in industrial character.	I
V-S-12	Short-term visibility of construction activities, equipment and night lighting associated with construction of the project.	III
V-S-13	Introduction of structure contrast and industrial character associated with the LEAPS Powerhouse, when viewed from Key Viewpoint L9 on Grand Avenue.	III
V-S-14	Inconsistency with the USFS Scenic Integrity Objective due to long-term visibility of a non-natural landscape feature (reservoir facilities) from Key Viewpoints L3 and L10, on South Main Divide Road and from Key Viewpoint L5, Ortega Highway.	I

Source: The Nevada Hydro Company, Inc.

Impact V-S-11: Construction of reservoir and associated facilities on National Forest System lands would cause medium-term visibility of construction activities, equipment, and night lighting and an increase in industrial character (Class I).

Construction of the proposed upper reservoir, staging area, and associated structures would directly affect approximately 150 acres of lands and would require approximately three million cubic yards of earthwork. Excavation of the water conduit tunnels would likely result in the placement of earthen materials at the staging area near the LEAPS Powerhouse, changing the topography of lands located along Grand Avenue. The upper reservoir construction activities would be limited to a single canyon in the CNF.

Construction would entail using vehicles, trailers, equipment, materials, laborers, earthen debris, and fencing along South Main Divide Road. The area would be de-vegetated, re-graded, leveled, barricaded, lined, and filled. If revegetated after construction, the effects from construction on visual resources of the area would last for up to three years. However, the Forest Service has indicated that this construction laydown area be converted to a day-use area. No plans for that

facility have been formulated by the Forest Service but the site will be graded and landscaped by the Applicant in accordance with a recreational development plan to be formulated by the Applicant in conjunction with FERC and the Forest Service.

With regards to the proposed upper reservoir, construction activity, while isolated to the single canyon, would be a condition where human alterations would be extremely visually evident from the San Mateo Canyon Wilderness and segments of South Main Divide Road, which would be inconsistent with the High SIO set by CNF for this area. Night and security lighting impacts during construction could occur if lighting at construction and storage yards and staging areas is not appropriately controlled.

Visual impacts from construction of the proposed upper reservoir on NFS lands would likely be significant (Class I) due to the large scale and duration of construction activities. However, to ensure that viewers are not unnecessarily impacted during construction, APMs V-1a and V-1b are recommended to reduce the impact to the extent feasible. The full text of these APMs can be found in Attachment 5 (Applicant Proposed Measures).

Impact V-S-12: Short-term visibility of construction activities, equipment and night lighting associated with construction of the project (Class III).

Construction impacts related to the LEAPS Powerhouse and associated transmission line would result from the presence and visual intrusion of construction vehicles, equipment, materials, and work force at the powerhouse location and along the new transmission line routes. Construction activities around the LEAPS Powerhouse site would involve the excavation of soil from the water conduits, penstock, powerhouse cavern and shaft, transformer gallery, surge shaft, draft tubes, tailrace tunnels, and intake/outlet structure. Construction activities would also affect the powerhouse site and its associated staging area. The landform in this area would be leveled, excavated, and built into and transformed from open space to a functioning underground powerhouse with aboveground substation and associated features. Effects from construction would include the presence of large excavation work, earthen debris, an open construction site. Night and security lighting impacts during construction would potentially occur if lighting at the powerhouse location is not appropriately controlled.

Construction impacts on visual resources would also result from the temporary alteration of landforms and vegetation along the right-of-way. Vehicles, heavy equipment, and workers would be visible during access and spur road clearing and grading, structure erection, conductor stringing, and site clearance and restoration. Depending on whether access roads to transmission towers are temporary or permanent, view durations would vary from moderate to extended.

Due to the relatively short construction duration in any one geographic area (approximately 24 months or less along the transmission line route where construction is transient), viewers would be aware of the temporary nature of the impact, which would reduce their sensitivity to the impact, and construction impacts would generally constitute an adverse but less than significant (Class III) visual impact. APMs V-1a and V-1b are, however, recommended to reduce construction impacts to the maximum extent feasible but are not required because the impact is already less than significant without mitigation. The full text of these APMs can be found in Attachment 5 (Applicant Proposed Measures).

Impact V-S-13: Introduction of structure contrast and industrial character associated with the LEAPS Powerhouse, when viewed from Key Viewpoint L9 on Grand Avenue (Class III).

Land uses located along Grand Avenue include residential, commercial, and light-industrial uses and numerous vacant properties. Grand Avenue serves as an important arterial highway located along the south side of Lake Elsinore. Views along Grand Avenue are predominantly residential with the mountains rising in the background to the west and Lake Elsinore when visible through open spaces between houses and vegetation to the east (FERC, 2007).

As illustrated in Figure 5.1.1-25 (KVP L9 – Simulation), building associated with the proposed LEAPS Powerhouse would be visible to travelers on Grand Avenue and residents in Lake Elsinore. The introduction of new low-rise structures possessing an industrial character would contrast with the primarily undeveloped and natural-appearing landscape than now existing at the proposed powerhouse site and cause a moderate-to-high degree of overall visual change. Because the surface elevation of property adjacent to Grand Avenue would be raised to accommodate spoil material and reduce the need to export earthen material off the site and because the site would be terraced to accommodate the powerhouse and substation and would be surrounded by a 8 to 10-foot-high concrete block wall, the proposed improvements would become a dominant focal point in the landscape and could block street-level views to the lower slopes of the mountains from Grand Avenue. There would be no skyline obstruction by these facilities.

Landscape screening could be provided in the immediate foreground of Grand Avenue. Similarly, the Applicant's FERC application includes the development of a neighborhood park along Grand Avenue, in the vicinity of the construction laydown area. If developed, park-related landscaping would serve to mitigation visual impacts of the LEAPS Powerhouse (and Santa Rosa Substation) from Grand Avenue. The resulting visual impact would be less than significant (Class III) and no mitigation is required.

Impact V-S-14: Inconsistency with the USFS Scenic Integrity Objective due to long-term visibility of a non-natural landscape feature (reservoir facilities) from Key Viewpoints L3 and L10, on South Main Divide Road and from Key Viewpoint L5, Ortega Highway (Class I).

LEAPS operations would require the long-term presence of a non-natural, fenced upper reservoir that would undergo water-level fluctuations of up to 40 vertical feet on a daily basis and 75 vertical feet during the course of a full-week cycle, resulting in an unnatural "bath tub ring" of exposed wet/drying earthen (muddy) shoreline. The upper reservoir feature would be located within a CNF area with a High SIO designation, and it would be prominently visible from South Main Divide Road, Ortega Highway, and from within the San Mateo Canyon Wilderness.

Specifically, the development of the upper reservoir would eliminate a natural appearing canyon and introduce new visual elements into the viewsheds of the National Forest and San Mateo Canyon Wilderness. Introduced features would include, but would not necessarily be limited to, pooled water, dam face, chain link perimeter safety fences, and graded landscapes. As illustrated in Figure 5.1.1-26 (KVP L3 – Simulation) and Figure 5.1.1-27 (KVP L5 – Simulation), the high level of change that would result from the reservoir facilities would appear disharmonious and could be deemed by the Forest Service to be inconsistent with Aesthetic Management Standard

S9 of the "Cleveland National Forest Land Management Plan" (requiring activities to meet the applicable SIO).

Specifically, the dam, reservoir, and fencing, would not repeat the form, line, color, texture, and pattern common to the landscape character so completely and at such scale that they are not evident, as required by the applicable "High" SIO. The facilities would become prominent features in the landscape. The proposed Decker Canyon Reservoir would not qualify for the following exceptions: (1) minor adjustment (one level reduction with approval) to the SIO; or (2) temporary drop of more than one SIO not to exceed three years in duration, as required in Aesthetic Management Standard S10.

Although the resulting visual impacts would likely be significant (Class I), the introduction of a water feature into the National Forest would add visual diversity and could be deemed by the Forest Service to be harmonious with the natural landscape.

5.1.3 Project – Visual Resource Impacts

Impacts to aesthetic from the TE/VS Interconnect are presented in Section 5.1.1. Impacts to aesthetic from LEAPS are presented in Section 5.1.2. The cumulative aesthetic impacts resulting from the implementation of the Project (inclusive of both transmission and generation) would be similar to the combined effects presented in those two preceding sections.

5.2 Agriculture Resources

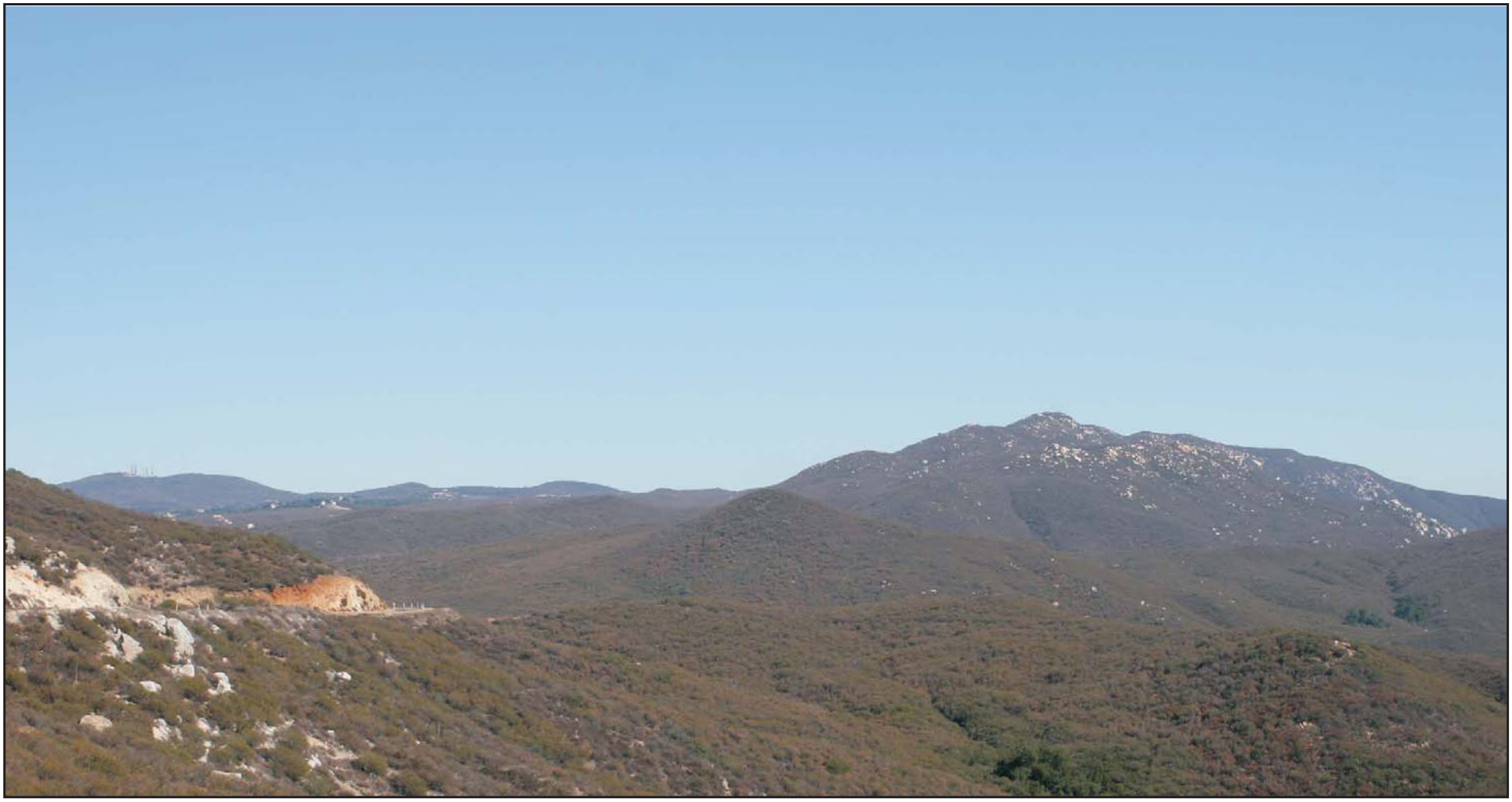
Impacts on agricultural impacts attributable to the TE/VS Interconnect are discussed in Section 5.2.1. Impacts on agricultural resources associated with LEAPS are presented in Section 5.2.2. Potential cumulative impacts on agricultural resources relating to the Project (inclusive of both transmission and generation) are presented in Section 5.2.3.

5.2.1 TE/VS Interconnect - Agricultural Resource Impacts

TE/VS Interconnect

No agricultural resources or active farming operations were identified within 1,000 feet of the transmission right-of-way. Portions of transmission line would be on NFS lands within the CNF. The Forest Service currently administers 28 grazing allotments within the CNF. The TE/VS Interconnect would pass through the Tenaja and Miller Mountain grazing allotments. The USFS has the authority to impose permit conditions on activities conducted on NFS lands and to alter, terminate, or otherwise modify the provisions of any special use authorizations provided therein. Forest Service management plans include determinations concerning the capability and potential suitability of lands for producing forage for grazing animals (CFR 219.20).

Potential agricultural resource impacts associated with the TE/VS Interconnect and Talega-Escondido 230-kV Transmission and Substations Upgrades are summarized in Table 5.2.1-1 (TE/VS Interconnect/Talega-Escondido Upgrades – Agricultural Resource Impacts). The TE/VS Interconnect and Talega-Escondido 230-kV Transmission and Substations Upgrades are separately addressed below.

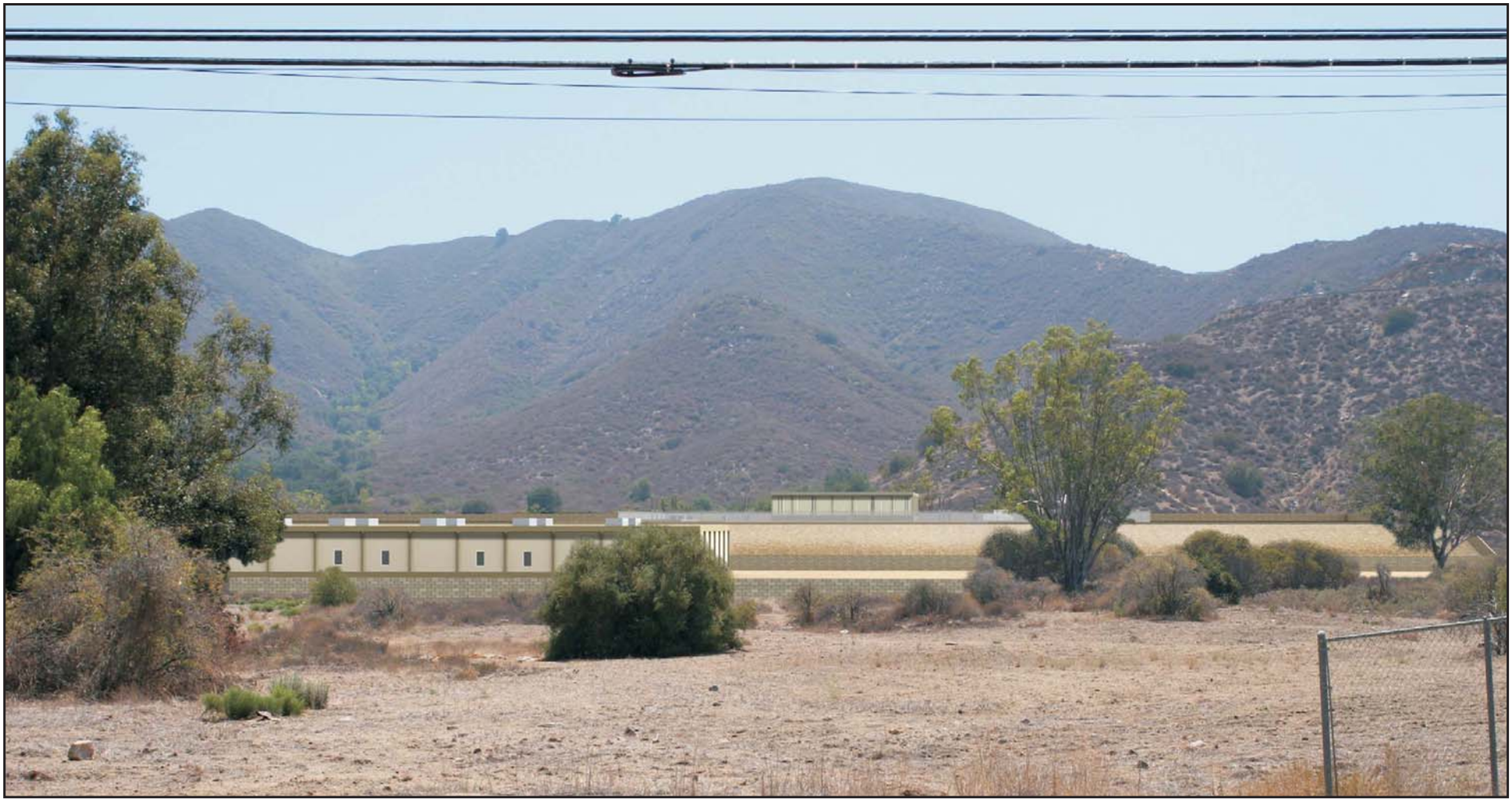


Source: Sunrise DEIR/DEIS 2008	The **existing view** of the Cleveland National Forest looking southeast on South Main Divide Road, near where the 500 kV transmission line would leave the Lake Elsinore viewshed and cross over into the San Mateo Canyon Wilderness viewshed, and where the Decker Canyon upper reservoir perimeter dike would be located. The existing visual quality is high, with only visible deviations being South Main Divide Road and the Elsinore Peak Electronic Site on the skyline to the left. The Forest Service has designated the SIO inside the wilderness boundary as Very High and outside the wilderness boundary as High.	**LEAPS Key Viewpoint L3 – South Main Divide Road Near North Transition Station**	Figure 5.1.1-21 LEAPS KVP L3 Existing View

Source: Sunrise DEIR/DEIS, 2008	The **existing view** to the northeast from Ortega Highway up Decker Canyon toward South Main Divide Road and the skyline, near the proposed North Transition Station site and Decker Canyon reservoir dam. The view of CNF has a high visual quality with the only visible deviations being this Forest Adventure Pass parking area along Ortega Highway in the immediate foreground and the South Main Divide Road cutslopes in the middleground. The SIO of the area within the wilderness boundary is Very High, and outside of the wilderness boundary the SIO is High.	**LEAPS Key Viewpoint L5 – Ortega Highway**	Figure 5.1.1-22 LEAPS KVP L5 Existing View

Source: Sunrise DEIR/DEIS, 2008	The **existing view** to the southwest on Grand Avenue in the City of Lake Elsinore looking toward the 40-acre Santa Rosa Powerhouse and Midpoint Substation site. The foreground, with its relatively level plain and scattered trees, has minimal visual quality, but when taken in context with the mountains in the middleground, the overall visual quality is moderate. Horizontal lines of existing electric distribution system are present in this view, as are derelict fencing and roadside litter, resulting in an overall moderate visual quality.	**LEAPS Key Viewpoint L9 – Grand Avenue**	Figure 5.1.1-23 LEAPS KVP L9 Existing View

Source: Sunrise DEIR/DEIS, 2008	The existing view (Before) south on South Main Divide Road and a visual simulation (After) of the proposed Decker Canyon upper reservoir from KVP L10, on South Main Divide Road. The LEAPS pumped storage project operations would require the long-term presence of a non-natural, fenced upper reservoir feature that would be located within a CNF area with a High SIO designation. The reservoir would be prominently visible from South Main Divide Road, Ortega Highway, and from within the San Mateo Canyon Wilderness. The reservoir would undergo daily water level fluctuations (not shown).	**LEAPS Key Viewpoint L10 – South Main Divide Road Near Decker Canyon Reservoir Site**	Figure 5.1.1-24 LEAPS KVP L10 Existing View and Simulation



Source: Sunrise DEIR/DEIS, 2008	A **visual simulation** of the LEAPS Generation and Transmisison Alternative from Key Viewpoint L9, on Grand Avenue. The 40-acre site containing the proposed underground powerhouse and aboveground substation would be highly visible to travelers on Grand Avenue and residents in Lake Elsinore. The introduction of substantial structure contrast and industrial character to an otherwise primarily undeveloped and natural-appearing landscape would cause a moderate-to-high degree of overall visual change. Because the site would be terraced to accommodate the powerhouse and substation, and would be surrounded by a 10-foot-high concrete block wall, it would be a dominant focal point in the landscape, and would block views to the lower slopes of the middleground-mountains.	**LEAPS Key Viewpoint L9 – Grand Avenue**	Figure 5.1.1-25 LEAPS KVP L9 Simulation

Source: Sunrise DEIR/DEIS, 2008	A **visual simulation** of the Decker Canyon upper reservoir dam from KVP L3, on South Main Divide Road. The LEAPS Generation and Transmission Alternative would eliminate a natural appearing canyon and introduce new visual elements into the viewshed, specifically a concrete dam that is evident in the middleground. The high level of change that would result from the reservoir facilities would be inconsistent with the applicable SIO.	**LEAPS Key Viewpoint L3 – South Main Divide Road Near North Transition Station**	Figure 5.1.1-26 LEAPS KVP L3 Simulation

Source: Sunrise DEIR/DEIS, 2008	A visual simulation of the Decker Canyon upper reservoir dam from KVP L5, Ortega Highway. The LEAPS Generation and Transmission Alternative would eliminate a natural appearing canyon and introduce and large concrete dam into the viewshed. The high level of change that would result from the reservoir facilities would be inconsistent with the applicable SIO.	**LEAPS Key Viewpoint L5 – Ortega Highway**	Figure 5.1.1-27 LEAPS KVP L5 Simulation

Table 5.2.1-1. TE/VS Interconnect/Talega-Escondido Upgrades – Agricultural Resource Impacts

Impact	Description	Significance[1]
AG-1	Construction activities would temporarily interfere with Active Agricultural Operations	III

Source: The Nevada Hydro Company, Inc.

Impact AG-1: Construction activities would temporarily interfere with Active Agricultural Operations (Class III).

The TE/VS Interconnect would transect two Forest Service-issued Trabuco Ranger District grazing allotments (Tenaja and Miller Mountain) and construction activities associated with those transmission towers that traverse those allotments could interfere with Active Agricultural Operations (grazing operations). Because the size of any disturbance would be minimal and because TE/VS Interconnect operations would not result in any long-term impacts to those activities, the resulting impact is less than significant (Class III).

Talega-Escondido 230-kV Transmission and Substation Upgrades

With the exception of new transition towers and second 230-kV circuit (Talega-Escondido No. 2), new 69-kV poles and a restrung 69-kV circuit between the Pala and Lilac Substations, and the inside-the-fence line improvements to the existing Talega and Escondido Substations, no new structures are proposed as part of the Talega-Escondido upgrades. New structures would be installed in the existing transmission right-of-way and pulling and tensioning stations positioned outside the right-of-way would not be placed on actively farmed agricultural lands.

A portion of the San Mateo Creek and San Notre Creek watershed lies within Camp Pendleton's military training impact zone. Currently, Camp Pendleton leases over 500 acres in the lower watershed for agricultural uses (EVMWD and Nevada Hydro, 2004).

No DOC Farmlands or Williamson Act lands have been identified within 1,000 feet of the transmission right-of-way. However, numerous agricultural operations, including small orchards, groves, and nurseries, are located within 1,000 feet of the transmission right-of-way within the Camp Pendleton, near the community of Rainbow, and north of the City of Escondido. Construction activities could potentially be disruptive to adjacent lands and operations by damaging or removing crops or precluding planting, impeding access to certain fields or plots of land and obstructing farm vehicles and equipment, disrupting drainage and irrigation systems, or creating dust that might affect plant growth. Construction activities could potentially result in the temporary withdrawal of land from production, thereby reducing agricultural productivity on the affected land. Any such impact would, however, affect only a very small amount of land and occur for only a limited time period. Once construction is finalized, no operational impacts to agriculture resources would occur. Because the size of any disturbance would be minimal and because Talega-Escondido upgrades operations would not result in any long-term impacts to those activities, the resulting impact is less than significant (Class III).

5.2.2 LEAPS - Agricultural Resource Impacts

LEAPS includes, but may not be limited to existing Lake Elsinore (afterbay) and a number of new facilities, including Decker Canyon Reservoir, LEAPS Powerhouse, Santa Rosa and Case

Springs Substations, and Lake Switchyard. LEAPS also includes all associated electrical and water conduits, including power shafts, power tunnels, penstocks, tailrace tunnels, and inlet/outlet structures. Because no DOC Farmlands, Active Agricultural Operations, or Williamson Act lands occur within the vicinity of LEAPS facilities (EVMWD, 2007), the resulting impact would be less than significant (Class III).

5.2.3 Project - Agricultural Resource Impacts

Impacts to agricultural resources from the TE/VS Interconnect are presented in Section 5.2.1. Impacts to agricultural resources from LEAPS are presented in Section 5.2.2. The cumulative agricultural resource impacts resulting from the implementation of the Project (inclusive of both transmission and generation) would be similar to the combined effects presented in those two preceding sections.

5.3 Air Quality

Impacts on air quality attributable to the TE/VS Interconnect are discussed in Section 5.3.1. Impacts on air quality associated with LEAPS are presented in Section 5.3.2. Potential cumulative on air quality impacts relating to the Project (inclusive of both transmission and generation) are presented in Section 5.3.3.

5.3.1 TE/VS Interconnect - Air Quality Impacts

TE/VS Interconnect

That portion of the TE/VS Interconnect located within Riverside and Orange Counties is within the South Coast Air Basin (SCAB), as administered by the South Coast Air Quality Management District (SCAQMD). Those portions of the TE/VS Interconnect and Talega-Escondido upgrades located in San Diego County are within the San Diego Air Basin (SDAB), as administered by the San Diego Air Pollution Control District (SDAPCD).

The SCAB is comprised of an approximately 6,600 square mile area, bounded on the west by the Pacific Ocean, on the north and east by the San Gabriel, San Bernardino, and San Jacinto Mountains, and on the south by the San Diego County portion of the Salton Sea Air Basins. The SCAQMD's jurisdiction encompasses about 10,743 square mile area, inclusive of the four county SCAB (Orange, San Bernardino, Santa Barbara, and Ventura Counties), the Los Angeles County portion of the Mojave Desert Air Basin, and the Riverside County portion of the Salton Sea Air Basin. Because of the geography (surrounding mountainous terrain), warm climate, and stagnant air conditions, the SCAB is particularly prone to air quality problems. The SCAB has been designated nonattainment for ozone, PM_{10}, $PM_{2.5}$, and carbon monoxide (CO). The area attains the ambient air quality standards for nitrogen dioxide (NO_2) and sulfur dioxide (NO_2).

A summary of the air quality status of the SCAB, relative to the National Ambient Air Quality Standards (NAAQS) and the California Ambient Air Quality Standards (CAAQS), is provided in Table 5.3.1-1 (Attainment Status for Riverside, Orange, and San Diego Counties).

Table 5.3.1-1. Attainment Status for Riverside, Orange, and San Diego Counties

County	Ozone (8-hour)		PM_{10}		$PM_{2.5}$		CO		NO_2		SO_2	
	State	Federal	State	Federal	State	Federal	State	Federal	State	Federal	State	Federal
Riverside	N	N (E)	N	N (Si)	N	N	A	N	A	A	A	A
Orange	N	N (Se)	N	N (Si)	N	N	A	N	A	A	A	A
San Diego	N	A	N	U/A	N	N (Si)	A	N	A	A	A	A

A = Attainment of ambient air quality standards; U/A = Unclassified/Attainment; N = Nonattainment; E = Extreme; Se = Severe; Si = Serious

Source: CARB, 2006 (http://www.arb.ca.gov/desig/desig.htm) and U.S. EPA, 2006 (http://www.epa.gov/region09/air/).

The SCAQMD and Southern California Association of Governments (SCAG) are the agencies responsible for preparing the "Air Quality Management Plan" (AQMP) for the SCAB. Since 1979, a number of AQMPs have been prepared, with later plans superseding earlier documents. The most recent comprehensive AQMP was adopted in June 2007. The 2007 AQMP employs up-to-date science and analytical tools and incorporates a comprehensive strategy aimed at controlling pollution from all sources, including stationary sources, on-road and off-road mobile sources, and area sources.

The portions of the TE/VS Interconnect in San Diego County would occur near populated areas that would be sensitive to dust or other air pollution nuisances. The administering local air district in San Diego County is the SDAPCD. The "State Implementation Plan" (SIP) was adopted by the California Air Resources Control Board (CARB) and the United States Environmental Protection Agency (EPA) to bring non-attainment air basins into compliance with the NAAQS. Due to continued violations of NAAQS standards in the SDAB, the SDAPCD, in conjunction with the San Diego Association of Governments (SANDAG) prepared the "Regional Air Quality Standards" (RAQS) for the SDAB. The RAQS includes those measures necessary to ensure compatibility with the SIP. The RAQS were adopted for the SDAB in 1992 and the first and second RAQS revisions were adopted in 1995, 1998, respectively. The current 2001 RAQS was adopted on August 8, 2001.

As proposed, the TE/VS Interconnect and Talega-Escondido 230-kV Transmission and Substation Upgrades would be located in Riverside, Orange, and San Diego Counties. Project-related activities conducted in Riverside and Orange Counties would be subject to SCAQMD rules and regulations. Applicable SCAQMD regulations for visible emissions, nuisances, and fugitive dust include, but are not limited to: (1) Rule 401 (Visible Emissions); (2) Rule 402 (Nuisance); and (3) Rule 403 (Fugitive Dust). These rules limit the visible dust emissions from construction sites, prohibit emissions that can cause a public nuisance, and require the prevention and reduction of fugitive dust emissions. Additionally, depending on the location and size of the construction site(s) fugitive dust control plan(s) may be required to be submitted to SCAQMD for approval before initiating construction. The fugitive dust rules include measures that aim to reduce fugitive dust emissions from specific dust causing activities. These measures may include, adding freeboard to haul vehicles, covering loose material on haul vehicles, watering, using chemical stabilizers and/or ceasing all activities (such as during periods of high winds).

The SCAQMD recommends that regional and localized significance thresholds be used to characterize air quality impacts in CEQA documents. To characterize the air quality impacts, the SCAQMD's regional significance thresholds are used. Any significant impact under the regional thresholds is presumed to also cause a significant localized impact. The recommended

significance threshold standards established by the SCAQMD are shown in Table 5.3.1-2 (Air Quality Significance Threshold Standards).

Table 5.3.1-2. Air Quality Significance Threshold Standards

Significance Thresholds	NOx	VOC	PM_{10}	$PM_{2.5}$	CO	SOx
Construction	100 lb/day	75 lb/day	100 lb/day	55 lb/day	550 lb/day	150 lb/day
Operation	55 lb/day	55 lb/day	150 lb/day	55 lb/day	550 lb/day	150 lb/day

Source: SCAQMD CEQA Air Quality Handbook; SDC, 2007 for $PM_{2.5}$.

That portion of the SCAB located in Riverside and Orange Counties is classified as a federal nonattainment area, and the federal General Conformity rule provides significance criteria for ozone (O_3) precursors, PM_{10}, and carbon monoxide (CO). The General Conformity applicability thresholds for the nonattainment areas are presented in Table 5.3.1-3 (General Conformity Threshold Standards).

Table 5.3.1-3. General Conformity Threshold Standards

Area	NOx or VOC (ton/year)	PM_{10} (ton/year)	CO (ton/year)
South Coast Air Basin	25 ton/year	70 ton/year	100 ton/year
San Diego Air Basin	100 ton/year	n/a	n/a
n/a = not applicable			

Source: 40 CFR 93.153

Potential air quality impacts associated with the TE/VS Interconnect and Talega-Escondido 230-kV transmission and substations upgrades are summarized in Table 5.3.1-4 (TE/VS Interconnect/ Talega-Escondido Upgrades – Air Quality Impacts). Because the resulting impacts would be similar, air quality impacts attributable to the TE/VS Interconnect and Talega-Escondido upgrades are jointly discussed below.

Table 5.3.1-4. TE/VS Interconnect/Talega-Escondido Upgrades– Air Quality Impacts

Impact	Description	Significance
AQ-1	Construction would generate dust and exhaust emissions of criteria pollutants and toxic air contaminants.	I
AQ-2	Operation, maintenance, and inspections would generate dust and exhaust emissions of criteria pollutants and toxic air contaminants.	III
AQ-3	Power generated during transmission line operation would cause emissions from power plants.	III
AQ-4	Project activities would cause a net increase of greenhouse gas emissions.	I
1. Significance designations: Class I - Significant Unavoidable; Class II - Less than Significant with Mitigation; Class III - Less than Significant; and Class IV - No Impact		

Source: The Nevada Hydro Company, Inc.

Impact AQ-1: Construction would generate dust and exhaust emissions of criteria pollutants and toxic air contaminants (Class I).

TE/VS Interconnect construction would cause exhaust emissions from diesel- and gasoline-powered construction equipment (e.g., ozone precursors, carbon monoxide, and PM_{10}) and fugitive particulate matter (dust) from travel on unpaved surfaces (FERC, 2007). Although compliance with regional and State requirements and air quality management plans would minimize the effects of construction on air quality, ozone precursors and particulate matter (PM) emissions would exceed the thresholds in Table 5.3.1-5 (Estimated Construction Emissions - TE/VS Interconnect/Talega-Escondido Upgrades), the SCAQMD's localized significance thresholds, and, depending on the construction schedule, the General Conformity de minimis levels.

Construction emissions would not permanently affect visibility or vegetation in a federal Class I wilderness area, but federal Class I areas or State wilderness areas would temporarily be exposed to construction emissions duration of construction. The potential to deteriorate air quality–related values (AQRVs) would be similar to those described in the Sunrise DEIR/DEIS (Section D.11.6 of the Sunrise DEIR/DEIS). Table 5.3.1-5 (Estimated Construction Emissions for the TE/VS Interconnect and Talega-Escondido Upgrades) shows the estimated emissions for construction of the TE/VS Interconnect and the Talega-Escondido 230-kV transmission and substation upgrades.

Table 5.3.1-5. Estimated Construction Emissions - TE/VS Interconnect/Talega-Escondido Upgrades

Construction Activity	NOx (lb/day)	VOC (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)	CO (lb/day)	SOx (lb/day)	CO_2 (lb/day)
Off-Road Equipment and On-Road Vehicles	4,219.7	568.1	221.1	221.1	1,959.3	89.7	416,663.4
Fugitive Dust	-	-	1,184.9	138.2	-	-	-
Daily Activity Totals	4,219.7	568.1	1,406.0	359.3	1,959.3	89.7	416,663.4
Significance Criteria	100	75	100	55	550	150	0
Exceed Significance Threshold?	Yes	Yes	Yes	Yes	Yes	No	-[1]
1. For discussion of impact significance of CO_2 emissions and greenhouse gases, see Impact AQ-4.							

Source: The Nevada Hydro Company, Inc.

Estimated construction emissions are projected to exceed thresholds standards and would likely result in a significant impact (Class I). Available mitigation would include APMs AQ-1a and AQ-1b for dust control and equipment exhaust, respectively. However, construction-phase emissions would still exceed the local significance thresholds and could expose sensitive receptors to substantial pollutant concentrations (Class I).

Impact AQ-2: Operation, maintenance, and inspections would generate dust and exhaust emissions of criteria pollutants and toxic air contaminants (Class III).

Once construction is complete, operational emissions would result from vehicle use that would be necessary for periodic maintenance, repair, and inspection of the transmission line. Maintenance and inspections activities would be the only notable direct air quality impact related to the transmission line. Few new permanent employees would be needed to operate TE/VS Interconnect. The incremental increase of emissions that would be caused by vehicular traffic for inspection and maintenance activities would be minor.

Wildfire risk could potentially increase with the presence of the TE/VS Interconnect. The air quality effects of wildfire would be adverse but short term. Direct emissions from vehicular traffic for maintenance activities would be less than the thresholds standards listed Table 5.3.1-5 (Estimated Construction Emissions for the TE/VS Interconnect and Talega-Escondido Upgrades). The emissions would cause an adverse but less-than-significant impact (Class III) and no additional measures are required.

Impact AQ-3: Power generated during transmission line operation would cause emissions from power plants (Class III).

Operation of the TE/VS Interconnect could result in indirect air quality impacts if increased power plant emissions would occur as a result of operating the line. The TE/VS Interconnect

would not, however, change the regional or localize demand for power. Any change in indirect power plant emissions resulting from energy imports with the TE/VS Interconnect would be similar to what would occur in the absence of that facility. With the TE/VS Interconnect, increased power production would occur at plants (including renewable energy facilities and natural gas–fired power plants) primarily located outside the San Diego region and the operation of certain power plants located inside the region could be expected to decrease. Although emissions of criteria pollutants and toxic air contaminants would increase at some power plant locations outside San Diego County, the TE/VS Interconnect would not change the demand for power and emissions from those plants would occur only within prescribed limits. The resulting air quality impacts attributable to power plant operation would be adverse but less than significant (Class III).

Impact AQ-4: Project activities would cause a net increase of greenhouse gas emissions (Class I).

Developing the TE/VS Interconnect would result in the release of greenhouse gas (GHG) emissions both during construction and during facility operation. Those emissions would, in whole or in part, be offset by the indirect decreases in CO_2 emissions from power plants within the San Diego region. Operational-phase GHG emissions would also occur with routine maintenance and inspections of the transmission line and with direct fugitive emissions of sulfur hexafluoride (SF_6) used in the operation of the electrical switchgear.

The construction-phase GHG emissions and operational-phase emissions, including SF_6 fugitives, would partially be offset by GHG reductions at power plants, but, depending on the source of off-peak power used during pumping operations of LEAPS, an overall net increase of GHG emissions could likely occur. Although the resulting increase in GHG emission would likely be significant (Class I), to the extent that the TE/VS Interconnect is able to allow for or facilitate the importation of renewable wind, solar, geothermal, and hydroelectric power from outside the local air basins, GHG emissions would be expected to reduce since LEAPS operation would reduce emissions from in-basin fuel-powered power plants.

5.3.2 LEAPS - Air Quality Impacts

According to CARB, air pollution is one of the State's most serious problems (CARB, 2005a). CARB, as part of the California Environmental Protection Agency (CalEPA) is the State board responsible for achieving and maintaining healthful air in California. Local air districts along with the United States Environmental Protection Agency (EPA) also share this responsibility. The reasons for the State's air quality problems include the following: (1) a large population (approximately 37 million and growing), which translates into a high number of vehicle miles traveled and associated vehicle emissions; (2) a geography with the most heavily populated areas of the State being valleys or basins hemmed in by mountains; and (3) a climate of hot, stagnant summer air that traps air pollutants in heavily populated basins and valleys. High temperatures catalyze photochemical production of ozone from precursor air pollutants, and ozone is an unhealthful constituent of smog. Sources of air emissions in California include stationary sources (e.g., commercial facility operations), area-wide sources (e.g., fugitive dust, residential fireplaces), mobile sources (e.g., on-road vehicles and trucks, aircraft, boats, trains), and natural sources (e.g., biogenic and geogenic hydrocarbons, natural windblown dust, wildfires).

To maintain acceptable ambient air quality and protect public health, the State and federal governments have adopted ambient air quality standards for criteria or indicator air pollutants. An ambient air quality standard establishes the concentration above which the pollutant is known to cause adverse health effects to sensitive groups within the population, such as children and the elderly. The goal is for localized effects not to cause or contribute to an exceedance of these standards. Ambient air quality standards are classified as either "primary" or "secondary" standards. Primary standards define levels of air quality, including an adequate margin of safety, necessary to protect the public health. National secondary ambient air quality standards define levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant. The criteria pollutants for which standards have been established are carbon monoxide (CO), lead (Pb), ozone (O_3), nitrogen dioxide (NO_X), particulate matter (PM_{10} and $PM_{2.5}$), and sulfur dioxide.

Brief descriptions for the three most relevant criteria pollutants are provided below.

- **Carbon Monoxide** (CO). Carbon monoxide is a colorless, odorless gas that is directly emitted as a byproduct of combustion. Principal sources of CO emissions are motor vehicles, and the highest concentrations of this gas occur under cold, stagnant weather conditions. CO is harmful because it is absorbed through the lungs into the blood stream and reduces the ability of the blood to transport oxygen. As a result, the blood supply to the heart, lungs, and other tissues is reduced, with potentially critical consequences for the sick and elderly.

- **Particulate Matter** (PM_{10} and $PM_{2.5}$). Particulate matter (PM) is a mixture of different substances including metals, carbon, nitrates, sulfates, organic compounds, and complex mixtures such as diesel exhaust and soil. Particulate matter has been classified as either PM_{10} or $PM_{2.5}$ material. PM_{10} particulates, which have an aerodynamic diameter of 10 microns or smaller, are referred to as "respirable" material because they are small enough to penetrate into inner regions of the lungs where they can be harmful to human health. $PM_{2.5}$ particulate matter, which is even finer (aerodynamic diameter of 2.5 microns or smaller), can deposit deeper in the lungs when inhaled. Exposure to particulate matter aggravates respiratory illnesses and is especially harmful to people with pre-existing heart and lung diseases. Particulate matter (including PM_{10} and $PM_{2.5}$) can either be directly emitted (e.g., dust or soot) or formed in the atmosphere from precursor gaseous emissions, including nitrogen oxides, sulfur oxides and ammonia. Based on EPA estimates, the largest contributor to PM_{10} levels nationwide is fugitive dust, which accounts for 89 percent of the total particulate matter. EPA also estimates that approximately 14 percent of fugitive dust is attributable to construction activities and 9 percent to re-suspension on paved roads.

- **Ozone.** Ozone is a colorless, odorless gas that constitutes the main component of urban smog. Ozone is not directly emitted as a pollutant, but is formed when precursor hydrocarbon and nitrogen oxides emissions react photochemically in the presence of sunlight. Stagnant air or low wind speeds and warm temperatures provide optimum conditions for ozone formation. Ozone irritates the lungs and damages the respiratory system. For most of the criteria air pollutants, State standards are more stringent than the federal standard because of inferences from different health effects studies and incorporation of a higher margin of safety to protect sensitive individuals.

CAAQS and NAAQS for criteria pollutants are presented in Table 5.3.2-1 (State and Federal Ambient Air Quality Standards).

Table 5.3.2-1. State and Federal Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards	Federal Standards	
			Primary	Secondary
Ozone (O_3)	1 hour 8 hour	0.09 ppm (180 µg/m^3) -	0.12 ppm (235 µg/m^3) 0.08 ppm (157 µg/m^3)	Same as primary standard
Respirable Particulates (PM_{10})	24 hour Annual mean	50 µg/ m^3 20 µg/ m^3	150 µg/m3 50 µg/m^3	Same as primary standard
Fine Particulates ($PM_{2.5}$)	24 hour Annual mean	No standard 12 µg/ m^3	65 µg/m^3 15 µg/m^3	Same as primary standard
Carbon Monoxide (CO)	8 hour 1 hour	9 ppm (10 mg/m^3) 20 µg/ m^3 (23 mg/m^3)	9 ppm (10 mg/m^3) 35 µg/m^3 (40 mg/m^3)	None
Nitrogen Dioxide (NO_2)	Annual mean 1 hour	- 0.25 ppm (470 µg/m^3)	0.053 ppm (100 µg/m^3) -	Same as primary standard
Sulfur Dioxide (SO_2)	Annual 24 hour 3 hour - 1 hour	- 0.04 ppm (105 µg/m^3) - - 0.25 ppm (655 µg/m^3)	0.03 ppm (80 µg/m^3) 0.03 ppm (80 µg/m^3) - - -	- - 0.03 ppm (80 µg/m^3) (1,300 µg/m^3) 1

Source: CARB (2005b)

The California Health and Safety Code defines a toxic air contaminant (TAC) as an air pollutant that may cause or contribute to an increase in mortality or in serious illness or that may pose a present or potential hazard to human health. Unlike the criteria pollutants for which adverse health effects are not expected to occur below the ambient air quality standards (concentrations), there are no threshold concentration that do not pose health risks for any of the toxic air contaminants. The CARB monitors the emissions of ten TACs that have been identified to pose the greatest outdoor ambient public health risks. Of those, the CARB considers diesel particulate matter (diesel PM) to pose the greatest health risks. Diesel PM is not a single substance but a complex mix of hundreds of substances emitted by diesel-fueled internal combustion engines and influenced by engine/fuel type and operating characteristics.

To better manage common air quality problems, California is divided into 15 air basins, each of which is associated with an air quality management district (AQMD) or air pollution control district (APCD). According to CARB, an air basin generally follows political boundary lines and is defined to include both source areas and receptor areas. However, because air masses can move freely from basin to basin, interbasin transport of pollutants is unavoidable. The Project is located within Riverside, Orange, and San Diego Counties. Orange County is located in the SCAB. Riverside County is partitioned into the following three air basins: SCAB, Salton Sea Air Basin, and Mojave Desert Air Basin. San Diego County is located within the SDAB.

Both the State and federal governments use ambient air monitoring data to classify areas according to their attainment status with respect to the criteria pollutants. The designations are used to identify areas with air quality problems and help determine whether project emissions would be significant under the NEPA and California Environmental Quality Act assessments. The three basic designation categories are: (1) Attainment (indicates that ambient air quality is not in violation of the established standard for the specific criteria pollutant); (2) Nonattainment (indicates that the ambient air quality violates the ambient air quality standard for the specific air pollutant); and (3) Unclassified (indicates that there is currently insufficient data for determining attainment or non-attainment). In addition to the above three designations, California includes a

subcategory of the nonattainment designation, called Nonattainment-transitional (this designation is given to non-attainment areas that are making progress and nearing attainment).

Overall, based on CARB 2004 monitoring data, the air basins within the Project area are in attainment for nitrogen dioxide and sulfur dioxide, non-attainment for ozone and PM_{10}, and mixed classification for carbon monoxide and $PM_{2.5}$. The State attainment classifications for the criteria pollutants and "visibility reducing particulates" for the component air basins are summarized in Table 5.3.2-2 (California State Area Designations for Criteria Air Pollutants).

Table 5.3.2-2. California State Area Designations for Criteria Air Pollutants[1]

Component Air Basin	CO	PM_{10}	$PM_{2.5}$	O_3	NO_2	SO_2	VRP
South Coast Air Basin (Riverside County)	A	N	N	N	A	A	U
South Coast Air Basin (Orange County)	A	N	N	N	A	A	U
Salton Sea Air Basin (Riverside County)	A	N	N	N	A	A	U
Mojave Desert Air Basin (Riverside County)	U	N	N	N	A	A	U
San Diego Air Basin (San Diego County[2])	Ta	N	A	N	A	A	U

1. A = Attainment; CO = Carbon Monoxide; N = Non-Attainment; NO_2 = Nitrogen Dioxide; O_3 = Ozone; $PM_{2.5}$ = Fine Particulate Matter; PM_{10} = Respirable Particulate Matter; SO_2 = Sulfur Dioxide; Ta = Non-Attainment-Transitional; U = Unclassified; and VRP = Visibility Reducing Particles.
2. CO monitoring for San Diego Air Basin stopped in 1992.

Source: CARB (2004)

The 1990 amendments to the Federal Clean Air Act (CAA) require federal agencies to conform to applicable State Implementation Plans (SIPs) in non-attainment areas. State Implementation Plans are State air quality regulations that provide for the implementation, maintenance, and enforcement of the NAAQS and include emission limitations and control measures to attain and maintain the standards. Federal agencies are required to determine if proposed actions conform to the applicable SIP. The EPA has developed two conformity regulations for transportation and non-transportation projects. Transportation projects are governed by the "transportation conformity" regulations (40 CFR Parts 51 and 93). Non-transportation projects are governed by the "general conformity" regulations (40 CFR Parts 6, 51, and 93) described in the final rule for "Determining Conformity of General Federal Actions to State or Federal Implementation Plans." Since the Project is a non-transportation project, only the general conformity rule applies. If required by local or State laws, the Applicant would need to conduct a preliminary air conformity analysis prior to commencing any construction.

The SCAB is the State's largest metropolitan region. Because of the geography (surrounding mountainous terrain), warm climate, and stagnant air conditions, the SCAB is particularly prone to air quality problems. To ensure continued progress toward clean air and compliance with State and federal requirements, the SCAQMD in conjunction with CARB and the SCAG develops and updates Air Quality Management Plans (AQMPs) that contain tactics and strategies for reducing air pollutant emissions. The current 2007 AQMP proposes policies and measures to achieve federal and State standards for healthful air in the SCAG area.

Relevant rules and regulations incorporated in the 2007 AQMP include: (1) Rule 402 (requires implementation of dust suppression techniques to prevent fugitive dust from creating a nuisance off site); (2) Rule 403 (requires use of best available technologies to reduce the amount of PM [dust] entrained in ambient air as a result of anthropogenic [human-made] activities); and (3) Rule 1402 (limits asbestos emissions from building demolition or renovation activities).

Similarly, SDAPCD's Rule 51 (Nuisance) regulates the discharge of nuisance air contaminants including dust.

Construction of the Decker Canyon Reservoir, LEAPS Powerhouse, and other appurtenant facilities would result in air emissions, including CO and other gaseous emissions associated with heavy equipment, delivery and dirt hauling trucks, worker vehicles, paints and coatings, and dust from grading, surface preparation and earth-moving equipment. The Applicant would comply with local and State requirements to minimize the effects of construction on air quality.

Development of LEAPS would result in air emissions from construction equipment, earth moving activities, construction workers commutes, material deliveries and earth hauling. Based upon a description of construction activities presented in Chapter 3 (Project Description), the following parameters were estimated for the construction phase: types and number of construction equipment, number of construction personnel, and number of material delivery trips. Using emission factors from SCAQMD, air emissions from each component were calculated. The construction period and operational period is not anticipated to overlap.

Peak-day emissions are the sum of the highest daily emissions from employee vehicles, fugitive dust sources, construction equipment and transport activities. For CO, VOC, NOx, and SO, the emissions from construction workers' commutes, use of delivery, hauling, and work trucks, and construction equipment use were added. For PM_{10}, the emissions from the following construction-related activities have been added: fugitive dust emissions from vehicle travel on paved and unpaved roads, earth moving operations, earth loading and unloading, and wind erosion of stockpiles and disturbed areas; and tailpipe emissions from construction workers' commutes; delivery, hauling and work trucks; and diesel-fueled construction equipment.

As shown in Tables 5.3.2-3 (Estimated Air Emissions from LEAPS Construction Activities), there would be a short-term increase in air emissions from construction activities during the construction period. However, with the exception of NOx, air emissions during construction would not be expected to exceed the SCAQMD significance threshold.

Table 5.3.2-3. Estimated Air Emissions from LEAPS Construction Activities

Emission Source	Peak Day Emissions (pounds/day)				
	NOx	VOC	CO	SO_2	PM_{10}
On-road Emissions	524	35.8	251.9	5	10.3
Off-road Emissions	355.1	34.7	134.4	54.5	19.4
Fugitive Dust	N/A	N/A	N/A	N/A	10.7
Total Emissions	879.5	70.5	386.3	59.5	40.4
SCAQMD Significant Thresholds	55	75	550	150	150
Significant	Yes	No	No	No	No
Note: VOC – volatile organic compound					

Source: The Nevada Hydro Company, Inc.

In addition, construction activities (i.e., blasting and other activities) could result in temporary effects on surrounding air quality and meteorological conditions in excess of those estimated herein. Compliance with local and State air pollution measures, including a fugitive dust control plan, would minimize these effects.

Prevention of Significant Deterioration (PSD) and New Source Review (NSR) regulations require an analysis of Class I visibility impacts and increment consumption for any source located within 100 kilometers (km) of a federal Class I area. Lands designated as Class I areas under the Clean Air Act Amendments of 1977 are afforded the highest level of protection from air pollutants in the nation. These lands consist of national wildernesses (Forest Service), parks (National Park Service) and wildlife refuges (U.S. Fish & Wildlife Service) in existence at the time the amendment was passed. All other lands in the nation are designated as Class II. The following five mandatory federal Class I Areas are located within 100 km of the site: Agua Tibia Wilderness Area, San Gorgonio Wilderness Area, Joshua Tree Wilderness Area, San Jacinto Wilderness Area, and Cucamonga Wilderness Area. The main concern in these areas would be the potential impact on visibility and vegetation, primarily due to fugitive dust emissions. It is anticipated that the air quality and visibility impacts of the facility's operation would be well below levels at which visibility and/or air quality impacts in a Class I area would be affected.

LEAPS operation would result in minor vehicle trips and electrical power consumption for O&M of proposed facilities. Air pollutant emissions associated with O&M activities would be minimal and would not exceed SCAQMD significance thresholds for operation.

From an operational perspective, as indicated in Chapter 3 (Project Description), the maximum pumping load to refill the upper reservoir would be about 600 MW which would generally consumed during off-peak periods at night and on weekends. Pumping energy requirements would exceed generation, resulting in an average annual net generation deficit of approximately 312,000 MWh. This energy deficit would need to be offset by other forms of electrical generation. The typical generation mix for electric generation in California is presented in Table 5.2.2-4 (Typical Electric Generation Map for California).

Table 5.3.2-4. Typical Electric Generation Mix for California

Generation	Overall (percent)
Natural Gas	41.9
Nuclear	12.9
Large Hydro	14.8
Coal	19.8
Renewable	10.6
Total	100.0

Source: SCAQMD (1993)

Most of these resources are committed during off-peak periods. However, for the purpose of assessing air quality impacts, it is assumed that, in the future, coal-fired and natural gas-fired generation would be available at the margin and likely bracket the environmental effects of off-peak generation to supply pumped storage. Barring secure contracts with other resource types, these sources, therefore, represent possible scenarios for such generation.

Excluding the use of renewable energy resources, such as wind, for the purpose of an air quality assessment, the overall emissions from the operation of the proposed action have been evaluated based upon best and worse-case emission scenarios—the best-case emission scenario being all electric generation supplied by gas-fired combined cycle turbines and the worst-case emission scenario being coal-fired generation with operation of the pumps (1,872,000 MWh).

Annual emissions for a no-action alternative have also been estimated assuming gas-fired generation using a simple cycle turbine. A simple-cycle turbine plant was assumed because it is considered "state of the art" and may be the most easily permitted and thus most likely generation source in the case of no-action. For the no-action alternative, annual emissions were calculated assuming that the generated (1,560,000 MWh) would need to be offset by the construction of a new facility. These emissions have been calculated using emissions factors from two sources: (1) State average emission factors presented in EPA's Emissions & Generation Resource Integrated Database (eGRID) for emissions of NOx and SO_2 (EPA, 2005a), and (2) worst-case emission factors by source type presented in EPA (1995) for other pollutants.

Based upon this methodology, emissions from the proposed action and a no-action alternative are presented in Table 5.3.2-5 (Comparison of Emissions between Project and No Action).

Table 5.3.2-5. Comparison of Emissions between Project and No Action

Scenario	Generation Technology	Annual Generation (MWH)	Annual Emissions (tons/year)				
			CO	VOC	NO_X	SO_2	$PM_{10}/PM_{2.5}$
No Action	Gas-Fired Simple Cycle Turbine	1,560,000	113.7	15.9	560.8	15.6	90.9
Proposed Action (Best Case)	Gas-Fired Combined Cycle Combustion Turbine	1,872,000	136.4	19.1	673.0	18.7	109.1
Proposed Action (Worst Case)	Coal-Fired Generation	1,872,000	120.6	8.0	6,250.6	6,354.9	2,653.6

Source: EPA (2005b)

Based upon the worst-case (coal-fired generation) scenario, the proposed action would produce approximately 6.9 tons/year more CO than the no-action alternative, 7.9 tons/year less VOC emissions, and considerably greater emissions for NO_X, SO_2, and $PM_{10}/PM_{2.5}$.

5.3.3 Project - Air Quality Impacts

Impacts to air quality from the TE/VS Interconnect are presented in Section 5.3.1. Impacts to air quality from LEAPS are presented in Section 5.3.2. The cumulative air quality impacts resulting from the implementation of the Project (inclusive of both transmission and generation) would be similar to the combined effects presented in those two preceding sections.

5.4 Biological Resources

Impacts on biological resources attributable to the TE/VS Interconnect are discussed in Section 5.4.1. Impacts on biological resources associated with LEAPS are presented in Section 5.4.2. Potential cumulative impacts on biological resources relating to the Project (inclusive of both transmission and generation) are presented in Section 5.4.3.

5.4.1 TE/VS Interconnect - Biological Resource Impacts

TE/VS Interconnect

Vegetation mapping for the TE/VS Interconnect was conducted by Michael Brandman Associates (MBA) (Figures Ap.8K-1 through Ap.8K-6 in Appendix 8K of the Sunrise

DEIR/DEIS) and HELIX Environmental Planning, Inc. (HELIX) (Figure Ap.8K-6 in Appendix 8K also of the Sunrise DEIR/DEIS).

The Lake-Santa Rosa segment (MP 0 to MP 12.6) of the TE/VS Interconnect would cross a variety of vegetation communities; the predominant plant communities are non-native grassland from approximately the I-15 Freeway to the north and northern mixed chaparral from the I-15 Freeway south to MP 12.6. The predominant vegetation communities along the Case Springs-Santa Rosa segment (MP 12.6 to MP 31.8) of the transmission line are also northern mixed chaparral and non-native grassland. The transmission line facilities (Lake Switchyard, Santa Rosa and Case Springs Substations, access roads, and construction staging areas) would be primarily located in areas supporting predominantly northern mixed chaparral, coastal sage scrub, non-native grassland, and coast live oak woodland. In addition the proposed 500-kV transmission line would cross nine named drainages. The largest drainage features crossed by the transmission line include Temescal Creek (a tributary of Santa Ana River) and Los Alamos Creek (a tributary of San Mateo Creek). These vegetation types and the riparian areas located along the creeks provide habitat for a wide range of species and they support, or have the potential to suppor, a number of special status species.

The TE/VS Interconnect crosses through or is located, in part, within the National Forest, Camp Pendleton, and Fee and Core Reserve Areas for the Stephens' kangaroo rat (SKR). Although a portion of the TE/VS Interconnect occurs in special habitat management areas for the SKR, focused surveys were not conducted for that species; therefore, the SKR is assumed to be present within those Fee and Core Reserve Areas.

Segments of the TE/VS Interconnect occurs within designated critical habitat for the Quino checkerspot butterfly (QCB), coastal California gnatcatcher (CGN), and Munz's onion. QCB critical habitat occurs north of the I-15 Freeway. CGN critical habitat occurs along the northern portion of the transmission line route, at the Lake Switchyard, and along several access roads (Figure Ap.8K-1 in Appendix 8K of the Sunrise DEIR/DEIS). Designated critical habitat for the Munz's onion occurs south of the I-15 Freeway and within the National Forest (near Elsinore Peak), just within the 500-foot wide study corridor initially used to assess the potential impacts for the TE/VS Interconnect.

Four special status (listed or sensitive) plant species were documented along or near the route of the TE/VS Interconnect and substations during six years of focused surveys, including Munz's onion, heart-leaved pitcher sage, rainbow Manzanita, and Hammitt's clay-cress. The following special status (non-listed, sensitive plant species have a moderate- to-high potential to occur based on the habitats present and/or documented CNDDB or Forest Service records; however, they, although it is likely that most of these species would have been observed during the six years of focused plant surveys (where they were conducted) if they were present: Davidson's saltscale, thread-leaved brodiaea, Orcutt's brodiaea, long-spined spineflower, summer holy, slender-horned spineflower, many-stemmed dudley, sticky dudleya, San Diego button-celery, Coulter's goldfields, Parish's meadowfoam. Hall's monardella, California Orcutt grass, San Miguel savory, and Parry's tetracocus.

Although no listed wildlife species were documented the listed QCB, arroyo toad, CGN, least Bell's vireo (LBV), and southwestern willow flycatcher (SWF) are believed to have moderate-

to-high potential to occur based on the habitats present and the facilities' location in designated critical habitat (for the QCB and CGN). Multiple years of USFWS protocol surveys were conducted for these species, including six consecutive years QCB, four years for arroyo toad and six consecutive years for coastal CGN, LBV, and SWF. During these multi-year surveys, none of these species were observed. However, the State-listed bald eagle has high potential to fly through the study area to forage at Lake Elsinore.

The following non-listed, sensitive wildlife species were documented along or near the route of the TE/VS Interconnect, although they were not observed during surveys: coastal California newt, coastal rosy boa, red-diamond rattlesnake, coast (San Diego) horned lizard, two-striped garter snake, Cooper's hawk, Southern California rufous-crowned sparrow, loggerhead shrike, and California spotted owl. In addition, the following non-listed, sensitive wildlife species have moderate to high potential to occur along or near the route of the TE/VS Interconnect, based on the habitats present and/or documented CNDDB or Forest Service records, although they were not observed during surveys: western spadefoot toad, Belding's orange-throated whiptail, San Diego ringneck snake, southwestern pond turtle, Coronado skink, San Diego mountain kingsnake, long-eared owl, burrowing owl, white-tailed kite, northwestern San Diego pocket mouse, and western red bat.

The National Forest Management Act of 1982 requires that the Forest Service address Management Indicator Species (MIS) during the development of forest plans (USDA, 2005). The following five MIS are known to occur in the general area: Engelmann oak, mountain lion, mule deer, song sparrow, and California spotted owl. One other MIS, the arroyo toad, has potential habitat in the area but the species was not found during focused surveys.

Potential biological resource impacts associated with the TE/VS Interconnect and Talega-Escondido 230-kV Transmission and Substations Upgrades are summarized in Table 5.4.1-1 (TE/VS Interconnect/Talega-Escondido Upgrades – Biological Resource Impacts). The TE/VS Interconnect and Talega-Escondido upgrades are separately addressed below.

Impact B-1: Construction activities would result in temporary and permanent losses of native vegetation (Class I for sensitive vegetation and vegetation management; Class III for non-sensitive vegetation and type conversion).

Construction of the TE/VS Interconnect would cause both temporary (during construction from vegetation clearing) and permanent (displacement of vegetation with facilities such as towers, permanent access roads, substation and switchyard sites) impacts to existing vegetation communities (Table 5.4.1-2). Construction activities would also result in the alteration of soil conditions, including the loss of native seeds and changes in topography and drainage, such that the ability of a site to support native vegetation after construction may be impaired.

Table 5.4.1-1. TE/VS Interconnect/Talega-Escondido Upgrades – Biological Resource Impacts

Impact	Description	Significance[1]
B-1	Construction activities would result in temporary and permanent losses of native vegetation.	I, II
B-2	Construction activities would result in adverse effects to jurisdictional waters and wetlands through vegetation removal, placement of fill, erosion, sedimentation, and degradation of water quality.	II
B-3	Construction and operation/maintenance activities would result in the introduction of invasive, non-native, or noxious plant species.	II
B-4	Construction activities would create dust that would result in degradation of vegetation.	II
B-5	Construction activities would result in direct or indirect loss of listed or sensitive plants or a direct loss of habitat for listed or sensitive plants.	I
B-6	Construction, including the use of access roads, would result in disturbance to wildlife and result in wildlife mortality.	III
B-7	Construction activities would result in direct or indirect loss of listed or sensitive wildlife or a direct loss of habitat for listed or sensitive wildlife (includes Impacts B-7A through B-7O for individual wildlife resources).	I, II, IV
B-8	Construction activities would result in a potential loss of nesting birds (violation of the Migratory Bird Treaty Act).	II
B-9	Construction or operational activities would adversely affect linkages or wildlife movement corridors, the movement of fish, and/or native wildlife nursery sites.	I, II, III, IV
B-10	Presence of transmission lines may result in electrocution of, and/or collisions by, listed or sensitive bird species.	I, II, III
B-11	Presence of transmission lines may result in increased predation of listed and sensitive wildlife species by ravens that nest on transmission towers.	III
B-12	Maintenance activities would result in disturbance to wildlife and could result in wildlife mortality.	II, III

Source: The Nevada Hydro Company, Inc.

Impacts to sensitive vegetation communities would be significant according to Significance Criteria 2.a (Substantial adverse effect on a riparian habitat or other sensitive natural community by temporarily or permanently removing it during construction, grading, clearing, or other activities). This impact is assumed to not to be mitigable to less-than-significant level (Class I) because it is unknown if enough mitigation lands are available to compensate for the impacts because adequate suitable land may not be available to compensate for the impacts. However, if off-setting compensatory resources could be identified and if that compensation were accepted by applicable resource agencies, this impact could be reduced to a less-than-significant level.

Implementation of APM B-1a(LE) and B-1c(LE) is recommended to, in whole or in part, compensate for impacts to sensitive vegetation communities. The full text of these APMs can be found in Attachment 5 (Applicant Proposed Measures).

Impacts to non-sensitive vegetation (disturbed habitat) would be adverse but less than significant (Class III) and no mitigation is required.

A substantial number of coast live oak trees would be removed to maintain proper clearance between vegetation and the transmission lines along the entire length of the TE/VS Interconnect, including an estimated 80 coast live oak/Engelmann oak trees removed for construction of the Case Springs Substation. The loss of native trees and shrubs could be a potentially significant impact (Class I) if such loss were to result in: (1) Substantial adverse effect on candidate, sensitive, or special status species (Significance Criteria 1); (2) Substantial adverse effect on riparian habitat or other sensitive natural community (Significance Criteria 2); (3) Substantial adverse effect on federally protected water quality or wetlands (Significance Criteria 3); (4) Interfere with wildlife movement or the use of native wildlife nursery sites (Significance Criteria 4);

and/or (5) Conflict with local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance (Significance Criteria 5).

Table 5.4.1-2. TE/VS Interconnect - Impacts to Vegetation Communities (acres)

Vegetation Community	Transmission Temporary Tower	Transmission Permanent Tower	Lake Switchyard	Case Springs Substation	Access Roads	Total Temporary Impacts	Total Permanent Impacts
Non Native Vegetation, Developed Areas, and Disturbed Habitat							
Disturbed Habitat	1.5	0.3	22.0	1.1	8.4	1.5	31.8
Coastal and Montane Scrub Habitats							
Coastal sage scrub	0.3	0.1	3.6	0	0	0.3	3.7
Grasslands and Meadows							
Native grasslands	0	0	0	3.1	0	0	3.1
Non-native grasslands	5.5	1.1	13.2	12.4	11.5	5.5	38.2
Non-native grassland (disturbed)	0	0	0	1.9	0	0	1.9
Chaparrals							
Chamise chaparral	0	0	0	3.8	0	0	3.8
Chamise chaparral (disturbed)	0	0	0	0.13	0	0	0.13
Northern mixed chaparral	18.6	3.5	0	0	43.7	18.6	47.2
Woodlands and Forests							
Coast live oak woodland	0.2	0.1	0	5.9	0.8	0.2	6.8
Engelmann oak woodland	0	0	0	2.4	0	0	2.4
Riparian Scrubs							
Mule fat scrub	0	0	0	0.18	0	0	0.18
Southern willow scrub	0	0	0	0.4	0	0	0.4
Riparian Forests and Woodlands							
Southern coast live oak riparian forest	0	0	0	1.5	0	0	1.5
Riparian woodland	0	0	0	0.12	0	0	0.12
Total	26.1	5.1	38.8	32.9	64.4	26.1	141.2

1. It is assumed that construction staging for the substation and switchyard sites would occur on those sites. Should any impacts exceed those shown in the table above, as determined during monitoring activities recommended in APM B-1c(LE), additional mitigation may be required as outlined in APM B-1a(LE).

Source: The Nevada Hydro Company, Inc.

Native shrubs may also need to be removed as well as non-native trees or shrubs that may be present. The loss of non-native trees or shrubs would usually be an adverse but less-than-significant impact (Class III) because they are non-native and typically do not support special status wildlife species. However, removal of a native or non-native tree or shrub that contains an active bird (raptor) nest could be a violation of the Migratory Bird Treaty Act (MBTA) and a potentially significant impact but would be mitigable to a less-than-significant level (Class II) through the implementation of APMs B-1f through B-1i, B-2b, B-2c, B-6b, B-8a(LE), and B-8b. The full text of these APMs can be found in Attachment 5 (Applicant Proposed Measures).

In the absence of an estimate of the number of trees that would need to be trimmed, for the purpose of this analysis, it was assumed that all trees would need to be removed. Although some percentage of the trees could be retained, pending the development of final construction plan, a precise estimation cannot be provided.

Removal and/or trimming of a native tree or shrub containing an active bird (raptor) nest could also be a violation of the MBTA and a potentially significant impact but would be mitigable to a less-than-significant level (Class II). Removal and/or trimming of non-native trees or shrubs would usually be an adverse but less-than-significant impact (Class III) because they are non-native and usually do not support special status wildlife species. However, trimming a non-native tree or shrub containing an active bird (raptor) nest could be a violation of the MBTA and a potentially significant impact but would be mitigable to less-than-significant level (Class II) through the implementation of APMs B-1f through B-1i, B-2b, B-2c, B-6b, B-8a(LE), and B-8b. The full text of these APMs can be found in Attachment 5 (Applicant Proposed Measures).

See also the discussion in Impact B-8 for how construction activities (including tree trimming) could result in a potential loss of nesting birds and violation of the MBTA.

Trimming up to 30 percent of a native tree's crown would diminish the tree's value as wildlife habitat and could cause harm to the tree leading to its decline or death. Therefore, native tree trimming would be significant according to Significance Criterion 1, 2, 4, and 5. The loss (or trimming) of a large number of native trees would likely be a significant impact (Class I) not be mitigable to a less-than-significant level because adequate mitigation lands required by APM B-a(LE) for restoration and/or compensation may not be available. However, if off-setting compensatory resources could be identified and if accepted by applicable resource agencies, this impact could be reduced to a less-than-significant level. APM B-1a(LE) is recommended to reduce the impacts to the greatest extent feasible. The full text of this APM can be found in Attachment 5 (Applicant Proposed Measures).

The construction and operation of new transmission lines in areas with high fire risk could contribute to wildfire hazards by reducing the effectiveness of fire fighting efforts. Independent of the cause, fires cause direct loss of vegetation communities, wildlife habitat, and wildlife species. Although periodic fires are part of the natural ecosystem, fires burning too frequently can have significant long-term ecological effects, such as degradation of habitat (temporal loss of habitat and non-native plant species invasion) and loss of special status species. The biodiversity of southern California is uniquely adapted to low rainfall, rugged topography, and wildfires. However, fires have become more frequent with growth in the human population, creating a situation in which vegetation communities and, therefore, habitats for plant and animal species are changed dramatically and may not recover. This change in vegetation community is called "type conversion" and can occur to any native vegetation community. When burned too frequently, vegetation communities are often taken over by highly flammable, weedy, non-native plant species that provide minimal habitat value for native plant and animal species, especially those of special status. For example, the CGN is dependent primarily on coastal sage scrub vegetation which, if burned too many times, can convert to non-native grassland or disturbed habitat that might preclude its use by the CGN. If the TE/VS Interconnect were to cause a fire or inhibit fighting of fires and this were to lead to type conversion of sensitive vegetation communities, the impact would likely be significant (Class I) according to Significance Criteria 1 (Substantial adverse effect through habitat modification on any species identified as candidate, sensitive, or special status) and/or Significance Criteria 2 (Substantial adverse effect on a riparian habitat or other sensitive natural community).

A type conversion or substantial degradation of a native plant community from either multiple fire events or other causes would likely constitute a significant impact (Class I) because of the severity of the habitat loss. While the impact would likely be significant and not mitigable to a less-than-significant level, independent analysis conducted by the Commission (CPUC, 2008) concludes that transmission lines are not a principal cause of wildland fires. Since the TE/VS Interconnect would not be a primary contributor to any such event, the impact attributable to the TE/VS Interconnect would be less than significant (Class III) and no mitigation is required.

Mitigation for fire risks is further discussed in Section 5.16 (Fire and Fuel Management).

Impact B-2: Construction activities would result in adverse effects to jurisdictional waters and wetlands through vegetation removal, placement of fill, erosion, sedimentation, and degradation of water quality (Class II).

The TE/VS Interconnect would cross nine named drainages. A number of these drainage features crossed by the transmission line qualify as either WoUS (under the jurisdiction of the USACE) and/or WoS (under the jurisdiction of the CDFG). The largest drainage features crossed by the transmission line area include Temescal Creek (a tributary of Santa Ana River) and Los Alamos Creek (a tributary of San Mateo Creek). Many of the small drainage features appear to be ephemeral, as indicated by the lack of hydrophytic vegetation (EVMWD, 2007).

Jurisdictional waters and wetlands were surveyed at the TE/VS Interconnect during October 2007 (MBA, 2007). Three features (two drainages and one swale) were identified within the Lake Switchyard site. Three ephemeral drainages with associated tributaries were identified within the Case Springs Substation site. Based on the jurisdictional delineation, the Lee Switchyard contains a total of approximately 0.40 acres of WoUS (under the jurisdiction of the USACE) and 0.44 acres of the WoS (under the jurisdiction of the CDFG). The portion of the survey area that would be affected by the development of the Lake Switchyard consists of a total of approximately 0.32 acres of USACE jurisdictional waters.

Construction of the Case Springs Substation would affect approximately 3.97 acres of WoUS and about 1.18 acres of non-wetland and 0.02 acres of wetland WoS. Although no acreage estimates have been developed for the Case Springs Substation, but the following vegetation communities are present at the site that are often jurisdictional: southern willow scrub, mule fat scrub, and southern coast live oak riparian forest.

Impacts to jurisdictional waters is potentially significant (Class II) according to Significance Criteria 3.a (Substantial adverse effect on water quality or wetlands as defined by the USACE and/or CDFG) and Significance Criteria 3.b (If the project fails to provide an adequate buffer to protect the function and values of existing wetlands) but would be mitigable to a less-than-significant level (Class II) with the implementation of APM B-2a(LE). The full text of this APM can be found in Attachment 5 (Applicant Proposed Measures).

Impact B-3: Construction and operation/maintenance activities would result in the introduction of invasive, non-native, or noxious plant species (Class II).

A variety of invasive, non-native plant species are known to occur in the TE/VS Interconnect study area. These include red brome, black mustard, castor bean, tree tobacco, Russian thistle, yellow sweet clover, bristly ox-tongue, and giant reed.

Construction of TE/VS Interconnect would cause soil disturbance which creates conditions that promote the establishment and spread of invasive, non-native plant species. These species may be carried into and out of the area by construction equipment or in fill material. In addition, during TE/VS Interconnect operation, weed establishment and spread would be a continuing consideration as a result of off-road vehicles on access roads. This activity could cause soil disturbance, introduce more weed seed, and promote the spread of weeds. The introduction and spread of invasive, non-native, or noxious plant species in these areas would be potentially significant (Class II) but would be mitigable to less-than-significant level (Class II) through the implementation of APMs B-3a and B-15b. The full text of this APM can be found in Attachment 5 (Applicant Proposed Measures).

Impact B-4: Construction activities would create dust that may result in degradation of vegetation (Class II).

Construction activities such as grading, tower footing excavation, and driving of heavy equipment on unpaved roadways would result in increased levels of blowing dust that may settle on surrounding vegetation. Increased levels of dust can significantly impact plants' photosynthetic capabilities and degrade the overall vegetation community. This impact is potentially significant but mitigable to a less-than-significant level (Class II) with implementation of APM B-4a(LE), both of which require development and implementation of erosion control plans. The full text of this AMP can be found in Attachment 5 (Applicant Proposed Measures).

Impact B-5: Construction activities would result in direct or indirect loss of listed or sensitive plants or a direct loss of habitat for listed or sensitive plants (Class I).

One listed (Munz's onion) and three non-listed, sensitive (Rainbow manzanita, Hammitt's claycress, and heart-leaved pitcher sage) plant species were documented along or near the route of the TE/VS Interconnect. The Munz's onion was observed near the route, and its designated critical habitat is, at its closest, approximately 125 feet west of the route tower location south of the I-15 Freeway (Figure Ap.8K-1 in Appendix 8K in the Sunrise DEIR/DEIS). Munz's onion and its critical habitat are not anticipated to be impacted by construction of the TE/VS Interconnect unless its critical habitat is removed or damaged (by being driven over) during tower construction. As indicated in the FEIS, no impacts to Munz's onion are anticipated as a result of the proposed construction and operation.

If it is assumed that a direct or indirect impact to Munz's onions would occur during construction, that impact would be significant and not likely mitigable to a less-than-significant level (Class I). The impact would likely be significant according to Significance Criteria 1.a (Any impact to one or more individuals of a species that is federal or State listed as endangered or threatened), Significance Criteria 1.b (Any impact that would affect the number or range or regional long-term survival of a sensitive or special status plant species), and/or Significant Criteria 1.d (Disturbance of designated critical habitat). Although the resulting impact is likely to

remain significant (Class I), APMs B-1a(LE), B-1c(LE), B-1d, B-1f through B-1i, B-2a(LE), B-2c, B-4a(LE), and B-5a through B-5d are recommended to, in whole or in part, compensate for impacts to special status plant species. The full text of these APMs can be found in Attachment 5 (Applicant Proposed Measures).

Impact B-6: Construction activities, including the use of access roads, would result in disturbance to wildlife and result in wildlife mortality (Class III).

Adverse effects to general (non-special status) wildlife are anticipated from construction of the TE/VS Interconnect from the removal of vegetation that would result in the temporary loss of wildlife habitat along with the displacement and/or potential mortality of resident wildlife species that are poor dispersers, such as snakes, lizards, and small mammals. Construction may also result in the temporary degradation of the value of adjacent native habitat areas due to noise, increased human presence, and vehicle traffic. To the extent that these impacts were limited to non-special status species, they would be adverse but less than significant (Class III) and no mitigation is required. APMs B-1a(LE) B-1c(LE), B-1f, B-1i, B-2a(LE), B-2b, B-4a(LE), B-6a through B-6d, and B-7a(LE) are nonetheless recommended to reduce the disturbance to wildlife and wildlife mortality to the maximum extent feasible. The full text of these APMs can be found in Attachment 5 (Applicant Proposed Measures).

Impact B-7: Construction activities would result in direct or indirect loss of listed or sensitive wildlife or a direct loss of habitat for listed or sensitive wildlife (Class I construction impacts to non-listed, sensitive species; other impact classes depend on species - see individual discussions).

Listed or sensitive (special status) wildlife species impacts could result from direct or indirect loss of known locations of individuals or direct loss of potential habitat as a result of temporary or permanent grading or vegetation clearing during construction of the TE/VS Interconnect. In addition, individuals near construction areas may temporarily abandon their territories due to disturbance from noise and human activity. A number of listed and non-listed, sensitive wildlife species have potential to occur.

Five non-listed, sensitive wildlife species were observed in or near the TE/VS Interconnect study area. These species include coastal California newt, red-diamond rattlesnake, coast (San Diego horned lizard), two-striped garter snake, Cooper's hawk, southern California rufous-crowned sparrow, loggerhead shrike, and California spotted owl. Other non-listed, sensitive species have moderate-to-high potential to occur.

Most of the non-listed, sensitive species' habitats are sensitive vegetation communities; the mitigation for the loss of the sensitive vegetation communities (APM B-1a[LE]) would normally compensate for the potential loss of these sensitive species and their habitats. However, since adequate suitable lands required by APM B-1a(LE) may not be available, the impact to non-listed, sensitive wildlife species is significant according to Significance Criteria 2.a (Impacts that directly or indirectly cause the mortality of candidate, sensitive, or special status wildlife species) and not likely mitigable to a less-than-significant level (Class I). However, if off-setting compensatory resources could be identified and if accepted by applicable resource agencies, this impact could be reduced to a less-than-significant level.

APMs B-1a(LE), B-1c(LE), B-1f, B-1i, B-2a(LE), B-2b, B-4a(LE), B-6a through B-6d, and B-7a(LE) are recommended to compensate, in whole or in part, for impacts to non-listed, sensitive wildlife species. The full text of these APMs can be found in Attachment 5 (Applicant Proposed Measures).

The TE/VS Interconnect occurs in special habitat management areas for the SKR; focused surveys were not conducted because presence was assumed and an in-lieu fee program (SKR Fee Assessment Area) has already been established to compensate for development impacts within those management areas (Impact B-7L). No other listed wildlife species were documented along or near the route of the TE/VS Interconnect during multiple years of surveys for all species with potential to occur (QCB, arroyo toad, LBV, SWF, and CGN). Therefore, these species are absent; however, designated critical habitat for the QCB and CGN occurs in the area. These species are addressed below in Impact B-7J and B-7M, respectively. The State-listed bald eagle has high potential to fly through the study area to forage at Lake Elsinore; the bald eagle is addressed in Impact B-10 below.

Impact B-7J: Direct or indirect loss of Quino checkerspot butterfly or direct loss of habitat (Class I).

Surveys for the QCB were conducted for six consecutive years, ending in 2006. No QCB were observed. The nearest reported occurrence of the QCB is approximately five miles away. Although the proposed action would not directly impact the QCB, construction could impact designated critical habitat for the QCB (Figure Ap.8K-1 in Appendix 8K of the Sunrise DEIR/DEIS). This impact includes about eight acres in the northern portion of the transmission line route north of the I-15 Freeway from approximately 14 transmission towers and several proposed access roads. Since adequate suitable lands required by APM B-7i(LE) may not be available, this impact is significant according to Significance Criteria 1.d (Disturbance of critical habitat) and is likely not mitigable to a less than significant level (Class I). However, if off-setting compensatory resources could be identified and if accepted by applicable resource agencies, this impact could be reduced to a less-than-significant level.

APM B-1a(LE), B-1c (LE), B-2a(LE), B-4a(LE), and B-7i(LE) are recommended to, in whole or in part, compensate for impacts to QCB critical habitat. The full text of these APMs can be found in Attachment 5 (Applicant Proposed Measures).

Impact B-7L: Direct or indirect loss of Stephens' kangaroo rat or direct loss of habitat (Class I).

Suitable SKR habitat is present in grasslands and areas of sparse shrub cover along the transmission line alignment and at the proposed Lake Switchyard. The SKR is assumed present in these areas. These areas are located within the SKR Fee Assessment Area (approximately 50.2 acres of temporary and permanent impacts), and the northernmost segments of the transmission line are located inside the Lake Mathews–Estelle Mountain Core Reserve (approximately 7.6 acres of temporary impact and 0.4 acres of permanent impact).

As indicated in a "Formal Section 7 Consultation for the Lake Elsinore Advanced Pumped Storage Project (P-11858), Riverside County, California," as prepared by the United States Fish

and Wildlife Service (USFWS), dated March 19, 2008, the USFWS states: "For the Stephens' kangaroo rat, the project proponent has indicated that the project will be consistent with the Habitat Conservation Plan for the Stephens' Kangaroo Rat (RCHCA 1996). This will include mitigating permanent and temporary disturbance on a 1:1 basis for areas within the Lake Matthews-Estelle Mountain Core Reserve Area by acquiring additional habitat. This additional habitat will be located in, contiguous with, or directly adjacent to the boundaries of the Lake-Matthews-Estelle Core Reserve Area, to the extent feasible, and the specific area will be subject to the concurrence of the U.S. Fish and Wildlife Service." The USFWS concluded that "no additional section 7 analysis was necessary for SKR.

Notwithstanding the USFWS' "no jeopardy" findings, direct and indirect impacts to SKR would likely be significant (Class I) under Significance Criteria 1.a (Substantial adverse effect, either directly or indirectly, on one or more individuals of a federal or State-listed species) and not mitigable to a less-than-significant level (Class I) because adequate mitigation lands for SKR habitat compensation may not be available. However, if off-setting compensatory resources could be identified and if accepted by applicable resource agencies, this impact could be reduced to a less-than-significant level.

APMs B-1a(LE), B-1c(LE), B-2a(LE), B-7a(LE), B-7k(LE), and B-17a are recommended to, in whole or in part, minimize impacts to the SKR. The full text of these APMs can be found in Attachment 5 (Applicant Proposed Measures).

Impact B-7M: Direct or indirect loss of coastal California gnatcatcher or direct loss of habitat (Class II).

Suitable habitat for the coastal California gnatcatcher (coastal sage scrub) is located from the I-15 Freeway west into the foothills of the National Forest along the northern portion of the transmission line route (Figure Ap.8K-1 in Appendix 8K of the Sunrise DEIR/DEIS). Focused surveys for the CGN began in 2001 and have continued for six consecutive years. During those protocol surveys, no CGN were found.

Impacts to approximately 55.1 acres (temporary and permanent impacts) of designated critical habitat for the CGN (Figure Ap.8K-1 in Appendix 8K of the Sunrise DEIR/DEIS) would occur during construction of the TE/VS Interconnect. Additionally, CGN breeding can be affected by excessive construction noise, considered to be 60 dB(A) Leq at the edge of occupied habitat by the USFWS (USFWS, 2007c; American Institute of Physics, 2005).

Any impact to coastal CGN-occupied habitat, critical habitat, or to breeding could be potentially significant according to Significance Criteria 1.a (Substantial adverse effect through any impact to one or more individuals of a federal or State-listed species), Significance Criteria 1.d (Disturbance of critical habitat), Significance Criteria 1.g (Substantial adverse effect through activities that result in the killing of migratory birds or destruction or abandonment of migratory bird nests and/or eggs), and/or Significance Criteria 4.d (Adversely affect wildlife through an increase in noise). Direct or indirect impacts to CGN would be mitigable to less-than-significant levels (Class II) with the implementation of APMs B-1a(LE), B-1c(LE), B-2a (LE), and B-7l(LE). The full text of these APMs can be found in Attachment 5 (Applicant Proposed Measures).

Impact B-8: Construction activities would result in a potential loss of nesting birds (violation of the Migratory Bird Treaty Act) (Class II).

The TE/VS Interconnect study area contains a variety of vegetation communities that provide sites for bird nests. Construction activities would disturb vegetation and have the potential to impact nesting birds. Ground-nesting birds, such as the burrowing owl, could also be impacted by foot or vehicle/equipment traffic. The removal of vegetation and possibly other construction activity during the breeding season could result in the displacement of breeding birds, abandonment of active nests, and accidental nest destruction. With the exception of a few non-native bird species, active bird (raptor) nests are fully protected against "take" pursuant to the MBTA. It is unlawful to take, possess, or destroy the nest or eggs of any such bird.

The TE/VS Interconnect could have a significant impact if it was to violate the MBTA and result in the mortality of migratory birds or to cause destruction or abandonment of migratory bird nests and/or eggs (Significance Criteria 1.g). A violation of the MBTA could be a potentially significant impact but would be mitigable to a less-than-significant level (Class II) through the implementation of APMs B-1f through B-1i, B-2b, B-2c, B-6b, B-8a(LE), and B-8b. The full text of these APMs can be found in Attachment 5 (Applicant Proposed Measures).

Impact B-9: Construction or operational activities would adversely affect linkages or wildlife movement corridors, the movement of fish, and/or native wildlife nursery sites (Class I for mountain lion; Class II for bat colonies; Class III linkages or wildlife movement corridors; Class IV for movement of fish).

The TE/VS Interconnect would cross nine named drainages but would not directly impact any of them. The largest drainage features crossed by the transmission line area include Temescal Creek (a tributary of Santa Ana River) and Los Alamos Creek (a tributary of San Mateo Creek). Many of the small drainage features appear to be ephemeral as indicated by the lack of hydrophytic vegetation (EVMWD, 2007) and, therefore, do not contain perennial flows that could support fish and other species that are dependent on permanent water sources (Class IV).

Due to the intermittent locations and temporary nature of the transmission line construction activity, wildlife would not be physically prevented from moving equipment around in the transmission corridor. During TE/VS Interconnect operation, the widely spaced towers would not physically obstruct wildlife movement; wildlife could move around or under the towers. Additionally, the creation of permanent access roads may, in some cases, make wildlife movement through otherwise dense vegetation easier.

However, the transmission line corridor passes through two Multi-Species Habitat Conservation Plan Core Areas (Core Areas B and C and a proposed core expansion area), and it crosses two Linkages between Core Areas. For the reasons stated above, the impacts to these Core Areas and Linkages are considered adverse but less than significant (Class III) and no mitigation is required. An exception to this is for the mountain lion. Core Area B represents a large proportion of the remaining habitat for mountain lions in the Santa Ana Mountain Range. Modeling of the Santa Ana mountain lion population indicates it is demographically unstable and at risk of extinction because it is isolated from other populations (Beier, 1993). Removal or disturbance of suitable habitat within Core Area B would result in additional adverse effects on mountain lions.

A five-year study of mountain lions in the Santa Ana Mountains showed that one animal (a young male) occupied a home range that included the transmission line corridor near Decker Canyon (Beier and Barrett, 1993).

The impact to Core Area B for the mountain lion is significant according to Significance Criteria 4.b (Interfere with connectivity or corridor or linkage) and not likely mitigable to a less than significant level (Class I). However, if off-setting compensatory resources could be identified and if that compensation were accepted by applicable resource agencies, this impact could be reduced to a less-than-significant level.

There are only two bat species with potential to occur in the general area, one with low potential (pallid bat) and one with moderate potential (western red bat). Impacts to a bat nursery colony would be significantly impacted if humans approached an active nursery colony, if entrances to nursery colony sites become blocked, if construction involves blasting or drilling that causes substantial vibration of the earth/rock surrounding an active nursery colony, or if a structure occupied by bats, such as a bridge, were to be disturbed during construction. A bat nursery colony site is where pregnant female bats assemble (or one bat if it's of a solitary species) to give birth and raise their pups. These colonies could be located in rock crevices, caves, or culverts; inside/under bridges; in other man-made structures; and in trees (typically snags or large trees with cavities). In accordance with according to Significance Criteria 4 (Impede the use of native wildlife nursery sites), direct or indirect impacts to bat nursery colonies would be potentially significant but would be mitigable to a less-than-significant level (Class II) with the implementation of APM B-9a, as described in Attachment 5 (Applicant Proposed Measures).

As proposed, the Lake Substation is located in proximity to Lee (Corona) Lake, an approximately 1,300 acre-foot man-made agricultural impoundment located on Temescal Wash. The Temescal Water Company constructed the lake as a source of agricultural and industrial water supply. Agricultural customers in the Temescal Valley receive water from several wells and surface water from Lee (Corona) Lake. This lake serves as a popular commercial freshwater fishing destination and is periodically stocked with rainbow trout, channel catfish, wiper, hybrid striped bass, sturgeon, largemouth bass, crappie, and bluegill.

Since sediment control measures will be implemented as part of the required Storm Water Pollution Prevention Plan (SWPPP) and will result in the control of discharges to all existing surface waters, including San Juan Creek and San Mateo Creek, no impacts on native fish populations or movement are anticipated (Class IV).

Impact B-10: Presence of transmission lines would result in electrocution of, and/or collisions by, listed or sensitive bird species (No impact for electrocution; Class I for collision for listed species; Class II for collision for non-sensitive species or daytime migration; Class III for eagles).

The primary consideration with respect to bird collisions with transmission towers or lines is during migration, especially in spring migration when strong winds and storms are more likely to force the birds to fly at relatively low altitudes. Most of this migration takes place at night. Mortality as a result of collision with these features would be greatest where the movements of migrating birds are the most concentrated.

One such area could be where the TE/VS Interconnect would cross Temescal Wash near Lee (Corona) Lake. This crossing could represent a high risk to waterfowl because of the presence of extensive wetlands and agricultural fields along the Lee (Corona) Lake shoreline. In addition to Temescal Wash, the northern segment of the TE/VS Interconnect would cross Cow Canyon, Horsethief Canyon, McVicker Canyon, Leach Canyon, Los Alamos Canyon, Tenaja, and San Mateo Creeks. Topographic maps indicate that McVicker Canyon and Leach Canyon may support moderate amounts of avian-supporting riparian vegetation and may thus pose a moderate risk of avian collision. Aerial photographs indicate that Los Alamos Canyon, Tenaja, and San Mateo Creeks support moderate amounts of riparian vegetation and may represent a moderate risk of line collision for some waterfowl and wading birds (FERC, 2007). These areas were highlighted because of their potential use by waterfowl or wading birds, but other types of birds could still be affected by collision with the transmission lines, towers, poles, or static wires.

Because avian migration corridors have never been studied systematically, there is no way to know how many birds and what species of birds could actually be impacted by collision with transmission and subtransmission lines, towers, poles, or static wires. Therefore, it is assumed that some species could be federal or State-listed or of other special status.

According to Significance Criteria 1.a (Impact one or more individuals of a species that is federal or State-listed), Significance Criteria 1.f (Directly or indirectly cause the mortality of candidate, sensitive, or special status wildlife), and/or Significance Criteria 1.g (Killing of migratory birds or destruction or abandonment of migratory bird nests and/or eggs), any mortality of those species would be a significant impact that is not likely mitigable to a less-than-significant level (Class I). However, if off-setting compensatory resources could be identified and if that compensation were accepted by applicable resource agencies, this impact could be reduced to a less-than-significant level.

For non-sensitive species or species that migrate during the day, collision would be potentially significant according to Significance Criterion 1.f and 1.g but would be mitigable to a less-than-significant level (Class II) with the implementation of APM B-10a(LE). The full text of this APM can be found in Attachment 5 (Applicant Proposed Measures).

According to a local eagle expert (Bittner, 2007), eagles do not tend to be collision victims, except on the smaller distribution lines, because their eyesight is so acute. With the exception of an approximately 7.8-mile segment of rebuilt 69-kV subtransmission lines north of the City of Escondido (Talega-Escondido 230-kV Transmission and Substation Upgrades), the TE/VS Interconnect involves the construction of extra high voltage (230-kV and 500-kV) transmission lines. Bald eagle collision impacts are, therefore, expected to be less than significant (Class III).

Impact B-11: Presence of transmission lines would result in increased predation of listed and sensitive wildlife species by ravens that nest on transmission towers (Class III).

The common raven has not been documented to prey on any listed or sensitive wildlife present along the TE/VS Interconnect (Liebezeit et al., 2002). Although predation may still occur on a limited basis, the impacts would be adverse but less than significant (Class III). No mitigation is required.

Impact B-12: Maintenance activities would result in disturbance to wildlife and wildlife mortality (Class II general maintenance; Class III for short-term helicopter access).

As indicated in a "Formal Section 7 Consultation for the Lake Elsinore Advanced Pumped Storage Project (P-11858), Riverside County, California," as prepared by the United States Fish and Wildlife Service (USFWS), dated March 19, 2008, the USFWS states: "Potential effects to the arroyo toad include the crushing of arroyo toads inside and outside burrows due to ground disturbing activities and trampling associated with construction, maintenance and vegetation management activities proximal to Los Alamos Creek. Most of the proposed towers and access roads occur greater than 500 feet from the streambed in Los Alamos Creek and outside the 80-foot contour from the streambed, where arroyo toads are most likely to occur in upland habitats. However, one tower and access road occurs within 200-300 feet of a tributary to Los Alamos Creek. The potential for crushing of arroyo toads during construction and maintenance activities should be limited by the distance from the stream bottom, the temporal nature of construction activities, and the intermittent nature of potential maintenance activities. Further, vegetation management activities have the potential to open more area of upland habitat for toad use."

Impacts to nesting birds could occur during maintenance activities if vegetation is cleared during the breeding season. Mortality of special status species could occur from grading, vegetation clearing, or the use of access roads. Disturbance to wildlife and potential wildlife mortality from maintenance could result in a potentially significant impact (Class II) if those activities were to impact listed species (Significance Criteria 1.a), disturb critical habitat (Significance Criteria 1.d), directly or indirectly cause the mortality of candidate, sensitive, or special status species (Significance Criteria 1.f), violate the MBTA (Significance Criteria 1.g), and/or have a substantial adverse effect on riparian or other sensitive vegetation communities if weed species are introduced (Significance Criteria 2.b).

An impact to non-listed, sensitive wildlife species from maintenance activities could be potentially significant but would be mitigable to a less-than-significant level (Class II) with the implementation of APMs B-6b and B-12a(LE), as detailed in Attachment 5 (Applicant Proposed Measures).

Maintenance activities could impact nesting birds (violation MBTA) if vegetation is cleared during the general avian breeding (February 15 through September 15) or the raptor breeding (January 1 through September 15) seasons. This impact would be potentially significant but would be mitigable to a less-than-significant level (Class II) with the implementation of APMs B-6b and B-12a(LE). The full text of this APM can be found in Attachment 5 (Applicant Proposed Measures).

Impacts to SKR from maintenance could occur from brush clearing if it damages burrows or if vehicles crush burrows on dirt access roads. These impacts could be potentially significant but would be mitigable to a less-than-significant level (Class II) with the implementation of APMs B-6B and B-12a(LE). The full text of this APM can be found in Attachment 5 (Applicant Proposed Measures).

Although the QCB and coastal CGN are not currently present in the survey area, designated critical habitat for these species is present. Maintenance activities would not remove additional vege-

tation but maintenance activities could adversely affect the QCB where access roads are maintained (if the QCB is present in the future) and could adversely affect the CGN through excessive noise during its breeding season should it be present in the future. These impacts would be potentially significant but would be mitigable to less-than-significant levels (Class II) with the implementation of APMs B-7i(LE) and B-12a(LE). The full text of these APMs can be found in Attachment 5 (Applicant Proposed Measures).

Transmission line maintenance activities including the use of helicopters would cause short-term, localized, adverse but less-than-significant impacts (Class III) to wildlife.

Talega-Escondido 230-kV Transmission and Substation Upgrades

The existing Talega-Escondido 230-kV transmission corridor is located in northern San Diego County. A portion of the corridor is bordered to the north by the National Forest. HELIX mapped the vegetation for the section of 69-kV line which is to be rebuild between the Pala and Lilac Substations (Figures Ap.8K-7 and Ap.8K-8 in Appendix 8K of the Sunrise DEIR/DEIS). The remainder of vegetation mapping (Figures Ap.8K-9 through Ap.8K-14 in Appendix 8K of the Sunrise DEIR/DEIS) is from the FEIS and studies conducted by SDG&E (Dudek, 2002).

Most of the Talega-Escondido area is comprised of native scrubs (chaparral and Diegan coastal sage scrub) on steep slopes and disturbed cover types (avocado and citrus groves, cropland, and residential and industrial developed areas). There are small areas of riverine and wetland habitat, grass- and herb-dominated communities, and woodland and forest vegetation. The southern end of the route becomes increasingly urban as it nears the City of Escondido (EVMWD, 2007).

Riverine and wetland habitat along the Talega-Escondido transmission line corridor are associated with numerous creeks and rivers, including Cristianitos Creek, San Mateo Creek, and Roblar Creek on Camp Pendleton; the Santa Margarita River along the northeastern portion; and Gomez Creek, San Luis Rey River, and Keys Creek on the Rainbow to Escondido portion (EVMWD, 2007).

The approximately 16-mile portion of the Talega-Escondido transmission line located within Camp Pendleton is primarily native scrub (southern mixed chaparral and Diegan coastal sage scrub) along the steep slopes and coast live oak woodland or forest and southern sycamore/alder riparian forest in the valleys and drainages. Approximately three miles of this section is predominated by native grassland interspersed with Engelmann oak woodland (Figure Ap.8K-9 in Appendix 8K of the Sunrise DEIR/DEIS). The approximately 22-mile portion of the Talega-Escondido transmission line, from the eastern edge of Camp Pendleton to Pala Road, is predominantly native scrubs interspersed with groves and orchards along the hillsides (Figure Ap.8K-10 through Figure Ap.8K-13 Appendix 8K of the Sunrise DEIR/DEIS). The approximately 7.8-mile segment south of Pala Road to the south of Old Castle Road is covered mostly with groves with patches of chaparral and sage scrub, riparian vegetation, and developed areas (Figures Ap.8K-9 through Ap.8K-14 in Appendix 8K of the Sunrise DEIR/DEIS). The southernmost segment is primarily developed residential, with small patches of native scrub (Figure Ap.8K-14 in Appendix 8K of the Sunrise DEIR/DEIS).

The Talega-Escondido transmission line route traverses designated critical habitat for the CGN (between MPs 0-3.5, 21.8-27.8, and 33-36.8), LBV (between MPs 24-24.5 and 34.5-35), and SWF (between MPs 24-24.5 and 34.5-35). A portion of the 69-kV subtransmission line (MPs 34 to 36) occurs within designated critical habitat for the CGN, LBV, and SWF (Dudek, 2002).

The following special status (listed or non-listed, sensitive) plant species were observed (Dudek, 2002) along the Talega-Escondido transmission line corridor: Munz's onion, San Diego ambrosia, slender-horned spineflower, many-stemmed dudleya (MP 2), Ramona horkelia (MP 12.5), Gander's ragwort, Vail Lake ceanothus, sticky dudleya (MPs 7 and 9.5), San Diego button-celery, spreading navarretia, California Orcutt grass, Encinitas baccharis (MP 7), Lakeside ceanothus (MP 29.7), and Parry's tetracoccus (MP 31.8). In addition, the following listed wildlife species were observed along the Talega-Escondido transmission line corridor: LBV (MP 1), SWF, QCB, CGN (MPs 0.2 and 4.5), arroyo toad (between MPs 1-7 and at MPs 17 and 35), SKR, and Riverside fairy shrimp (Dudek, 2002). The highly sensitive golden eagle is also known to nest near the corridor.

The following non-listed, sensitive species have moderate to high potential to occur along the Talega-Escondido transmission line corridor along with other species that occur in upland or riparian/wetland habitats in coastal and inland San Diego County: Belding's orange-throated whiptail, Southern California rufous-crowned sparrow, coast (San Diego) horned lizard, coastal cactus wren, and white-tailed kite (Dudek, 2002).

Potential impacts to biological resources within the area of the Talega-Escondido upgrades are presented below along with those measures recommended to mitigate identified impacts to a less-than-significant level, when applicable. In the derivation of this analysis, the following general assumptions were made:

- Pull sites for installing the new 230-kV transmission line on the existing 230-kV transmission towers would occur in the existing Talega-Escondido transmission right-of-way in developed or disturbed areas, within disturbed habitat, or along existing access roads.

- New access roads for the modification of the existing Talega-Escondido 69-kV circuit (between the existing Pala and Lilac Substations) would be approximately 20-feet wide, and the total impact footprint for each new wood and/or steel pole would be about 64 square feet. Impacts to riparian/wetland habitats would likely be avoided or minimized by spanning drainages. New access roads, if required, would sited to avoid these resources as well.

- All staging areas for the upgrades would occur within and adjacent the existing Talega-Escondido transmission right-of-way in developed or disturbed areas, within disturbed habitat, or along existing access roads.

- Should impacts exceed those estimated herein, additional mitigation would be required.

Impact B-1: Project construction would result in temporary and permanent losses of native vegetation (Class I for sensitive vegetation and vegetation management; Class III for non-sensitive vegetation and type conversion).

The Talega-Escondido upgrades would entail installing a second 230-kV circuit on the vacant position of SDG&E's existing Talega-Escondido 230-kV transmission line and making upgrades to the Talega and Escondido Substations. In order to relocate the existing 69-kV circuit that now occupies a segment of the steel lattice towers, the Applicant proposes to rebuild and relocate that approximately 7.8-mile section between SDG&E's existing Pala and Lilac Substations and construct new 69-kV wood and/or steel poles along the identified alignment.

It is assumed that no impacts to sensitive vegetation communities would occur from the use of pull sites to install the second 230-kV circuit because it is assumed that pull sites and staging areas would occur within existing developed and disturbed areas, within disturbed habitat, or along existing access roads. Impacts to developed and disturbed areas or disturbed habitat, should pull sites and staging areas not be located in existing access roads, would be adverse but less than significant (Class III).

In accordance with Significance Criteria 2.a (Substantial adverse effect on a riparian habitat or other sensitive natural community by temporarily or permanently removing it during construction, grading, clearing, or other activities), impacts to sensitive vegetation communities would be significant according to and not likely be mitigable to a less-than-significant level (Class I) because adequate mitigation lands may not be available to compensate for the impacts. However, if off-setting compensatory resources could be identified and if accepted by applicable resource agencies, this impact could be reduced to a less-than-significant level.

APMs B-1a(LE) and B-1c(LE) are recommended to, in whole or in part, compensate for impacts to sensitive vegetation communities. The full text of these APMs can be found in Attachment 5 (Applicant Proposed Measures).

Relocating the existing 69-kV transmission circuit on new poles could impact sensitive and non-sensitive vegetation communities. Impacts to non-sensitive communities would be adverse but less than significant (Class III).

In accordance with Significance Criteria 2.a (Substantial adverse effect on a riparian habitat or other sensitive natural community by temporarily or permanently removing it during construction, grading, clearing, or other activities), impacts to sensitive vegetation communities could be significant and not likely be mitigable to a less-than-significant level (Class I) because adequate mitigation lands may not be available to compensate for the impacts. However, if off-setting compensatory resources could be identified and if applicable resource agencies, this impact could be reduced to a less-than-significant level.

APMs B-1a(LE) and B-1c(LE) are recommended to, in whole or in part, compensate for impacts to sensitive vegetation communities. The full text of these APMs can be found in Attachment 5 (Applicant Proposed Measures).

Impacts to non-sensitive plant communities would include approximately two acres of replacement of extensive agriculture with towers and access roads. Impacts to sensitive communities from the construction of permanent tower footings, would include about 0.03 acres of Diegan coastal sage scrub, 0.01 acres of non-native grassland, and 0.01 acres of southern mixed chaparral. Impacts to sensitive communities, from permanent access roads, would include

approximately 1.8 acres of Diegan coastal sage scrub, 0.2 acres of Diegan coastal sage scrub-disturbed, 0.8 acres of non-native grassland, 1.3 acres of southern mixed chaparral, and 0.04 acres of coast live oak woodland. Should impacts exceed those acreages, as determined during monitoring recommended in APM B-1c[LE], additional off-setting compensation would be recommended in accordance with APM B-1a(LE). The full text of these APMs can be found in Attachment 5 (Applicant Proposed Measures).

It has been estimated that up to approximately 150 native oak trees would be removed for new pole placement and an additional 250 native and 250 non-native trees (orchards) would need to be removed for line clearance from the Pala to Lilac Substations. Native or non-native shrubs may also need to be removed if they are present. The loss of non-native trees or shrubs would usually be an adverse but less-than-significant impact (Class III) because they are non-native and typically do not support special status wildlife species. However, removal of a non-native tree or shrub containing an active bird nest could be a violation of the MBTA and a potentially significant impact but would be mitigable to a less-than-significant level (Class II). Likewise, removal of a native tree or shrub containing an active bird nest could also be a violation of the MBTA and a potentially significant impact but would be mitigable to a less-than-significant level (Class II).

The loss of native trees and shrubs could be a significant impact (Class I) if that loss were to result in: (1) Substantial adverse effect on candidate, sensitive, or special status species (Significance Criteria 1); (2) Substantial adverse effect on riparian habitat or other sensitive natural community (Significance Criteria 2); (3) Substantial adverse effect on federally protected water quality or wetlands (Significance Criteria 3); (4) Interfere with wildlife movement or the use of native wildlife nursery sites (Significance Criteria 4); and/or (5) Conflict with local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance (Significance Criteria 5).

In the absence of a precise estimate of the number of trees that would need to be trimmed, for the purpose of this analysis, it was assumed that all trees were considered as removed. Although some percentage of these trees could be retained, pending the development of final construction plan, a precise estimation cannot be provided.

The trimming of non-native trees or shrubs would usually be an adverse but less-than-significant impact (Class III) because they are non-native and typically do not support special status wildlife species. Trimming a non-native tree or shrub containing an active bird nest could be a violation of the MBTA and a potentially significant impact but would be mitigable to a less-than-significant level (Class II). Likewise, trimming of a native tree or shrub containing an active bird nest could also be a violation of the MBTA and a potentially significant impact but would be mitigable to a less-than-significant level (Class II). See discussion in Impact B-8 for how construction activities (including tree trimming) could result in a potential loss of nesting birds and violation of the MBTA.

Trimming up to 30 percent of a native tree's crown would diminish the tree's value as wildlife habitat and could cause harm to the tree leading to its decline or death. Therefore, native tree trimming would be significant according to Significance Criteria 1, 2, 4, and/or 5. The loss (or trimming) of a large number of native trees is a significant impact that would not likely be mitigable to a less-than-significant level (Class I) because adequate mitigation lands specified in

APM B-1a(LE) for restoration and/or compensation may not be available. However, if off-setting compensatory resources could be identified and if accepted by applicable resource agencies, this impact could be reduced to a less-than-significant level.

APM B-1a(LE) is recommended to reduce the impacts to the greatest extent feasible. The full text of this APM can be found in Attachment 5 (Applicant Proposed Measures).

The construction and operation of new transmission lines in areas with high fire risk could contribute to wildfire hazards if they were to reduce the effectiveness or otherwise impede fire-fighting efforts. Fires cause direct loss of vegetation communities, wildlife habitat, and wildlife species. Although periodic fires are part of the natural ecosystem, fires burning too frequently can have significant long-term ecological effects such as degradation of habitat (temporal loss of habitat and non-native plant species invasion) and loss of special status species. The biodiversity of southern California is uniquely adapted to low rainfall, rugged topography, and wildfires. However, fires have become more frequent with growth in the human population, creating a situation in which vegetation communities and, therefore, habitats for plant and animal species are changed dramatically and may not recover. This change in vegetation community is called "type conversion" and can occur to any native vegetation community.

When burned too frequently, vegetation communities are often taken over by highly flammable, weedy, non-native plant species that burn even more often and provide minimal habitat value for native plant and animal species, especially those of special status. For example, the CGN is dependent primarily on coastal sage scrub vegetation which, if burned too many times, can convert to non-native grassland or disturbed habitat that would preclude its use by the CGN. If the TE/VS Interconnect or the Talega-Escondido upgrades were to cause a fire or inhibit fighting of fires and if this were to lead to type conversion of sensitive vegetation communities, the impact would likely be significant (Class I) according to Significance Criteria 1 (Substantial adverse effect through habitat modification on any species identified as candidate, sensitive, or special status) and/or Significance Criteria 2 (Substantial adverse effect on a riparian habitat or other sensitive natural community).

A type conversion or substantial degradation of a native plant community from either multiple fire events or other causes would likely constitute a significant impact (Class I) because of the severity of the habitat loss. While the impact would be significant and not mitigable to a less-than-significant level, independent analysis conducted by the Commission (CPUC, 2008) concludes that transmission lines are not a principal cause of wildland fires. As a result, since the 230-kV portion of the Talega-Escondido upgrade would not be a primary contributor to any such event, the impact attributable to the TE/VS Interconnect would be less than significant (Class III). Because the alignment of the rebuilt 69-kV portion of the Talega-Escondido upgrade will primarily occur along existing road rights-of-way and since construction and maintenance will be in accordance with and conformity to current electrical standards, the impacts of the Talega-Escondido upgrade on type conversion would be less than significant (Class III) and no mitigation is required.

Additional mitigation for fire risks is discussed in Section 5.16 (Fire and Fuel Management).

Impact B-2: Construction activities would result in adverse effects to jurisdictional waters and wetlands through vegetation removal, placement of fill, erosion, sedimentation, and degradation of water quality (Class II).

It is assumed that construction activities associated with the Talega-Escondido upgrades would avoid or minimize impacts to riparian/wetland habitats by spanning drainages and the sensitive siting of access roads to avoid or minimize impacts upon those resources. Still, impacts to jurisdictional areas or wetlands, could result during construction, thus increasing the potential for erosion, sedimentation and/or degradation of water quality.

In accordance with Significance Criteria 3.a (Substantial adverse effect on water quality or wetlands as defined by the USACE and/or CDFG) and/or Significance Criteria 3.b (If the Applicant were to fail to provide an adequate buffer to protect the function and values of existing wetlands), impacts to jurisdictional areas would be potentially significant but would be mitigable to a less-than-significant level (Class II) with the implementation of APMs B-1c(LE) and B-2a(LE), as provided in Attachment 5 (Applicant Proposed Measures).

Impact B-3: Construction and operation/maintenance activities would result in the introduction of invasive, non-native, or noxious plant species (Class II).

Construction of the Talega-Escondido upgrades would cause soil disturbance that creates conditions that promote the establishment and spread of invasive, non-native plant species. These species may be carried into and out of the area by construction equipment and through the importation or exportation of construction material. This impact is potentially significant but would be mitigable to a less-than-significant level (Class II).

During the upgrades operation, weed establishment and spread would be a continuing consideration as a result of off-road vehicles traveling along access roads. This activity could cause soil disturbance, introduce more weed seed, and promote the spread of weeds. The introduction and spread of invasive, non-native, or noxious plant species in native habitat areas could be a potentially significant impact but would be mitigable to a less-than-significant level (Class II) through the implementation of APMs B-3a(LE) and B-15b. The full text of these APMs can be found in Attachment 5 (Applicant Proposed Measures).

Impact B-4: Construction activities would create dust that may result in degradation of vegetation (Class II).

Construction activities, such as grading, pole footing excavation, and driving of equipment on unpaved roadways, would result in increased levels of blowing dust that may settle on surrounding vegetation. Increased levels of dust can significantly impact plants' photosynthetic capabilities and degrade the overall vegetation community. This impact is potentially significant but would be mitigable a to less-than-significant level (Class II) with the implementation of APM B-4a(LE). The full text of this APM can be found in Attachment 5 (Applicant Proposed Measures).

Impact B-5: Construction activities would result in direct or indirect loss of listed or sensitive plants or a direct loss of habitat for listed or sensitive plants (Class I).

An impacts to special status plant species is significant and not likely mitigable to a less-than-significant level (Class I) according to Significance Criteria 1.a (Any impact to one or more individuals of a species that is federal or State listed as endangered or threatened) and/or Significance Criteria 1.b (Any impact that would affect the number or range or regional long-term survival of a sensitive or special status plant species). However, if off-setting compensatory resources could be identified and if that compensation were accepted by applicable resource agencies, this impact could be reduced to a less-than-significant level.

APMs B-1a(LE), B-1c(LE), B-1d, through B-1i, B-2a(LE), B-2c, B-4a(LE), and B-5a(LE) through B-5d are recommended to, in whole or in part, compensate for impacts to special status plant species. The full text of these APMs can be found in Attachment 5 (Applicant Proposed Measures).

Impact B-6: Construction activities, including the use of access roads, would result in disturbance to wildlife and result in wildlife mortality (Class III).

Adverse effects to general (non-special status) wildlife are anticipated from construction of the Talega-Escondido transmission and substation upgrades from the removal of vegetation that would result in the temporary loss of wildlife habitat along with the displacement and/or potential mortality of resident wildlife species that are poor dispersers, such as snakes, lizards, and small mammals. Construction may also result in the temporary degradation of the value of adjacent native habitat areas due to noise, increased human presence, and vehicle traffic. Since these impacts would be to non-special status species, the resulting impacts would be adverse but less than significant (Class III) and no mitigation is required.

APMs B-1a(LE) B-1c(LE), B-1e, B-1f, B-1i, B-2a(LE), B-2b, B-4a(LE), B-6a through B-6d, and B-7a(LE) are, however, recommended to reduce the disturbance to wildlife and reduce wildlife mortality to the maximum extent feasible. The full text of these APMs can be found in Attachment 5 (Applicant Proposed Measures).

Impact B-7: Construction activities would result in direct or indirect loss of listed or sensitive wildlife or a direct loss of habitat for listed or sensitive wildlife (Class I construction impacts to non-listed, sensitive species; other impact classes depend on species; see individual discussions).

Impacts to listed or sensitive (special status) wildlife species impacts could result from direct or indirect loss of known locations of individuals or the direct loss of potential habitat as a result of temporary or permanent grading or vegetation clearing during construction of the Talega-Escondido upgrades. In addition, individual species near construction areas may temporarily abandon their territories due to disturbance from noise and human activity. Those listed and non-listed, sensitive wildlife species having a moderate-to-high potential to occur in these areas include the Riverside fairy shrimp, QCB, arroyo toad, LBV, SWF, CGN, and SKR. The highly sensitive golden eagle is known to nest near the transmission line corridor. Impacts to these species are addressed below.

Most of the non-listed, sensitive species' habitats are sensitive vegetation communities. The mitigation for the loss of the sensitive vegetation communities (APM B-1a[LE]) would normally

compensate for the potential loss of these sensitive species and their habitats. However, since adequate suitable lands required by APM B-1a(LE) may not be available, an impact to non-listed, sensitive wildlife species could be significant according to Significance Criteria 2.a (Impacts that directly or indirectly cause the mortality of candidate, sensitive, or special status wildlife species) and not likely mitigable to a less-than-significant level (Class I). However, if off-setting compensatory resources could be identified and if accepted by applicable resource agencies, this impact could be reduced to a less-than-significant level.

APMs B-1a(LE), B-1c(LE), B-1e, B-1f, B-1i, B-2a(LE), B-2b, B-4a(LE), B-6a through B-6d, and B-7a(LE) are, however, recommended to compensate, in whole or in part, for impacts to non-listed, sensitive wildlife species. The full text of these APMs can be found in Attachment 5 (Applicant Proposed Measures).

Impact B-7D: Direct or indirect loss of least Bell's vireo or direct loss of habitat (Class II).

The least Bell's vireo was observed at MP 1 (Dudek, 2002). Furthermore, designated critical habitat for this species occurs from MPs 24-24.5 and from MPs 34.5-35. Based on the listed assumptions, the Talega-Escondido upgrades would not directly impact the LBV or LBVI habitat or designated critical habitat (wetland/riparian habitats). Impacts to riparian/wetland habitats would generally be avoided by spanning drainages and through the sensitive siting of access roads in order to avoid or minimize impacts upon those resources.

The 69-kV line upgrade crosses a 100- and 500-year floodplain directly south of the Pala Substation and a few minor flooding areas exist to the north of the Lilac Substation. In those areas, spanning the floodplain may be infeasible. As such, rebuilding the 69-kV line may result in the introduction of construction activities is proximity to suitable LBV habitat.

LBV breeding can be affected by excessive construction noise, considered to be 60 dB(A) Leq at the edge of occupied habitat by the USFWS (USFWS, 2007c; American Institute of Physics, 2005). In accordance with Significance Criteria 1.a (Substantial adverse effect through any impact to one or more individuals of a federal or State-listed species), Significance Criteria 1.g (Substantial adverse effect through activities that result in the killing of migratory birds or destruction or abandonment of migratory bird nests and/or eggs), and/or Significance Criteria 4.d (Adversely affect wildlife through an increase in noise), direct or indirect impacts to the LBV could be potentially significant but would be mitigable to a less-than-significant level (Class II) with the implementation of APMs B-7e(LE) and B-12a(LE), as described in Attachment 5 (Applicant Proposed Measures).

Impact B-7E: Direct or indirect loss of southwestern willow flycatcher or direct loss of habitat (Class II).

Designated critical habitat for the southwestern willow flycatcher occurs from MPs 24-24.5 and MPs 34.5-35. Based on the listed assumptions, the Talega-Escondido upgrades would not directly impact the SWF or SWF habitat or designated critical habitat (wetland/riparian habitats). Impacts to riparian/wetland habitats would generally be avoided by spanning drainages and through the sensate siting of access roads to avoid or minimize impacts upon those resources.

The 69-kV line upgrade crosses a 100- and 500-year floodplain directly south of the Pala Substation and a few minor flooding areas exist to the north of the Lilac Substation. In those areas, spanning the floodplain may be infeasible. As such, rebuilding the 69-kV line may result in the introduction of construction activities is proximity to suitable SWF habitat.

SWF breeding can be affected by excessive construction noise, considered to be 60 dB(A) Leq at the edge of occupied habitat by the USFWS (USFWS, 2007c; American Institute of Physics, 2005). In accordance with Significance Criteria 1.a (Substantial adverse effect through any impact to one or more individuals of a federal or State-listed species), Significance Criteria 1.g (Substantial adverse effect through activities that result in the killing of migratory birds or destruction or abandonment of migratory bird nests and/or eggs), and/or Significance Criteria 4.d (Adversely affect wildlife through an increase in noise), direct or indirect impact to the SWF breeding activities could be potentially significant but would be mitigable to a less-than-significant level (Class II) with the implementation of APMs B-7e(LE) and B-12a. The full text of these APMs can be found in Attachment 5 (Applicant Proposed Measures).

Impact B-7H: Direct or indirect loss of golden eagle or direct loss of habitat (Class I).

The golden eagle is very sensitive to human activity, especially in the vicinity of its nesting areas. Even distant construction activity or maintenance activity could cause abandonment of a nest, subsequent reproductive failure, and continuing decline of the species.

Human activity within 4,000 feet of a nest site is significant and not likely mitigable to a less-than-significant level (Class I), except when the activity occurring within 4,000 feet of the nest site (without direct line-of-sight and activity is below the nest site) and occurs where there is already an existing disturbance, such as a highly traveled road or a utility corridor that already contains large structures or if the activity is occurring underground (Bittner, 2007). There is one golden eagle nest area that occurs less than 4,000 feet from the existing Talega-Escondido corridor and there is direct line-of-sight between the nest area and the transmission line. The specific location of this nest area is not disclosed herein in order to protect the golden eagle.

In accordance with Significance Criteria 1.e (Substantial adverse effect on the breeding success of the golden eagle), Significance Criteria1.f (Eirectly or indirectly cause the mortality of a special status species), Significance Criteria1.g (Result in the abandonment of migratory bird nests and/or eggs), and/or Significance Criteria 1.h (Take golden eagles, eagle eggs, or any part of an eagle), direct or indirect impacts to the golden eagle would likely be significant and not mitigable to a less-than-significant level (Class I) because of the distance to the nest area (less than 4,000 feet) and the direct line-of-sight that would occur. However, if off-setting compensatory resources could be identified and if that compensation were accepted by applicable resource agencies, this impact could be reduced to a less-than-significant level.

APM B-7h is recommended to, in whole or in part, compensate for impacts to the golden eagle. The full text of this APM can be found in Attachment 5 (Applicant Proposed Measures).

Impact B-7J: Direct or indirect loss of Quino checkerspot butterfly or direct loss of habitat (Class I).

Parts of the northern portion of the Talega-Escondido transmission upgrades occur in USFWS protocol survey areas (areas in which protocol surveys are required in suitable QCB habitat) for the QCB. While it is unlikely that the upgrades would impact much, if any, QCB-occupied habitat, the upgrades must be assumed to have a significant impact on this species.

In accordance with Significance Criteria 1.a (Impact one or more individuals of a species that is federal or State listed as endangered or threatened), since adequate suitable lands required by APM B-7i may not be available, direct or indirect impact to the QCB could be significant and would not likely mitigable to a less-than-significant level (Class I). However, if off-setting compensatory resources could be identified and if accepted by applicable resource agencies, this impact could be reduced to a less-than-significant level.

APMs B-1a(LE), B-1c(LE), B-2a(LE), and B-7i(LE) are recommended to, in whole or in part, compensate for impacts to the QCB. The full text of these APMs can be found in Attachment 5 (Applicant Proposed Measures).

Impact B-7K: Direct or indirect loss of arroyo toad or direct loss of habitat (Class II).

The arroyo toad has been observed between MPs 1 and 7 and at MPs 17 and 35 (Dudek, 2002). Based on the listed assumptions, the Talega-Escondido upgrades would not directly impact arroyo toad riparian breeding habitat (wetland/riparian habitats). Impacts to riparian/wetland habitats would generally be avoided by spanning drainages and the sensitive siting of access roads to avoid or minimize impacts upon those resources.

The 69-kV line upgrade crosses a 100- and 500-year floodplain directly south of the Pala Substation and a few minor flooding areas exist to the north of the Lilac Substation. In those areas, spanning the floodplain may be infeasible. As such, rebuilding the 69-kV line may result in the introduction of construction activities is proximity to suitable arroyo toad habitat.

Upland burrowing habitat for the toad could also be impacted by any new access road construction that occurs within suitable upland burrowing habitat (upland vegetation communities such as coastal sage scrub or oak woodland that contain sandy soil; can have gravel or cobbles) within one kilometer of arroyo toad occupied breeding habitat. Rebuilding the 69-kV line may also result in the introduction of construction activities is proximity to suitable arroyo toad upland burrowing habitat.

Potential indirect impacts to the arroyo toad from erosion, sedimentation, or decrease in water quality could occur if impacts were to affect arroyo toad breeding habitat. In accordance with Significance Criteria 1.a (Substantial adverse effect, either directly or indirectly, on one or more individuals of a federal or State-listed species), direct and indirect impact to the arroyo toad could be potentially significant but would be mitigable to a less-than-significant level (Class II) with the implementation of APMs B-1a(LE), B-1c(LE), B-2a(LE), and B-7j(LE). The full text of these APMs can be found in Attachment 5 (Applicant Proposed Measures).

Impact B-7L: Direct or indirect loss of Stephens' kangaroo rat or direct loss of habitat (Class II).

A portion of the Talega-Escondido upgrades would occur in grassland habitat on Camp Pendleton that has the potential to support SKR. Although pull sites for installing the new 230-kV line on the existing 230-kV transmission towers are assumed to occur in developed and disturbed areas, disturbed habitat, or along existing access roads, there is the potential for SKR to be directly affected by construction should vehicles crush any occupied burrows that occur in these areas. Direct and indirect impacts to the SKR and its occupied habitat from habitat removal or disturbance from construction would be potentially significant according to Significance Criteria 1.a (Substantial adverse effect, either directly or indirectly, on one or more individuals of a federal or State-listed species).

The pre-construction surveys required in APM B-7k(LE) would determine the presence/absence of SKR and, if presence is determined, compensatory mitigation can be formulated. With the small number of acres likely required for mitigation, it is expected that appropriate mitigation lands would be available to satisfy species-specific mitigation requirement. Direct or indirect impacts to the SKR could be potentially significant but would be mitigable to a less-than-significant level (Class II) through the implementation of APMs B-1a(LE), B-1c(LE), B-2a(LE), B-7a(LE), and B-7k(LE). The full text of these APMs can be found in Attachment 5 (Applicant Proposed Measures).

Impact B-7M: Direct or indirect loss of coastal California gnatcatcher or direct loss of habitat (Class II).

The coastal California gnatcatcher was observed at MPs 0.2 and 4.5 (Dudek, 2002). Designated critical habitat for the CGN occurs between MPs 0-3.5, MPs 21.8-27.8, and MPs 33-36.8.

Approximately two acres of CGN habitat (1.8 acres of Diegan coastal sage scrub and 0.19 acres of Diegan coastal sage scrub-disturbed, some of which is critical habitat) would be directly impacted by construction of the Talega-Escondido upgrades between the Pala and Lilac Substations (Figures Ap.8K-9 through Ap.8K-14 in Appendix 8K of the Sunrise DEIR/DEIS). With the small number of acres required for mitigation, it is expected that appropriate mitigation lands would be available to satisfy the mitigation requirement because this type of mitigation for the CGN is typically available and regularly provided in San Diego County.

CGN breeding can be affected by excessive construction noise, considered to be 60 dB(A) Leq at the edge of occupied habitat by the USFWS (USFWS, 2007c; American Institute of Physics, 2005). A noise impact affecting CGN-occupied or critical habitat or breeding activities could be potentially significant according to Significance Criteria 1.a (Substantial adverse effect through any impact to one or more individuals of a federal or State-listed species), Significance Criteria 1.d (Disturbance to critical habitat), Significance Criteria 1.g (Substantial adverse effect through activities that result in the killing of migratory birds or destruction or abandonment of migratory bird nests and/or eggs), and/or Significance Criteria 4.d (Adversely affect wildlife through an increase in noise).

Any direct or indirect impact to the CGN or its occupied or critical habitat or its breeding could be potentially significant but would be mitigable to a less-than-significant level (Class II) with the implementation of APMs B-1a(LE), B-1c(LE), B-2a(LE), and B-7l(LE), as described in Attachment 5 (Applicant Proposed Measures).

Impact B-7N: Direct or indirect loss of San Diego fairy shrimp (and/or Riverside fairy shrimp) or direct loss of habitat (Class II).

Although no vernal pools are known to occur along the Talega-Escondido existing and proposed transmission and subtransmission alignments, water-holding basins do have the potential to occur and these could support the Riverside fairy shrimp, particularly on Camp Pendleton. The types of impacts that could occur to fairy shrimp include direct construction impacts from grading or vegetation removal that affects water-holding basins that support fairy shrimp, as well as indirect impacts caused by alterations of the watersheds of basins by even slight topographic changes or increases in sedimentation.

Direct and indirect impacts to fairy shrimp and its occupied habitat from habitat removal or disturbance could be potentially significant according to Significance Criteria 1.a (Substantial adverse effect through any impact to one or more individuals of a federal or State-listed species). This impacts could be potentially significant but would be mitigable to a less-than-significant level (Class II) with the implementation of APMs B-1b(LE), B-1c(LE), and B-2a(LE). The full text of these APMs can be found in Attachment 5 (Applicant Proposed Measures).

Impact B-8: Construction activities would result in a potential loss of nesting birds (violation of the Migratory Bird Treaty Act) (Class II).

The Talega-Escondido transmission right-of-way contains a variety of vegetation communities that provide sites for bird nests. Construction activities would disturb vegetation and have the potential to impact nesting birds. Ground-nesting birds, such as the burrowing owl, could also be impacted by foot or vehicle/equipment traffic. The removal of vegetation and possibly other construction activity during the breeding season could result in the displacement of breeding birds, abandonment of active nests, and accidental nest destruction. With the exception of a few non-native bird species, an active bird (raptor) nest is fully protected against "take" pursuant to the federal MBTA. It is unlawful to take, possess, or destroy the nest or eggs of any such bird.

The upgrades could have a potentially significant impact if they were to result in a violation of the MBTA and result in the mortality of migratory birds or cause destruction or abandonment of migratory bird nests and/or eggs (Significance Criteria 1.g). A violation of the MBTA could be a potentially significant impact but would be mitigable to a less-than-significant level (Class II) with the implementation of APMs B-1f through B-1i, B-2b, B-2c, B-6b, B-8a(LE), and B-8b. The full text of these APMs can be found in Attachment 5 (Applicant Proposed Measures).

Impact B-9: Construction or operational activities would adversely affect linkages or wildlife movement corridors, the movement of fish, and/or native wildlife nursery sites (Class II for bat colonies; Class IV for linkages or wildlife movement corridors and movement of fish).

The Talega-Escondido transmission and subtransmission lines crosses numerous creeks and rivers, including Cristianitos Creek, San Mateo Creek, and Roblar Creek on Camp Pendleton, the Santa Margarita River along the northeastern portion, and Gomez Creek, San Luis Rey River, and Keys Creek on the Rainbow to Escondido portion (EVMWD, 2007). Because the proposed upgrades would span these creeks and rivers, no impacts to fish and fish movement would be anticipated (Class IV).

The 69-kV line upgrade crosses a 100- and 500-year floodplain directly south of the Pala Substation and a few minor flooding areas exist to the north of the Lilac Substation. In those areas, spanning the floodplain may be infeasible. Where structures can be spaced far enough apart to span a FEMA-designated floodplain, no impact on fish habitat would result. However, where structures are located in designated 100-year floodplains, during periods of heavy rain, subtranmission poles may be partially inundated by rising waters. Since these events have only a one percent chance of occurring in any one year and since the area of any impedance to fish movement would be minimal, no impact is anticipated (Class IV).

Due to the intermittent locations and temporary nature of the transmission and subtransmission line construction activity, wildlife would not be physically prevented from moving around equipment. During the upgrades operation, the widely spaced towers and poles would not physically obstruct wildlife movement. Wildlife would be able to move around or under the towers and around the poles. Additionally, the creation of permanent access roads may, in some cases, make wildlife movement through otherwise dense vegetation easier (Class IV).

Impacts to a bat nursery colony would be significant if humans approached an active nursery colony, if entrances to nursery colony sites become blocked, if construction involves blasting or drilling that causes substantial vibration of the earth/rock surrounding an active nursery colony, or if a structure occupied by bats, such as a bridge, were to be disturbed during construction. A bat nursery colony site is where pregnant female bats assemble (or one bat if it's of a solitary species) to give birth and raise their pups. These colonies could be located in rock crevices, caves, or culverts; inside/under bridges; in other man-made structures; and in trees (typically snags or large trees with cavities). In according with Significance Criteria 4 (Impede the use of native wildlife nursery sites), direct or indirect impacts to bat nursery colonies could be potentially significant but would be mitigable to a less-than-significant level (Class II) with the implementation of APM B-9a. The full text of this APM can be found in Attachment 5 (Applicant Proposed Measures).

The southern steelhead had thought to be extirpated from much of its historic range in southern California. In 1995, the California Department of Fish and Game (CDFG) reported that steelhead have been extirpated from at least eleven southern California steams, including San Luis Rey River, San Mateo Creek, Santa Margarita River, Rincon Creek, Maria Ygnacio River, Los Angeles River, San Gabriel River, Santa Ana River, San Onofre Creek, San Juan Creek, San Diego River, and Sweetwater River. In 1999, the first reoccurrence of a juvenile steelhead was observed in San Mateo Creek.

The "Cleveland National Forest Land Management Plan" states that "San Mateo Creek is one of the few remaining streams south of Los Angeles that is not dammed, and because of its location on federal lands, it has retained a pristine character. San Mateo Creek has an exceptionally high habitat quality for aquatic species. The San Mateo Creek Watershed supports the southernmost population of southern steelhead trout known to exist. The population is located on the lower reaches of the San Mateo Creek corridor and in Devil Canyon. The largest known population of sticky dudleya (a Region 5 sensitive plant species) is also located along San Mateo Creek in Devil Canyon, and at the confluence of Devil Canyon and San Mateo Creek (Devil's Gorge)" Construction of new transmission towers and access roads within this watershed could result in increased sediment loading and discharge into San Mateo Creek" (USFS, 2006).

As proposed, the Applicant will establish appropriate setbacks from streams, avoid sediment discharge, and implement BMPs identified by the Forest Service to avoid any effects on the existing steelhead recovery efforts in the San Mateo watershed as part of the erosion control plan (PME-5). Since sediment control measures will be implemented as part of the required Storm Water Pollution Prevention Plan (SWPPP) and will result in the control of discharges to all existing surface waters, including San Mateo Creek, no impacts on native fish populations or movement are anticipated (Class IV).

Impact B-10: Presence of transmission lines would result in electrocution of, and/or collisions by, listed or sensitive bird species (No Impact for electrocution; Class I for collision for listed species; Class II for collision for non-sensitive species or daytime migration; Class III for eagles).

The primary consideration with respect to bird collisions with transmission towers/lines and subtransmission poles/lines is during migration, especially in spring migration when strong winds and storms are more likely to force the birds to fly at relatively low altitudes. Most of this migration takes place at night. Mortality as a result of collision with these features would be greatest where the movements of migrating birds are the most concentrated.

The Talega-Escondido transmission line crosses numerous creeks and rivers, including Cristianitos Creek, San Mateo Creek, and Roblar Creek on Camp Pendleton, the Santa Margarita River along the northeastern portion, and Gomez Creek, San Luis Rey River, and Keys Creek on the Rainbow to Escondido portion (EVMWD, 2007). These creeks and rivers may provide migration corridors for waterfowl or wading birds that are often victims of collisions with transmission lines, towers, poles, or static wires. However, other types of birds can also be collision victims. Since migration corridors have not been studied systematically, there is no supporting documentation available to quantify how many and what species of birds could actually be impacted by collision with the proposed Talega-Escondido upgrades.

Because avian migration corridors have never been studied systematically, there is no way to know how many birds and what species of birds could actually be impacted by collision with transmission and subtransmission lines, towers, poles, or static wires. Therefore, it is assumed that some species could be federal or State-listed or of other special status.

According to Significance Criteria 1.a (Impact one or more individuals of a species that is federal or State-listed), Significance Criteria 1.f (Directly or indirectly cause the mortality of candidate, sensitive, or special status wildlife), and/or Significance Criteria 1.g (Killing of migratory birds or destruction or abandonment of migratory bird nests and/or eggs), any mortality of those species would be a significant impact that is not likely mitigable to a less-than-significant level (Class I). However, if off-setting compensatory resources could be identified and if that compensation were accepted by applicable resource agencies, this impact could be reduced to a less-than-significant level.

For non-sensitive species or species that migrate during the day, collision would be potentially significant according to Significance Criterion 1.f and 1.g but would be mitigable to a less-than-significant level (Class II) with the implementation of APM B-10a(LE). The full text of this APM can be found in Attachment 5 (Applicant Proposed Measures).

According to a local eagle expert (Bittner, 2007), eagles do not tend to be collision victims, except on the smaller distribution lines (i.e., less than 69 kV), because their eyesight is so acute. Included as part of the Talega-Escondido upgrade is the rebuilding of a 69-kV subtransmission line on new poles along an approximately 7.8-mile stretch between the Pala and Lilac Substations. Because the 69-kV subtransmission line is already in place (positioned on the spare arm of the exiting Talega-Escondido 230-kV transmission towers), the relocation of that subtransmission line to new 69-kV poles would not significantly increase the existing hazards posed by the current 69-kV line configuration (Class III).

Impact B-11: Presence of transmission lines would result in increased predation of listed and sensitive wildlife species by ravens that nest on transmission towers (Class III).

Although predation may occur, the common raven has not been documented to prey on any listed or sensitive wildlife present along the Talega-Escondido corridor (Liebezeit et al., 2002). The 230-kV transmission alignment already contains towers that could be used by ravens for nesting. The 69-kV upgrades would install steel and/or wood poles between the Pala and Lilac Substations that are unlikely to support a raven nest. If ravens did nest along the alignment, the potential increase in raven predation would occur only on a limited basis and would be adverse but less than significant (Class III) and no mitigation is required.

Impact B-12: Maintenance activities would result in disturbance to wildlife and wildlife mortality (Class II).

Disturbance to wildlife and potential wildlife mortality from maintenance could result in a potentially significant impact if that disturbance were to impact listed species (Significance Criteria 1.a), disturb critical habitat (Significance Criteria 1.d), directly or indirectly cause the mortality of candidate, sensitive, or special status species (Significance Criteria 1.f), violate the MBTA (Significance Criteria 1.g), and/or have a substantial adverse effect on riparian or other sensitive vegetation communities if weed species are introduced (Significance Criteria 2.b). This impact could result in a degradation of wildlife habitat which would be mitigable through the implementation of APMs B-3a[LE] and B-15b. Impacts to non-listed, sensitive wildlife species from maintenance activities would be potentially significant but would be mitigable to a less-than-significant level (Class II) with the implementation of APM B-12a(LE). The full text of these APMs can be found in Attachment 5 (Applicant Proposed Measures).

Maintenance activities could impact nesting birds (violate MBTA) if vegetation is cleared during the general avian breeding (February 15 through September 15) or the raptor breeding (January 1 through September 15) seasons. This impact would be potentially significant but would be mitigable to a less-than-significant level (Class II) with the implementation of APMs B-2b, B-6b, and B-12a(LE). The full text of these APMs can be found in Attachment 5 (Applicant Proposed Measures).

Maintenance activities could impact the LBV, SWF, and CGN if the noise threshold (60 dB[A] Leq hourly) is met or exceeded at the edge of their nesting territories during their breeding seasons. This impact could be potentially significant but would also be mitigable to a less-than-significant level (Class II) with the implementation of APMs B-2b, B-6b, B-7e(LE) and B-12a(LE), as outlined in Attachment 5 (Applicant Proposed Measures).

Maintenance activities could impact the golden eagle if they would to occur within 4,000 feet of an active nest. These impacts could be potentially significant but would be mitigable to a less-than-significant level (Class II) with the implementation of APMs B-7h and B-12a. The full text of these APMs can be found in Attachment 5 (Applicant Proposed Measures).

Impacts to SKR from maintenance could occur from brush clearing if clearance activities were to damage burrows or if vehicles were to crush burrows along access roads. This impact could be potentially significant but would also be mitigable to a less-than-significant level (Class II) with the implementation of APM B-7k(LE), as outlined in Attachment 5 (Applicant Proposed Measures).

QCB has the potential to occur in specified USFWS protocol survey areas. Maintenance activities associated with the upgrades would not remove additional vegetation from the area but could adversely affect the QCB where access roads are maintained. This impact could be potentially significant but would be mitigable to a less-than-significant level (Class II) with the implementation of APM B-7i(LE). The full text of this APM can be found in Attachment 5 (Applicant Proposed Measures).

Maintenance activities, including road maintenance that fills in water-holding basins or driving through such basins, could cause disturbance to and possible the mortality of Riverside fairy shrimp. This impact would be potentially significant but would be mitigable to a less-than-significant level (Class II) with the implementation of APM B-1b (LE). The full text of this APM can be found in Attachment 5 (Applicant Proposed Measures).

5.4.2 LEAPS - Biological Resource Impacts

Vegetation mapping was conducted by MBA (Figure Ap.8K-3 in Appendix 8K of the Sunrise DEIR/DEIS). The upper reservoir site occurs within northern mixed chaparral and coast live oak woodland. The underground penstock system crosses through areas dominated by dense chamise chaparral above 1600 to 1800-feet above mean sea level (msl) with coastal sage scrub habitat below. The proposed LEAPS Powerhouse and associated facilities would be located primarily within coastal sage scrub. The tailrace tunnel would cross through developed areas, non-native grasslands, and extend into Lake Elsinore. Elevations of LEAPS facilities range from about 1255-feet above msl at Lake Elsinore to about 2900-feet above msl at the upper reservoir site. This range of elevations supports a wide variety of habitats.

LEAPS is located, in part, within the National Forest and interconnects with the TE/VS Interconnection which is located in and traversing the CNF, Camp Pendleton, and Fee and Core Reserve Area for the SKR. LEAPS is not located within a designated critical habitat but interconnects with facilities located within designated critical habitat for the QCB and CGN. QCB critical habitat occurs north of the I-15 Freeway. CGN critical habitat occurs near the Lake Switchyard and along several access roads.

The following four special status (listed or sensitive) plant species were documented near LEAPS during six years of focused surveys: Munz's onion, heart-leaved pitcher sage, rainbow Manzanita, and Hammitt's clay-cress. In addition, although not observed during six years of focused plant surveys, the following special status (non-listed, sensitive) plantsted species have

moderate to high potential to occur based on the habitats present and/or documented in California Natural Diversity Database (CNDDB) or Forest Service records: Davidson's saltscale, thread-leaved brodiaea, Orcutt's brodiaea, long-spined spineflower, summer holly, slender-horned spineflower, many-stemmed dudley, sticky dudleya, San Diego button-celery, Coulter's goldfields, Parish's meadowfoam, Hall's monardella, California Orcutt grass, San Miguel savory, and Parry's tetracoccus.

No listed wildlife species were documented along or near LEAPS. The listed QCB, arroyo toad, CGN, LBV, and SWF are believed to have moderate-to-high potential to occur in the general area based on the habitats present and the location of designated critical habitat for QCB and CGN. Multiple years of USFWS protocol surveys were conducted for these species, including: (1) six consecutive years for the QCB; (2) four years for the arroyo toad; and (6) six consecutive years for the CGN, LBV, and SWF. None of these species were found during those surveys.

Although the associated transmission interconnection occurs in special habitat management areas for the SKR, focused surveys were not conducted for that species because presence was assumed and an in-lieu fee program (SKR Fee Assessment Area) has already been established to compensate for development impacts within those management areas. The State-listed bald eagle has high potential to fly through the general area to forage at Lake Elsinore.

The following non-listed, sensitive wildlife species were documented along or near LEAPS: coastal California newt, coastal rosy boa, red-diamond rattlesnake, coast (San Diego) horned lizard, two-striped garter snake, Cooper's hawk, Southern California rufous-crowned sparrow, loggerhead shrike, and (9) California spotted owl.

The following non-listed, sensitive wildlife species have moderate to high potential to occur along or near LEAPS based on the habitats present and/or documented CNDDB or Forest Service records: western spadefoot toad, Belding's orange-throated whiptail, San Diego ringneck snake, southwestern pond turtle, Coronado skink, San Diego mountain kingsnake, long-eared owl, burrowing owl, white-tailed kite, northern San Diego pocket mouse, and western red bat.

The National Forest Management Act of 1982 requires that the Forest Service address Management Indicator Species (MIS) during the development of forest plans (USDA, 2005). The following five MIS are known to occur in the general area: Engelmann oak, mountain lion, mule deer, song sparrow, and California spotted owl. The arroyo toad, another Forest Service designated MIS, has potential habitat in the general area but was not found during any of the focused surveys.

The Applicant proposes to operate LEAPS so that daily fluctuations in the surface elevation of Lake Elsinore would be on the order of about one foot. A daily fluctuation of one foot would affect about 79 acres along the lake margin (e.g., between elevations 1240 and 1241-feet above msl). A weekly fluctuation of about 1.7 feet would affect an additional 55 acres (Anderson, 2006). The immediate shoreline of Lake Elsinore supports no native riparian vegetation. Vegetation near the shore in these areas consists of ornamental trees, shrubs, and flowers used in landscaping, or non-native weedy species that take hold in disturbed soils. Vegetation growing on the 2.5-mile-long levee that forms the southeastern shoreline is very sparse and consists mainly of non-native forbs and grasses.

There is no known significant migratory bird breeding habitat on the present shores of Lake Elsinore, which is subject to heavy human disturbance. Birds breed in shrubs and vegetation in the northern corner of the lake, back from the shore. A heron rookery is at least one-tenth of a mile from the water, in the Back Basin area. Double-crested cormorants are regularly observed at Lake Elsinore, likely to be foraging or wintering, as the only known rookery in western Riverside County is in the Prado Basin. Small breeding populations of snowy plover at Lake Elsinore were reported in the past, before the modification of Lake Elsinore into an operating lake (Main Basin) and separate Back Basin. Currently, with regards to existing shoreline conditions, lake level fluctuations, and high levels of human use around the margins of the lake preclude nesting by snowy plover. Suitable plover nesting substrates may be present within the loafing areas of the Back Basin. Caspian tern was reported nesting at Lake Elsinore. The available data reported 14 pairs in 1999 but none in the subsequent four years. Conditions around the lakeshore presently do not permit this or other open-substrate nesters to form breeding colonies on the main lake.

Lake Elsinore supports warm-water fisheries consisting primarily of threadfin shad, common carp, bluegill, green sunfish, and limited populations of stocked gamefish, including largemouth bass. Lake Elsinore supports no native fish species. Being historically ephemeral, with resulting variable water levels, high water temperature, high alkalinity, and eutrophic conditions, the lake has provided marginal habitat for native fish. During wet years, Lake Elsinore was historically colonized by fish from the San Jacinto River (EIP Associates, 2005). The extreme conditions in Lake Elsinore have historically resulted in numerous fish kills and the lake currently supports an introduced aquatic community that is highly tolerant of this environment (EIP Associates, 2005). Little native riparian vegetation exists on the shore of the lake, and the lake does not support floating or submerged aquatic vegetation (EIP Associates, 2005).

Historically, Lake Elsinore was stocked with a variety of native and non-native fish. As early as the 1890's, northern largemouth bass, green sunfish, and common carp were stocked in the lake. Through the years, often following fish kills, species of bass, bullheads, sunfish, crappies, and shad also were stocked in the lake in an effort to create a recreational fishery. The common carp, one of the first fish species planted in Lake Elsinore, is currently prevalent in the lake. Carp tend to be abundant in eutrophic lakes and reservoirs with silty bottoms and submerged aquatic vegetation. They are tolerant of high turbidity, high temperatures, and low dissolved oxygen concentrations (Moyle, 2002). The common carp is now considered a nuisance species. Following surveys in 2003, the City of Lake Elsinore implemented a carp removal program, and an estimated 291,000 carp were removed from the lake (EIP Associates, 2005).

Jurisdictional waters and wetlands were surveyed by MBA at the Decker Canyon Reservoir site during October 2007 (MBA, 2007). Two main drainages and several tributaries occur at the Decker Canyon Reservoir site and construction staging areas and two main drainages and four swales were occur at the LEAPS Powerhouse site. Lake Elsinore is a jurisdictional water body.

Table 5.4.2-1 (LEAPS – Biological Resource Impacts) summarizes the potential biological resource impacts of LEAPS.

Table 5.4.2-1. LEAPS – Biological Resource Impacts

Impact	Description	Significance
B-1	Construction activities would result in temporary and permanent losses of native vegetation	I, III
B-2	Construction activities would result in adverse effects to jurisdictional waters and wetlands through vegetation removal, placement of fill, erosion, sedimentation, and degradation of water quality	II
B-3	Construction and operation/maintenance activities would result in the introduction of invasive, non-native, or noxious plant species	II
B-4	Construction activities would create dust that would result in degradation of vegetation	II
B-6	Construction, including the use of access roads, would result in disturbance to wildlife and result in wildlife mortality	III
B-7	Construction activities would result in direct or indirect loss of listed or sensitive wildlife or a direct loss of habitat for listed or sensitive wildlife (includes Impacts B-7A through B-7O for individual wildlife resources)	I, II, IV
B-8	Construction activities would result in a potential loss of nesting birds (violation of the Migratory Bird Treaty Act)	II
B-9	Construction or operational activities would adversely affect linkages or wildlife movement corridors, the movement of fish, and/or native wildlife nursery sites	I, II, III
B-12	Maintenance activities would result in disturbance to wildlife and could result in wildlife mortality	II, IV

Source: The Nevada Hydro Company, Inc.

Impact B-1: Construction activities would result in temporary and permanent losses of native vegetation (Class I for sensitive vegetation, vegetation management, and type conversion; Class III for non-sensitive vegetation).

Construction of the generation (pumped storage) components would cause both temporary (during construction from vegetation clearing) and permanent (displacement of vegetation with associated facilities, such as a reservoir and powerhouse) impacts to vegetation communities (Table 5.4.2-2). Construction activities would also result in the alteration of soil conditions, including the loss of native vegetation and changes in topography and drainage, such that the ability of the site to support native vegetation after construction would be impaired.

Table 5.4.2-2. LEAPS - Impacts to Vegetation Communities (acres)

Vegetation Community	Decker Canyon Reservoir	LEAPS Powerhouse	Construction Staging Areas	Total Impacts
Non-Native Vegetation, Developed Areas, and Disturbed Habitat				
Disturbed habitat	0.9	3.7	12.6	17.2
Non-native vegetation (ornamental woodland)	-	-	5.2	5.2
Coastal and Montane Scrub Habitats				
Coastal sage scrub	-	48.3	4.4	52.7
Grasslands and Meadows				
Non-native grassland	-	0.8	27.9	28.7
Chaparrals				
Northern mixed chaparral	96.7	-	47.0	143.7
Woodlands and Forests				
Coast live oak woodland	4.7	-	0.9	5.6
Herbaceous Wetlands, Freshwater, and Streams				
Freshwater (open water)	-	-	3.8	3.8
Total	102.3	52.8	101.8	256.9

Source: The Nevada Hydro Company, Inc.

Impacts to sensitive vegetation communities would be significant according to Significance Criteria 2.a (Substantial adverse effect on a riparian habitat or other sensitive natural community by temporarily or permanently removing it during construction, grading, clearing, or other

activities). This impact is not likely mitigable to a less-than-significant-level (Class I) because it is unknown if enough mitigation lands are available to compensate for the impacts. However, if off-setting compensatory resources could be identified and if accepted by applicable resource agencies, this impact could be reduced to a less-than-significant level.

APMs B-1a(LE) and B-1c(LE) are recommended to, in whole or in part, compensate for impacts to sensitive vegetation communities. Impacts to non-sensitive vegetation (i.e., disturbed habitat and non-native vegetation) would be adverse but less than significant (Class III) and no mitigation is required. The full text of these APMs can be found in Attachment 5 (Applicant Proposed Measures).

It has been estimated that up to approximately 50 native oak trees would be removed for construction of the new Decker Canyon Reservoir. The loss of native trees and shrubs could be a potentially significant impact (Class I) if that loss were to result in: (1) Substantial adverse effect on candidate, sensitive, or special status species (Significance Criteria 1); (2) Substantial adverse effect on riparian habitat or other sensitive natural community (Significance Criteria 2); (3) Substantial adverse effect on federally protected water quality or wetlands (Significance Criteria 3); (4) Interfere with wildlife movement or the use of native wildlife nursery sites (Significance Criteria 4); and/or (5) Conflict with local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance (Significance Criteria 5).

Native shrubs and non-native trees or shrubs may also be present at the proposed upper reservoir site that would need to be removed. The loss of non-native trees or shrubs would usually be an adverse but less-than-significant impact (Class III) because they are non-native and typically do not support special status wildlife species. However, removal of a non-native tree or shrub containing an active bird (raptor) nest could violate the MBTA and be a potentially significant impact but mitigable to a less-than-significant level (Class II). Likewise, removal of a native tree or shrub containing an active bird (raptor) nest could violate the MBTA and be a potentially significant impact but mitigable to a less-than-significant level (Class II).

In addition to those native and non-native trees that would need to be removed, other trees would need to be trimmed to provide appropriate clearances. In the absence of an estimate of the number of trees that would need to be trimmed, for the purpose of this analysis, it was assumed that all trees would need to be removed. Although some percentage of the trees could be retained, pending the development of final construction plan, a precise estimation cannot be provided.

Removal and/or trimming of a native tree or shrub containing an active bird (raptor) nest could also be a violation of the MBTA and a potentially significant impact but would be mitigable to a less-than-significant level (Class II). Removal and/or trimming of non-native trees or shrubs would usually be an adverse but less-than-significant impact (Class III) because they are non-native and usually do not support special status wildlife species. However, trimming a non-native tree or shrub containing an active bird (raptor) nest could be a violation of the MBTA and a potentially significant impact but would be mitigable to less-than-significant level (Class II). See also the discussion in Impact B-8 for how construction activities (including tree trimming) could result in a potential loss of nesting birds and violation of the MBTA.

Trimming up to 30 percent of a native tree's crown would diminish the tree's value as wildlife habitat and could cause harm to the tree leading to its decline or death. Therefore, native tree trimming would be significant according to Significance Criterion 1, 2, 4, and 5. The loss (or trimming) of a large number of native trees is a significant impact that would not likely mitigable to a less-than-significant level (Class I) because adequate mitigation lands required by APM B-a(LE) for restoration and/or compensation may not be available. However, if off-setting compensatory resources could be identified and if accepted by applicable resource agencies, this impact could be reduced to a less-than-significant level.

APM B-1a(LE) is recommended to reduce the impacts to the greatest extent feasible. The full text of these APMs can be found in Attachment 5 (Applicant Proposed Measures).

The construction and operation of new transmission lines in areas with high fire risk could contribute to wildfire hazards if they were to reduce the effectiveness or otherwise impede fire-fighting efforts. Fires cause direct loss of vegetation communities, wildlife habitat, and wildlife species. Although periodic fires are part of the natural ecosystem, fires burning too frequently can have significant long-term ecological effects such as degradation of habitat (temporal loss of habitat and non-native plant species invasion) and loss of special status species. The biodiversity of southern California is uniquely adapted to low rainfall, rugged topography, and wildfires. However, fires have become more frequent with growth in the human population, creating a situation in which vegetation communities (and, therefore, habitats for plant and animal species) are changed dramatically and may not recover. This change in vegetation community is called "type conversion" and can occur to any native vegetation community. When burned too frequently, vegetation communities are often taken over by highly flammable, weedy, non-native plant species that burn even more often and provide minimal habitat value for native plant and animal species, especially those of special status. For example, the CGN is dependent primarily on coastal sage scrub vegetation which, if burned too many times, can convert to non-native grassland or disturbed habitat that would preclude its use by the CGN. If LEAPS were to cause a fire, or inhibit fighting of fires, and this leads to type conversion of sensitive vegetation communities, the impact would likely be significant (Class I) according to Significance Criteria 1 (Substantial adverse effect through habitat modification on any species identified as candidate, sensitive, or special status) and/or Significance Criteria 2 (Substantial adverse effect on a riparian habitat or other sensitive natural community).

Although future fires may not cause type conversion in all instances, the impact is significant because of the severity of potential habitat loss. This impact is not likely mitigable to a less-than-significant level (Class I). From a biological resource perspective, implementation of the vegetation management program described herein would reduce the fire risk, although not to a less-than-significant level.

Impact B-2: Construction activities would result in adverse effects to jurisdictional waters and wetlands through vegetation removal, placement of fill, erosion, sedimentation, and degradation of water quality (Class II).

Decker Canyon is a central drainage that supports oak woodland habitat, with several tributary drainages on the upland slopes surrounding it. The Decker Canyon Reservoir site contains approximately 0.51 acres of non-wetland WoUS (under the jurisdiction of the USACE) and 5.84

acres under CDFG jurisdiction. This includes approximately 5.33 acres of riparian canopy that is not under the jursidiction of USACE. It is likely that the entire area will be impacted during construction. There are no wetlands within the Decker Canyon drainage features. The drainage feature within the proposed reservoir's footprint is about 3,300-feet long and ranges from 1 to 6-feet wide, with an average width of about four feet. Sandy soils typify this site. This stream is ephemeral, likely flowing only during and immediately after flood events. Surveyors observed no vegetation within the active channel. Riparian vegetation outside the ordinary high water mark (OHWM) is dominated by upland species, including chamise, hoary-leafed ceanothus, toyon, and coast live oak. No hydrophytic plants were documented.

Construction activities within Lake Elsinore would impact an additional approximately 3.8 acres of open water that would be jurisdictional.

In accordance with Significance Criteria 3.a (Substantial adverse effect on water quality or wetlands as defined by the USACE and/or CDFG), these impacts are potentially significant but would be mitigable to a less-than-significant level (Class II) with the implementation of APM B-2a(LE). The full text of this APM can be found in Attachment 5 (Applicant Proposed Measures).

Impact B-3: Construction and operation/maintenance activities would result in the introduction of invasive, non-native, or noxious plant species (Class II).

A variety of invasive, non-native plant species are known to occur in the LEAPS area. These include red brome, black mustard, castor bean, tree tobacco, Russian thistle, yellow sweet clover, bristly ox-tongue, and giant reed.

Construction of the generation (pumped storage) components would cause soil disturbance. Soil disturbance creates conditions that promote the establishment and spread of invasive, non-native plant species and these species may be carried into and out of the area by construction equipment and the importation and exportation of construction materials. This impact is potentially significant but would be mitigable to a less-than-significant level (Class II) with the implementation of APMs B-3a (LE), B-15a, and B15b. The full text of these APMs can be found in Attachment 5 (Applicant Proposed Measures).

During LEAPS operation, weed establishment and spread would be a continuing consideration as a result of off-road vehicles on access roads. This activity could cause soil disturbance, introduce more weed seed, and promote the spread of weeds. The introduction and spread of invasive, non-native, or noxious plant species in these areas could be a potentially significant impact but would be mitigable to a less-than-significant level (Class II) with the implementation of APMs B-3a (LE), B-15a, and B15b. The full text of these APMs can be found in Attachment 5 (Applicant Proposed Measures).

Impact B-4: Construction activities would create dust that may result in degradation of vegetation (Class II).

Construction activities such as grading, excavation, and driving of heavy equipment on unpaved roadways would result in increased levels of blowing dust that may settle on surrounding

vegetation. Increased levels of dust can significantly impact plants' photosynthetic capabilities and degrade the overall vegetation community. This impact is potentially significant but would be mitigable to a less-than-significant level (Class II) with the implementation of APM B-4a(LE) which includes measures to control dust, including the revegetating disturbed areas. The full text of this APM can be found in Attachment 5 (Applicant Proposed Measures).

Impact B-5: Construction activities would result in direct or indirect loss of listed or sensitive plants or a direct loss of habitat for listed or sensitive plants (Class IV).

Although four special status plant species were documented in the general area during six previous years of surveys, no special status plants were observed at the locations of LEAPS facilities. As a result of their absence, there would be no impacts to special status plant species from construction of the LEAPS components (Class IV)

Impact B-6: Construction activities, including the use of access roads, would result in disturbance to wildlife and result in wildlife mortality (Class III).

Adverse effects to general (non-special status) wildlife are anticipated from LEAPS construction from the removal of vegetation and the temporary loss of wildlife habitat along with the displacement and/or potential mortality of resident wildlife species that are poor dispersers such as snakes, lizards, and small mammals. Construction may also result in the temporary degradation of the value of adjacent native habitat areas due to noise, increased human presence, and vehicle traffic. To the extent that these impacts were limited to non-special status species, they would be adverse but less than significant (Class III) and no mitigation is required. Impacts to special status species are separately addressed herein.

APMs B-1a(LE) B-1c(LE), B-1f, B-1i, B-2a(LE), B-2b, B-4a(LE), B-6a through B-6d, and B-7a(LE) are, however, recommended to reduce the disturbance to wildlife and wildlife mortality to the maximum extent feasible.

Impact B-7: Construction activities would result in direct or indirect loss of listed or sensitive wildlife or a direct loss of habitat for listed or sensitive wildlife (Class I construction impacts to non-listed, sensitive species; other impact classes depend on species - see individual discussions).

Listed or sensitive (special status) wildlife species impacts could result from direct or indirect loss of known locations of individuals or direct loss of potential habitat as a result of temporary or permanent grading or vegetation clearing during construction of the LEAPS components. In addition, individuals near construction areas may temporarily abandon their territories due to disturbance from noise and human activity. A number of non-listed, sensitive wildlife species have the potential to occur in these areas.

Multiple years of surveys for the listed CGN and QCB were negative. These species are not present and, as a result of their absence, would not be impacted by LEAPS construction or operation. The SKR is assumed to exist in the area of the associated interconnect but is not present in the area of the LEAPS Powerhouse, Decker Canyon Reservoir, or within the OHWM of Lake Elsinore.

Decker Canyon is tributary to San Juan Creek. In 1996, USFWS biologists surveyed San Juan Creek from the I-5 Freeway to Hot Springs Canyon. During that seining, the USFWS collected one species of native fish, the arroyo chub and several non-native species, including mosquitofish, green sunfish, smallmouth bass, yellow bullhead, and red shiner (FERC, 2007). The arroyo chub is listed as a California species of concern because it is considered threatened in its home range. LEAPS' potential effects on the arroyo chub are addressed in Impact B-7T.

Most of the non-listed, sensitive species' habitats are sensitive vegetation communities. Mitigation for the loss of the sensitive vegetation communities, as presented in APM B-1a(LE), would normally compensate for the potential loss of these sensitive species and their habitats. However, since adequate suitable land required by APM B-1a(LE) may not be available, the impact to non-listed, sensitive wildlife species is significant according to Significance Criteria 2.a (Impacts that directly or indirectly cause the mortality of candidate, sensitive, or special status wildlife species) and not likely mitigable to a less-than-significant level (Class I). However, if off-setting compensatory resources could be identified and if accepted by applicable resource agencies, this impact could be reduced to a less-than-significant level.

APMs B-1a(LE), B-1c(LE), B-1f, B-1i, B-2a(LE), B-2b, B-4a(LE), B-6a through B-6d, and B-7a(LE) are, however, recommended to compensate, in whole or in part, for impacts to non-listed, sensitive wildlife species. The full text of these APMs can be found in Attachment 5 (Applicant Proposed Measures).

The State-listed bald eagle has high potential to fly through the study area to forage at Lake Elsinore. Impacts to the bald eagle are addressed in Impact B-10.

Impact B-7L: Direct or indirect loss of Stephens' kangaroo rat or direct loss of habitat (Class I).

The SKR is assumed to exist in the area of the associated interconnect but is not present in the area of the LEAPS Powerhouse, Decker Canyon Reservoir, or within the OHWM of Lake Elsinore. Potential SKR habitat (non-native grassland) is present in the area of the Lake Switchyard. Based on the presence of an existing in-lieu fee program (SKR Fee Assessment Area), the SKR was assumed to be present in that area. As proposed, the Lake Switchyard is part of an interconnected facility. As such, LEAPS construction and operation will not directly or indirectly impact this species.

In accordance with Significance Criteria 1.a (Substantial adverse effect, either directly or indirectly, on one or more individuals of a federal or State-listed species), cumulative impacts to the SKR, inclusive of both LEAPS and TE/VS Interconnect, would be significant and not likely mitigable to a less-than-significant level (Class I) because adequate suitable lands required for the SKR may not be available to compensate for direct and indirect impacts to that species. However, if off-setting compensatory resources could be identified and if accepted by applicable resource agencies, this impact could be reduced to a less-than-significant level.

APMs B-1a(LE), B-1c(LE), B-2a(LE), B-7a(LE), and B-7k(LE) are recommended to, in whole or in part, minimize impacts to the SKR. The full text of these APMs can be found in Attachment 5 (Applicant Proposed Measures).

Impact B-7T: Direct or indirect loss of arroyo chub or direct loss of habitat (Class IV).

The arroyo chub is considered highly sensitive because it is threatened in its native range, which includes San Juan Creek. Lake Elsinore water and any fish that may be transported from the existing lower reservoir (Lake Elsinore) to the proposed upper reservoir (Decker Canyon) and subsequently introduced to the San Juan Creek drainage in the event of reservoir leakage, wall failure, or other planned or unplanned release, could increase predation or compete with native fish for aquatic resources, thus adversely affect the native fish population.

In order to introduce new fish populations into San Juan Creek, any such leakage would have to be extensive enough to carry enough water to support fish survival as the water flows down the canyon. No planned discharges to San Juan Creek are planned or proposed. Additionally, the upper reservoir will include both a double-liner system (low-permeability liner material and a geomembrane) and a collection system designed to minimize any potential for Lake Elsinore waters to comingle with waters in San Juan Creek. The only circumstances where sufficient waters may be transported from the upper reservoir into San Juan Creek would be the result of an operational failure. Since numerous fail-safe systems will be incorporated into the facility's design, any substantial release of waters to San Juan Creek would be both speculative and highly unlikely. As a result, it is anticipated that there would be no impact (Class IV) on the arroyo chub from the non-native fish from Lake Elsinore.

Impact B-8: Construction activities would result in a potential loss of nesting birds (violation of the Migratory Bird Treaty Act) (Class II).

The LEAPS area contains a variety of vegetation communities providing sites for bird nests. Construction activities would disturb vegetation and could impact nesting birds. Ground-nesting birds, such as burrowing owl, could also be impacted by foot or vehicle/equipment traffic. The removal of vegetation and other construction activity, if conducted during the breeding season, could result in the displacement of breeding birds, abandonment of active nests, and accidental nest destruction. With the exception of a few non-native bird species, active bird nests are fully protected against "take" pursuant to the federal MBTA. In accordance therewith, it is unlawful to take, possess, or destroy the nest or eggs of any migratory bird.

LEAPS could have a significant impact if it was to violate the MBTA and result in the mortality of migratory birds or to cause destruction or abandonment of migratory bird nests and/or eggs (Significance Criteria 1.g). A violation of the MBTA could be a potentially significant impact but would be mitigable to a less-than-significant level (Class II) with the implementation of APMs B-1f through B-1i, B-2b, B-2c, B-6b, B-8a(LE), and B-8b. The full text of these APMs can be found in Attachment 5 (Applicant Proposed Measures).

Impact B-9: Construction or operational activities would adversely affect linkages or wildlife movement corridors, the movement of fish, and/or native wildlife nursery sites (Class I for mountain lion; Class II for bat colonies; Class III for linkages or wildlife movement corridors; Class IV for movement of fish).

In accordance with the "Riverside County Multi-Species Habitat Management Plan" (MSHCP), most of the generation components occur in Core Area B. Core Area B represents a large propor-

tion of the remaining habitat for mountain lions in the Santa Ana Mountain Range. Modeling of the mountain lion population indicates it is demographically unstable and at risk of extinction because it is isolated from other populations (Beier, 1993). A five-year study of mountain lions in the Santa Ana Mountains showed that one animal (a young male) occupied a home range that included the proposed Decker Canyon Reservoir site (Beier and Barrett, 1993).

Construction at Decker Canyon would remove about 150 acres of suitable mountain lion habitat. Removal or disturbance of suitable habitat within Core Area B could result in additional adverse effects on mountain lions. In accordance with Significance Criteria 4.b (Interfere with connectivity or corridor or linkage), impacts to mountain lion habit are significant and not likely mitigable to a less-than-significant level (Class I). However, if off-setting compensatory resources could be identified and if accepted by applicable resource agencies, this impact could be reduced to a less-than-significant level.

For other wildlife in Core Area B, the impacts to wildlife movement would be adverse but less than significant (Class III) and no mitigation is required.

There are only two bat species with the potential to occur in the LEAPS area, one with low potential (pallid bat) and one with moderate potential (western red bat). Impacts to a bat nursery colony could be significant if humans approached an active nursery colony, if entrances to nursery colony sites become blocked, if construction involves blasting or drilling causes substantial vibration of the earth/rock surrounding an active nursery colony, or if a structure occupied by bats, such as a bridge, were to be disturbed by construction. A bat nursery colony site is where pregnant female bats assemble (or one bat if it's of a solitary species) to give birth and raise their pups. These colonies could be located in rock crevices, caves, or culverts, inside/under bridges, in other man-made structures, and in trees (typically snags or large trees with cavities). In accordance with Significance Criteria 4 (Impede the use of native wildlife nursery sites), direct and indirect impacts to bat nursery colonies could be potentially significant but would be mitigable to a less-than-significant level (Class II) with the implementation of APM B-9a. The full text of this APM can be found in Attachment 5 (Applicant Proposed Measures).

With the exception of Lake Elsinore, LEAPS does not occur in areas with perennial stream flows that support native fish species. Construction of the upper reservoir could, however, affect fish in San Juan Creek if sediment from construction activities were to be transported into stream flow into San Juan Creek. Potential adverse effects on fish in Lake Elsinore associated with LEAPS operation would include mortality from entrainment and impingement. Attraction flows and/or suction caused by the intakes could be too strong for some Lake Elsinore fish to escape. Impacts on fish populations could be potentially significant but would be mitigated to a less-than-significant level (Class II) through the implementation of APM B-5b. The full text of this APM can be found in Attachment 5 (Applicant Proposed Measures).

Impact B-11: Presence of transmission lines would result in increased predation of listed and sensitive wildlife species by ravens that nest on transmission towers (Class IV).

Because transmission lines directly associated with LEAPS would be constructed underground, opportunities for perching or nesting by ravens would be limited (Class IV).

Impact B-12: Maintenance activities would result in disturbance to wildlife and wildlife mortality (Class II for general wildlife; Class IV for West Nile virus).

Impacts from maintenance activities would include impacts to nesting birds if vegetation is cleared during the breeding season and mortality of special status species from vegetation clearing or the use of access roads. Disturbance to wildlife and potential wildlife mortality from maintenance could result in potentially significant impacts if those activities were to impact listed species (Significance Criteria 1.a), directly or indirectly cause the mortality of candidate, sensitive, or special status species (Significance Criteria 1.f), violate the MBTA (Significance Criteria 1.g), and/or have a substantial adverse effect on riparian or other sensitive vegetation communities if weed species are introduced (Significance Criteria 2.b). These impact could degrade wildlife habitat but would be mitigable to less-than-significant levels (Class II) through the implementation of APMs B-3a[LE] and B-15b). The full text of these APMs can be found in Attachment 5 (Applicant Proposed Measures).

Impacts to non-listed, sensitive wildlife species from maintenance activities would be potentially significant but would be mitigable to a less-than-significant level (Class II) with the implementation of APM B-12a(LE). The full text of this APM can be found in Attachment 5 (Applicant Proposed Measures).

Maintenance activities could impact nesting birds (violate MBTA) if vegetation is cleared during the general avian breeding (February 15 through September 15) or the raptor breeding (January 1 through September 15) seasons. This impact would be potentially significant but would be mitigable to a less-than-significant level (Class II) through compliance with FERC/USFS requirements, in combination with the implementation of APMs B-7e(LE) and B-12a(LE). The full text of these APMs can be found in Attachment 5 (Applicant Proposed Measures).

At the proposed Decker Canyon Reservoir, facility operations presents a potential concern regarding mosquito production and the potential for the infection of bird species with the West Nile virus. All species of mosquitoes require standing water to complete their life cycles. Factors that are conducive to mosquito breeding success in standing water include water-level stability, lack of wave action, high nutrient levels, and the presence of vegetative or other cover that affords protection of the larvae from predators or desiccation (TVA, 2004). The water level in the new upper reservoir would fluctuate up to 40 feet daily and up to 75 feet through the weekly cycle. The reservoir would not contain soils or support any vegetation. The reservoir characteristics and its operation would make the environment unsuitable for mosquitoes. Similarly, since Lake Elsinore is affected by the wave action produced by wind and boats, the lake is an unsuitable environment for mosquitoes. Therefore, there would be no impact to birds from West Nile virus associated with mosquito production (Class IV).

5.4.3 Project - Biological Resource Impacts

Impacts to biological resources from the TE/VS Interconnect are presented in Section 5.3.1. Biological resource impacts from LEAPS are presented in Section 5.3.2. The cumulative biological resource impacts resulting from the implementation of the Project (inclusive of both transmission and generation) would be similar to the combined effects presented in those two preceding sections.

5.5 Cultural Resources

Impacts on cultural resources attributable to the TE/VS Interconnect are discussed in Section 5.5.1. Impacts on cultural resources associated with LEAPS are presented in Section 5.5.2. Potential cumulative impacts on cultural resources relating to the Project (inclusive of both transmission and generation) are presented in Section 5.5.3.

5.5.1 TE/VS Interconnect - Cultural Resource Impacts

TE/VS Interconnect

Cultural resources record searches were conducted for the TE/VS Interconnect and access roads within a 0.5-mile search radius. Previous surveys conducted on behalf of the Applicant, in combination with new surveys by SWCA Environmental Consultants' (SWCA) and Applied Earth Works' (AE) archaeologists have resulted in intensive cultural resource surveys for TE/VS Interconnect. Approximately 32 percent of the total transmission corridor has been surveyed. Eleven cultural resources have been identified within the 300-foot-wide study corridor for the TE/VS Interconnect (Table Ap.9B-144 of the Sunrise DEIR/DEIS). Nine of the cultural resources were identified during previous cultural resources surveys and two resources were recently recorded by SWCA and AE.

Nine of the resources are prehistoric in age, including one rock art site, two lithic scatters, two temporary camps, four bedrock milling sites (one with rock art). The National Register of Historic Places (NRHP) and California Register of Historic Resources (CRHR) eligibility of the nine prehistoric cultural resources has not been determined. Formal eligibility determinations would be made prior to construction for any resources affected if TE/VS Interconnect were built.

One site (CA-RIV-271) is a multi-component site which contains both historic and prehistoric components. The historic component (Tenaja Ranger Station with associated residence, pump house and water tower) has been recommended eligible for listing on the NRHP under Criteria A and Criteria C. The prehistoric Tenaja Village, which is eligible for listing on the NRHP under Criteria D, contains lithic/ceramic scatters, ground stone fragments, unidentified bone fragments, as well as shell fragments. One historic road, the Ortega Highway (P-33-7234), is crossed by the TE/VS Interconnect. As currently engineered, this historic road would be spanned by the overhead transmission line and was, therefore, only considered from the perspective of how the overhead transmission line could visually impact that resource.

The paleontological sensitivity of TE/VS Interconnect is provided by milepost in Table 5.5.1-1 (TE/VS Interconnect – Paleontological Sensitivity). The following impact analysis is based on a review of published and unpublished literature and geologic maps. A detailed review of museum collections records was performed by the Vertebrate Paleontology Section of the Natural History Museum of Los Angeles County for the purposes of determining whether there are any known fossil localities within the area of potential effect (APE). No previously recorded localities were discovered within one-half mile radius of the TE/VS Interconnect's centerline.

The TE/VS Interconnect traverses numerous geologic units. Each unit's paleontological resource potential is discussed below.

Table 5.5.1-1 TE/VS Interconnect - Paleontological Sensitivity

Mileposts	Rock Unit	Sensitivity
0 to 2.1	Estelle Mountain volcanic	None
2.1to 2.4	Younger Alluvium	Low
2.4 to 2.9	Older Alluvium	High
2.9 to 3.4	Granite, undifferentiated	None
3.4 to 3.5	Younger Alluvium	Low
3.5 to 3.7	Older Alluvium	High
3.7 to 3.8	Older Alluvium	High
3.8 to 3.9	Bedford Canyon Formation	Moderate
3.9 to 4.2	Granite, undifferentiated	None
4.2 to 5.3	Granitic rocks, undifferentiated	None
5.3 to 5.6	Older Alluvium	High
5.6 to6.6	Granitic rocks, undifferentiated	None
6.6 to 7.0	Bedford Canyon Formation	Moderate
7.0 to7.2	Landslide Deposits	Low
7.2 to 7.4	Bedford Canyon Formation	Moderate
7.4 to 7.5	Landslide Deposits	Low
7.5 to 7.7	Younger Alluvium	Low
7.7 to 9.0	Bedford Canyon Formation	Moderate
9.0 to 9.2	Granitic rocks, undifferentiated	None
9.2 to 9.4	Bedford Canyon Formation	Moderate
9.4 to 9.5	Granitic rocks, undifferentiated	None
9.5 to 9.6	Bedford Canyon Formation	Moderate
9.6 to 9.7	Granitic rocks, undifferentiated	None
9.7 to 9.9	Landslide Deposits	Low
9.9 to 10.4	Bedford Canyon Formation	Moderate
10.4 to 12.6	Granitic rocks, undifferentiated	None
12.6 to 12.8	Younger Alluvium	Low
12.8 to 15.4	Granitic rocks, undifferentiated	None
15.4 to 15.6	Older Alluvium	High
15.6 to 20.3	Granitic rocks, undifferentiated	None
20.3 to 20.6	Younger Alluvium	Low
20.6 to 20.8	Metamorphic rocks	None
20.8 to 20.9	Granitic rocks, undifferentiated	None
20.9 to 21.1	Metamorphic rocks, undifferentiated	None
21.1 to 21.3	Younger Alluvium	Low
21.3 to 21.4	Granitic rocks, undifferentiated	None
21.4 to 22.0	Metamorphic rocks, undifferentiated	None
22.0 to 25.5	Granitic rocks, undifferentiated	None
25.5 to 25.6	Metamorphic rocks, undifferentiated	None
25.6 to 26.0	Santa Rosa Basalt	None
26.0 to 30.2	Granitic rocks, undifferentiated	None
30.2 to 30.5	Metasedimentary rocks	Marginal
30.5 to 31.6	Granitic rocks, undifferentiated	None
31.6 to 31.8	Santiago Peak Volcanics	Marginal

- **Quaternary alluvium.** Quaternary alluvium consists of partly dissected, mostly unconsolidated, poorly sorted sand, silt, clay, and gravel located at the margins of canyons and within valley floors. "Younger" alluvium is Holocene (11,400 years ago to Recent) in age and "Older alluvium" is Pleistocene (1.8 million years ago to 11,400 years ago) in age. Fossil localities in older alluvium deposits throughout southern California have yielded terrestrial vertebrates such as mammoths, mastodons, ground sloths, dire wolves, short-faced bears, saber-toothed cats, horses, camels, and bison. Younger alluvium is determined to have a low potential for paleontological resources but is often underlain by older alluvium, which is determined to have a high potential for paleontological resources.

- **Quaternary landslides.** The paleontological sensitivity of a landslide deposit is dependent on a number of factors, including the source rock material. For landslides in sedimentary rock, when the original stratigraphic position of the sediments is disturbed, there are varying degrees of information loss with the varying degree of displacement and the varying severity of mechanical impacts to the slide mass. Landslides do not necessarily equate to sediments being non-sensitive for paleontological materials but the loss of associated sedimentological and positional data reduces the significance of any fossils found. Additionally, landslides in general are much less likely to contain well-preserved fossils than intact native sediments. Landslide deposits are determined to have a low paleontological sensitivity.

- **Santa Rosa Basalt.** Very fine-grained olivine basalt of Miocene age. These rocks are determined to have no paleontological resource potential due to their origin as molten rock.

- **Santiago Formation.** The Eocene (52 to 34 Ma) Santiago Formation comprises 820 meters of interbedded concretionary sandstone and siltstone with rare conglomerate. Tan and Edgington (1976) describe the general lithology of the Santiago Formation as consisting of marine and non-marine greenish-gray, yellowish-gray and moderate to pale yellowish-brown, medium- to coarse-grained sandstone with interbedded moderate reddish-brown and grayish-green, fine-grained clayey sandstone. Two informal members are recognized within the Santiago Formation (Sundberg, 1986). The lower unit reaches a maximum thickness of 68 meters, and is composed of shallow nearshore marine sandstone and conglomerate (Sundberg, 1986). The upper unit contains non-marine sandstone and siltstone (Sundberg, 1986). The Santiago Formation has produced an extensive collection of significant terrestrial vertebrates in southern California and thus has been assigned a high paleontologic resource sensitivity level (Lander, 1989; Copper and Eisentraut, 2000).

- **Williams Formation.** The Williams Formation consists of three members: the Starr, Schulz Ranch, and Pleasants Sandstone. The Schulz Ranch and Pleasants Sandstone members are traversed by the Project facilities. The Schulz Ranch member of the Williams Formation consists of medium to thick beds of fine to coarse-grained, granular to pebbly sandstone, and seams and lenses of well-rounded pebble to cobble conglomerate that become less common up section. The Pleasants Sandstone member of the Williams Formation was deposited in a shallow-marine, coastal shelf environment during the late Cretaceous, from approximately 80 to 67 Ma. It consists of fine- to medium-grained, brownish to grayish, poorly bedded sandstone with interbeds of mudstone, siltstone and calcareous sandstone with pebble or cobble conglomerate. Abundant and diverse marine mollusk assemblages are known from the Williams Formation, including ammonoids, nautiloids, gastropods, and bivalves.

Because of the abundant and diverse fossils recovered from this unit, the Williams Formation is assigned a high paleontological resource sensitivity (Eisentraut and Cooper, 2002).

- **Trabuco Formation.** The Late Cretaceous (95-85 Ma) Trabuco Formation represents ancient alluvial fan deposits, built out along the foot of the Santa Ana Mountains (Cooper and Eisentraut 2000). Gray (1961) describes unit lithology as consisting of poorly consolidated, massive, red, very poorly sorted, sandy boulder conglomerate. Cobble and boulder constituents include quartzite, graywacke, slate, limestone, and andesite as well as coarse-grained plutonic rocks (Gray, 1961). Unit thickness is difficult to determine; maximum thickness has been estimated at 620 feet (Gray, 1961). Very few fossils have been found in the Trabuco Formation because of its non-marine, alluvial fan environment. The Trabuco Formation has been assigned a low paleontologic sensitivity level due to the extremely coarse-grained nature of the Trabuco sediments (Eisentraut and Cooper, 2002).

- **Metasedimentary Rocks.** Metasedimentary rocks in the central part of San Diego County are referred to as Julian Schist, which is composed of quartz-mica schist and quartzite, with minor amounts of marble and amphibolite. These rocks have been intruded and deformed by plutonic rocks associated with the Peninsular Ranges Batholith. The age of these metasedimentary rocks is not well defined; however, microfossils indicate that they are much older than Triassic in age. No fossils have been discovered in this unit within San Diego County; however, correlative units in Riverside and Orange County have yielded marine mollusks. Metasedimentary rocks in San Diego County are determined to have a marginal potential for paleontological resources.

- **Bedford Canyon Formation.** This Jurassic age geologic unit consists of silty argillite and graywacke with minor amounts of pebble conglomerate and limestone (Morton, 2003). Rare occurrences of shallow-marine invertebrates have been documented within the limestone lenses of the Bedford Canyon Formation; therefore, it is determined to have a moderate paleontological sensitivity rating (Eisentraut and Cooper, 2002).

- **Santiago Peak Volcanics.** The Santiago Peak Volcanics include mildly metamorphosed volcanic, volcaniclastic, and sedimentary rocks aging from late Triassic to mid-Cretaceous in age. This rock unit occurs in the subsurface throughout much of the continental margin of southern California and crops out from the southeastern edge of the Los Angeles basin southward to Mexico. Metasedimentary units within this formation have proven to yield important remains of marine macroinvertebrates and are determined to have a high potential for paleontological resources. The volcanic and metavolcanics are determined to have a marginal potential for paleontological resources.

- **Granitic Rocks, undifferentiated.** Granitic rocks in the study area are mostly composed of quartz diorite (tonalite), granodiorite, and fine-to coarse-grained massive granite and biotite monzogranite of Cretaceous age. Since granitic rocks are plutonic in origin, this geologic unit is determined to have no potential for paleontological resources.

- **Estelle Mountain Volcanics.** Estelle Mountain volcanics consist of a heterogeneous mixture of rhyolite flows, shallow intrusive rocks, and volcaniclastic rocks of Cretaceous age. These

igneous and metamorphic rocks are determined to have no paleontological resource potential due to their origin as molten rock.

On February 18, 2005, the Applicant filed a revised draft "Historic Properties Management Plan" (HPMP; February 2005) with FERC specifying a variety of measures for protection and management of historic properties both during construction and during subsequent operations and maintenance over the term of the federal hydropower license. The Applicant sent copies of the revised draft HPMP to the Tribes, the Forest Service, BLM, and USMC (Camp Pendleton) for review and comment. Because the HPMP also addressed the associated transmission lines, information from the HPMP is included herein. As indicated therein, the Applicant proposed to:

- Consult with the USFS in advance of any construction or cultural resources monitoring or survey on USFS land.

- Monitor construction and/or conduct pre-construction archaeological surveys to locate and identify resources in portions of the APE that have not been investigated due to lack of access and/or because locations of facilities (e.g., transmission lines, flow lines) and access routes have not yet been determined. This would include locations with potential to contain deeply buried archaeological deposits.

- Consult with the Forest Service, the State Historic Preservation Officer (SHPO), and Tribes, as appropriate, concerning the need for intensive survey to evaluate NRHP eligibility of archaeological sites or traditional cultural properties (TCPs) that would be adversely affected by construction or operation and determine appropriate treatment for any adversely affected eligible resources.

- Retain a qualified archaeologist to advise construction and maintenance Field Superintendents and the Applicant's Cultural Resources Coordinator regarding the need for monitoring during construction and for protecting known sites from inadvertent construction damage.

- Appoint a staff Tribal liaison to serve as the Applicant's point of contact with the Tribes and consult with the Tribes regarding construction monitoring, archaeological survey, and resource protection measures.

- Arrange for a civil structural or geotechnical engineer to determine whether peak ground acceleration from construction exceeds a peak vertical particle velocity of 72.0 millimeter per second in the vicinity of any historic building and recommend treatment of any building for which this threshold is exceeded.

- Arrange for an architectural historian to monitor construction sites after trenching and blasting to ensure that vegetation and any other significant landscape features associated with historic buildings have been returned to their pre-construction state.

- Develop and implement an archaeological monitoring program, including notification to the Forest Service of monitoring on NFS land, to identify site degradation or damage to archaeological resources. For the first five years, monitoring would be conducted annually

during the mid-late autumn prior to the rainy winter season. Site conditions would be recorded with photographs and/or video documentation for comparison with previous years' conditions. The Applicant would send a report on the monitoring to the SHPO and the Forest Service within two months of each annual monitoring effort. At the end of five years, sites that have experienced no significant effects would be dropped from the monitoring program.

- Develop a cultural resources public interpretive program in consultation with the Tribes and the Forest Service within three years after construction.

- The final HPMP also specifies procedures the Applicant would follow in the event that currently unknown cultural resources are discovered during construction or operation. In the event of a discovery, work would immediately cease in the vicinity of the resource. The Applicant would develop a site-specific historic properties treatment plan, in consultation with the SHPO and the Forest Service, containing procedures and methodologies "to be used in the eligibility evaluation process" for the specific site types that may occur in the area. No work would resume in the vicinity of the resource until the resource had been evaluated in accordance with the historic properties treatment plan and any adverse effects had been mitigated. Work would then resume in the presence of an archaeological monitor. The Applicant would submit a report describing the fieldwork and analysis to the SHPO and the Forest Service.

Regarding paleontological resources, the Applicant proposes to: (1) Conduct paleontological monitoring of earth-moving activities on a part-time basis in locations that are sensitive for paleontological resources; and (2) Prepare any recovered fossil remains to the point of identification and prepare them for curation by the Los Angeles County Museum or San Bernardino County Museum.

As currently proposed, the TE/VS Interconnect will directly impact four cultural resources (Table Ap.9B-116 of the Sunrise DEIR/DEIS). CA-RIV-271 has been recommended NRHP-eligible. The remaining three resources are potentially eligible for the NRHP and CRHR. There is also the potential to encounter undiscovered cultural resources during additional surveys or construction, such as additional prehistoric sites with bedrock milling features. An additional 23 resources (including isolates) are likely to be encountered during additional surveys. A portion of the Ortega Highway within the vicinity of the TE/VS Interconnect and the Tenaja Ranger Station were considered by SWCA (2007) for indirect visual impacts (Table Ap.9B-117 of the Sunrise DEIR/DEIS). Visual impacts to the Ortega Highway would be adverse for certain portions of the resource. Visual impacts to the Tenaja Ranger Station would be adverse.

Table 5.5.1-2 (TE/VS Interconnect/Talega-Escondido Upgrades – Cultural Resource Impacts) summarizes the potential cultural and paleontological resource impacts of the TE/VS Interconnect and Talega-Escondido 230-kV Transmission and Substation Upgrades. The TE/VS Interconnect and Talega-Escondido 230-kV Transmission and Substation Upgrades are separately examined below.

Because known cultural resources that are potentially eligible for the NRHP or CRHR exist within the corridor, as well as the potential for encountering undiscovered cultural resources, the following impacts could occur during construction or operation.

Table 5.5.1-2. TE/VS Interconnect/Talega-Escondido Upgrades – Cultural Resource Impacts

Impact	Description	Significance
C-1	Construction of the project would cause an adverse change to known historic properties.	II
C-3	Construction of the project would cause an adverse change to unknown significant buried prehistoric and historical archaeological sites or buried Native American human remains.	I, II
C-4	Construction of the project would cause an adverse change to Traditional Cultural Properties.	I, II
C-5	Operation and long-term presence of the project would cause an adverse change to known historic properties.	I, II
C-6	Long-term presence of the project would cause an adverse change to known historic architectural (built environment) resources.	II
PAL-1	Construction of the transmission line would destroy or disturb significant paleontological resources.	II

Source: The Nevada Hydro Company, Inc.

Impact C-1: Construction of the project would cause an adverse change to known historic properties (Class II).

CA-RIV-271 has been recommended eligible for the NRHP and would be impacted by the TE/VS Interconnect. Three other known cultural resources are potentially eligible for NRHP or CRHR listing. An additional 24 resources (such as bedrock milling features with lithic and ceramic scatters) are likely to be encountered during surveys conducted prior to construction. Adverse construction impacts to those resources could be potentially significant but would be mitigated to a less-than-significant level (Class II) through the implementation of the HPMP (USFS-28) and APMs C-1a, C-1b, C-1c, C-1d, C-1e, C-1f. The full text of these APMs can be found in Attachment 5 (Applicant Proposed Measures).

If, prior to or during ground-disturbing activities or as a result of TE/VS Interconnect operations, items of potential cultural, historical, archaeological, or paleontological value are reported or discovered or a known deposit of such items is disturbed on NFS lands, the Applicant shall immediately cease work in the area affected. The Applicant shall then: (1) consult with the SHPO and the Forest Service about the discovery; (2) prepare a site-specific plan, including a schedule, to evaluate the significance of the find and to avoid or mitigate any impacts to sites found eligible for inclusion in the NRHP; (3) base the site-specific plan on recommendations of the SHPO, the Forest Service, and Secretary of the Interior's "Standards and Guidelines for Archaeology and Historic Preservation"; (4) file the site-specific plan for FERC approval, together with the written comments of the SHPO and the Forest Service; and (5) take the necessary steps to protect the sites from further impact until informed by FERC that the requirements have been fulfilled. Upon FERC approval, the Applicant would then implement the site-specific plan.

Impact C-3: Construction of the project would cause an adverse change to unknown significant buried prehistoric and historical archaeological sites or buried Native American human remains (Class I or II).

Types of subsurface features that could be encountered include prehistoric resources, such as buried living surfaces, refuse deposits, hearths, burials, and cremations. Historical resources that could be unearthed during construction include refuse pits and privies. Buried archaeological resources may be encountered during vegetation removal at tower and pull site locations, grading of access roads, or excavation associated with tower, substation, and switchyard construction. The discovery, removal, damage, or alteration to known or unknown prehistoric or historic

archaeological sites could be potentially significant but would be mitigable to a less-than-significant level (Class II) through the implementation of the HPMP (USFS-28) and APMs C-1c, C-1d, C-1f, C-2a, C-3a. The full text of these APMs can be found in Attachment 5 (Applicant Proposed Measures).

Construction effects, if any, relating to Native American human remains would be significant (Class I) even with mitigation.

Impact C-4: Construction of the project would cause an adverse change to Traditional Cultural Properties (Class I or II).

To date, one TCP has been identified within the vicinity of the TE/VS Interconnect. Lake Elsinore is viewed by the Pechanga Band of Luiseño Mission Indians and the Juaneño Band of Mission Indians (Acjachemen Nation) as a part of their traditional homeland and its presence in Luiseño creation songs. Lake Elsinore (P-33-11009) was recorded in the State inventory in 1982 and the Forest Service considers it eligible for listing on the NRHP.

FERC has initiated government-to-government consultation under Section 106 of the NHPA has with appropriate Native American groups and provided notification to other public groups regarding potential effects on traditional cultural values. Consultation will determine whether there are other TCPs that could be adversely affected.

Mitigation, as defined by NEPA (King, 2003), can include "minimizing impacts by limiting the degree or magnitude of the action," rectifying or reducing the impact, and/or "compensating for the impact by replacing or providing substitute resources or environments" which, when properly coordinated with Native Americans or other traditional groups. Impacts to TCPs could be potentially significant but would be mitigable to a less-than-significant level (Class II) through the implementation of the HRMP (USFS-28) and APM C-4a. The full text of this APM can be found in Attachment 5 (Applicant Proposed Measures).

Because there may exist circumstances where construction activities affecting Traditional Cultural Properties would be significant (Class I), even with mitigation, a final determination of potential significance remains subject to consultation under Section 106 of NEPA.

Impact C-5: Operation and long-term presence of the project would cause an adverse change to known historic properties (Class I or II).

Direct and indirect impacts could occur to historic properties within and in the vicinity of the TE/VS Interconnect during operation and throughout the facility's operational life. There are two resources recommended eligible for the NRHP located within the TE/VS Interconnect area that are potentially subject to long-term and operational impacts: Ortega Highway and the Tenaja Ranger Station. Any of the known archaeological sites and other yet to be discovered archaeological sites that are determined HRHP-eligible would also potentially be subjected to long-term and operational impacts. Direct impacts to these resources or other newly identified resources could result from maintenance or repair activities. Indirect impacts, such as erosion, could also adversely affect historic properties. These impacts could be potentially significant but would be mitigable to a less-than-significant level (Class II) through the implementation of those

site protection measures and monitoring procedures detailed in the HPMP (USFS-28) and APMs C-5a, C-2a, and C-4a. The full text of these APMs can be found in Attachment 5 (Applicant Proposed Measures).

Impacts to human remains, if any such remains are located, would remain significant (Class I).

Impact C-6: Long-term presence of the project would cause an adverse change to known historic architectural (built environment) resources (Class II).

One historic architectural or built-environment resource within the TE/VS Interconnect APE (Tenaja Ranger Station) was considered for indirect visual impacts. Visual impacts to the station, as well as the area surrounding KVP 7, would be adverse and could be potentially significant but would be mitigable to a less-than-significant level (Class II) through the implementation of APM C-6a. Similarly, visual impacts to Ortega Highway could also be potentially significant but would be mitigable to a less-than-significant level (Class II) through the implementation of APM C-6a. The full text of this APM can be found in Attachment 5 (Applicant Proposed Measures).

Impact PAL-1: Construction of the project would destroy or disturb significant paleontological resources (Class II).

Depending upon the area impacted, the potential for the discovery of paleontological resources during construction of TE/VS Interconnect ranges from zero-to-high. The discovery, removal, damage, or alteration to paleontological resource sites could be potentially significant but would be mitigable to a less-than-significant level (Class II) through the implementation of the HPMP (USFS-28) and APMs C-1f, PAL-1a, PAL-1b, PAL, 1c, and PAL-1d. The full text of these APMs can be found in Attachment 5 (Applicant Proposed Measures).

Talega-Escondido 230 kV Transmission and Substations Upgrades

The Talega-Escondido 230-kV Transmission and Substation Upgrades extends from the area of eastern San Clemente (Camp Pendlton) to the City of Escondido, passing through the coastal and inland valley climatic zones as well as the Juaneño and Luiseño ethnographic period cultural regions. The Talega area bears evidence of occupation through the entire range of prehistory and history in southern California and the inland valleys, a transition zone between the mountains and coast, with prehistoric sites, bears appropriate transitional evidence, such as bedrock milling, lithic artifact scatters, and temporary camps and habitations. Historic sites contain evidence of settlement and ranching throughout the Mexican and American periods.

The Talega-Escondido transmission line, including access roads, was surveyed prior to construction by Walker and Bull (1979a, b). Previously recorded site types within this alignment include lithic artifact scatters, quarries, ceramic artifact scatters, temporary camps, bedrock milling features and a historical barn. The survey of the Talega Substation, conducted by Wirth Associates in 1978, identified two prehistoric sites. Both lithic artifact scatters were recommended as not being eligible for listing in the NRHP. Since the original 100-percent survey of the transmission line corridor by Walker and Bull, 8.12 percent of the corridor has been resurveyed within the last ten years. Only the approximately 7.8-mile Pala to Lilac segment will require new power pole construction.

Sites exhibiting a broad range of past human activity have been identified within the Talega-Escondido corridor. These include, but are not limited to, prehistoric artifact scatters, temporary camps, and isolates, as well as a historic barn. A total of 16 cultural resources have been identified within the 300-foot-wide study corridor for the Talega-Escondido upgrade (Table Ap.9B-115 of the Sunrise DEIR/DEIS). One of these resources is an isolate, typically defined as three or fewer artifacts not associated with a defined, discrete archaeological site and, therefore, not eligible for NRHP/CRHR inclusion. Of the remaining 15 resources, 14 are prehistoric in age and one is a historic era resource. The one historic resource, a historic-era Quonset, is recommended eligible for NRHP listing under Status Code 5N as a property recognized as historically significant by a local government. Formal eligibility determinations would be made prior to construction for any resources affected if Talega-Escondido upgrades were built.

The paleontological sensitivity of the Talega-Escondido upgrade is provided by milepost in Table 5.5.1-3 (Talega-Escondido Upgrades – Paleontological Sensitivity). A detailed review of museum collections records was performed by the San Diego Natural History Museum for the purposes of determining whether there are any known fossil localities within the APE. No previously recorded localities were discovered within one half mile of the project centerline. Because known cultural resources potentially eligible for the NRHP or CRHR exist within the transmission route and because the potential exists for encountering additional, undiscovered resources, the following impacts could occur during the upgrades' construction or operation.

Impact C-1: Construction of the project would cause an adverse change to known historic properties (Class II).

Construction activities could cause potentially significantly impact to known historic properties. Those impacts would be mitigable to a less-than-significant level (Class II) through the implementation of APMs C-1a, C-1b, C-1c, C-1d, C-1e, and C-1f. The full text of these APMs can be found in Attachment 5 (Applicant Proposed Measures).

Impact C-3: Construction of the project would cause an adverse change to unknown significant buried prehistoric and historical archaeological sites or buried Native American human remains (Class I or II).

Types of subsurface features that could be encountered along the Talega-Escondido transmission corridor include prehistoric resources, such as buried living surfaces, artifact deposits, hearths, burials, and cremations. Historical resources that could be unearthed during construction include refuse pits, privies, and structural foundations. Buried archaeological resources may be encountered during vegetation removal at tower and pull site locations, grading of access roads, and excavation associated with towers, substations, and the switchyard. Impacts to most unknown significant prehistoric and historic archaeological sites could be potentially significant but would be mitigable to a less-than-significant level (Class II) through the implementation of APMs C-1c, C-1d, C-1f, C-2a, and C-3a. The full text of this APM can be found in Attachment 5 (Applicant Proposed Measures).

Construction effects, if any, relating to Native American human remains would be significant (Class I) even with mitigation.

Table 5.5.1-3 Talega-Escondido Upgrades - Paleontological Sensitivity

Mileposts	Rock Unit	Sensitivity	Mileposts	Rock Unit	Sensitivity
0.0 – 0.2	Santiago Formation	High	13.0 – 16.4	Granitic rocks, undivided	None
0.2 – 0.3	Active Alluvium	None	16.4 – 16.8	Older Alluvium	High
0.3 – 0.4	Younger Alluvium	Low	16.8 – 16.9	Active Alluvium	None
0.4 – 0.5	Santiago Formation	High	16.9 – 17.2	Granitic rocks, undivided	None
0.5 – 0.6	Older Alluvium	High	17.2 – 17.3	Active Alluvium	None
0.6 – 1.0	Santiago Formation	High	17.3 – 21.3	Granitic rocks, undivided	None
1.0 – 1.1	Landslide deposits	Low	21.3 – 21.4	Active Alluvium	None
1.1 – 1.3	Santiago Formation	High	21.4 – 24.2	Granitic rocks, undivided	None
1.3 – 1.4	Landslide deposits	Low	24.2 – 24.3	Active Alluvium	None
1.4 – 1.5	Santiago Formation	High	24.3 – 34.2	Granitic rocks, undivided	None
1.5 – 1.8	Landslide deposits	Low	34.2 – 34.3	Older Alluvium	High
1.8 – 2.0	Williams Formation, Pleasants Sandstone Member	High	34.3 – 34.8	Active Alluvium	None
2.0 – 2.1	Landslide deposits	Low	34.8 – 39.3	Granitic rocks, undivided	None
2.1 – 2.5	Williams Formation, Pleasants Sandstone Member	High	39.3 – 39.5	Younger Alluvium	Low
2.5 – 2.8	Williams Formation, Shultz Ranch Member	High	39.5 – 47.5	Granitic rocks, undivided	None
2.8 – 3.0	Younger Alluvium	Low	47.5 – 47.6	Older Alluvium	High
3.0 – 3.2	Older Alluvium	High	47.6 – 48.3	Granitic rocks, undivided	None
3.2 – 3.4	Williams Formation, Shultz Ranch Member	High	48.3 – 48.7	Older Alluvium	High
3.4 – 3.5	Older Alluvium	High	48.7 – 48.9	Metavolcanic and Metasedimentary rocks, undivided	Marginal
3.5 -4.0	Younger Alluvium	Low	48.9 – 49.0	Older Alluvium	High
4.0 – 4.1	Williams Formation, Shultz Ranch Member	High	49.0 – 49.2	Metavolcanics and Metasedimentary rocks, undivided	Marginal
4.1 – 6.0	Trabuco Formation	Low	49.2 – 49.4	Granitic rocks, undivided	None
6.0 – 6.1	Older Alluvium	High	49.4 – 49.5	Older Alluvium	High
6.1 – 6.2	Trabuco Formation	Low	49.5 – 50.1	Metavolcanics and Metasedimentary rocks, undivided	Marginal
6.2 – 6.5	Older Alluvium	High	50.1 – 50.7	Granitic rocks, undivided	None
6.5 – 6.7	Active Alluvium	None	50.7 – 51.1	Older Colluvium	High
6.7 - 13.0	Metavolcanics and Metasedimentary rocks, undivided	Marginal	51.1 – 51.2	Granitic rocks, undivided	None

Source: California Public Utilities Commission

Impact C-4: Construction of the project would cause an adverse change to Traditional Cultural Properties (Class I or II).

To date, no TCPs have been identified that would be directly impacted by the Talega- Escondido upgrades. Although impacts to TCPs are often significant, mitigation, as defined by NEPA (King, 2003), can include "minimizing impacts by limiting the degree or magnitude of the action," rectifying or reducing the impact, and/or "compensating for the impact by replacing or providing substitute resources or environments." When properly coordinated with Native Americans or other traditional groups, potentially significant impacts to TCPs would be

mitigable to a less-than-significant level (Class II) through the implementation of APM C-4a. The full text of this APM can be found in Attachment 5 (Applicant Proposed Measures).

Because there may exist circumstances where construction activities affecting Traditional Cultural Properties would be significant (Class I), even with mitigation, a final determination of potential significance remains subject to consultation under Section 106 of NEPA.

Impact C-5: Project operation and maintenance would cause an adverse change to known historic properties (Class I or II).

Direct and indirect impacts could occur to historic properties within and in the vicinity of the Talega-Escondido corridor during operation and throughout the facility's operational life. Direct impacts to known resources or other newly identified resources could result from maintenance or repair activities. Indirect impacts, such as erosion, could also adversely affect historic properties. These impacts could be potentially significant but would be mitigable to a less-than-significant level (Class II) through the implementation of those site protection measures and monitoring procedures presented in APM C-5a, as well through the implementation of APMs C-2a and C-4a. The full text of these APMs can be found in Attachment 5 (Applicant Proposed Measures).

Impact PAL-1: Construction of the project would destroy or disturb significant paleontological resources (Class II).

Depending upon the area impacted, the potential for the discovery of paleontological resources during construction of the Talega-Escondido upgrades ranges from zero-to-high. The discovery, removal, damage, or alteration to paleontological resource sites could be potentially significant but would be mitigable to a less-than-significant level (Class II) through the implementation of APMs PAL-1a, PAL-1b, PAL-1c, PAL-1d, and PAL-1e. The full text of these APMs can be found in Attachment 5 (Applicant Proposed Measures).

5.5.2 LEAPS - Cultural Resource Impacts

Cultural resources record searches were conducted for LEAPS within a 0.5-mile search radius of LEAPS facilities. Survey by SWCA's and AE's archaeologists, combined with adequate previous surveys, have resulted in intensive cultural resource surveys for 78.71 percent of the LEAPS component, including 100 percent of the proposed Decker Canyon Reservoir site. Six cultural resources have been identified within the LEAPS study area (Table Ap.9B-119 of the Sunrise DEIR/DEIS). Four of the resources are prehistoric in age, including bedrock milling sites. NRHP/CRHR eligibilities of these prehistoric cultural resources have not been determined.

One of the resources is a historic Bungalow-style residence that has been evaluated as "significant locally" but has not been formally evaluated for NRHP or CRHR eligibility. An additional four historic built environment resources have been identified within 0.5 miles of LEAPS. Two are historical residences, one is the Ortega Highway. Another is the last is a hillside rock alignment (the Elsinore "E" was first aligned and whitewashed in 1923). The rock alignment has been determined eligible for NRHP listing by the Forest Service.

Lake Elsinore (P-33-11009) was recorded as a TCP in 1982. Lake Elsinore is important to the Pechanga Band of Luiseño Mission Indians and the Juaneño Band of Mission Indians

(Acjachemen Nation) as a part of their traditional homeland and its presence in Luiseño creation songs. The Forest Service considers Lake Elsinore to be eligible for the NRHP.

The proposed LEAPS Powerhouse, Decker Canyon Reservoir, and construction staging areas are underlain by both Quaternary alluvial units and granitic rocks. Granitic rocks have no paleontological resources potential. Quaternary alluvium has a paleontological sensitivity ranging from low-to-high, depending on the age of the sediments. The paleontological sensitivity of the geologic units traversed by linear portion of the LEAPS component is shown in Table 5.5.2-1 (LEAPS – Paleontological Sensitivity). Areas determined to have paleontological sensitivity are located from MP 0.9 to MP 1.2.

Table 5.5.2-1. LEAPS - Paleontological Sensitivity

Mileposts	Rock Units	Sensitivity	Fossil Localities
0 – 0.9	Granitic rocks, undivid	None	-
0.9 – 1.2	Quaternary Older Fan/Alluvium	High	-

Source: California Public Utilities Commission

Table 5.5.2-2 (LEAPS – Cultural Resource Impacts) summarizes the potential cultural and paleontological resource impacts of LEAPS.

Table 5.5.2-2. LEAPS – Cultural Resource Impacts

Impact	Description	Significance
C-1	Construction of the project would cause an adverse change to known historic properties	II
C-3	Construction of the project would cause an adverse change to unknown significant buried prehistoric and historical archaeological sites or buried Native American human remains.	I, II
C-4	Construction of the project would cause an adverse change to Traditional Cultural Properties.	I, II
C-5	Operation and long-term presence of the project would cause an adverse change to known historic properties.	I, II
C-6	Long-term presence of the project would cause an adverse change to known historic architectural (built environment) resources.	II
PAL-1	Construction of the transmission line would destroy or disturb significant paleontological resources.	II

Source: The Nevada Hydro Company, Inc.

There are six known cultural resources located within the LEAPS area. Direct impacts have been identified for all six of these resources (Table Ap.9B-120 of the Sunrise DEIR/DEIS). There is also the potential to encounter additional, undiscovered cultural resources during construction. Of those, as a TCP, Lake Elsinore (P-33-11009) has been determined NRHP eligible by the Forest Service. The NRHP/CRHR eligibilities of the remaining five known cultural resources have not been determined. Formal eligibility determinations would be made by FERC prior to construction for any resources affected if LEAPS were built.

There are four historic built resources within a 0.5-miles radius of LEAPS (Table Ap.9B-121 of the Sunrise DEIR/DEIS). Although the Elsinore "E" has been determined NRHP eligible, indirect visual impacts to that resource would not be significant (Class III). Similarly, indirect visual impacts to the portion of Ortega Highway (P-33-7234) within 0.5-mile radius of LEAPS would not be significant (Class III). Two of the structures are "locally significant" residences.

Because known cultural resources that are potentially eligible for the NRHP or CRHR exist within the LEAPS areas, as well as the potential for encountering undiscovered cultural resources, the following impacts could occur during construction or operation.

Impact C-1: Construction of the project would cause an adverse change to known historic properties (Class II).

Avoidance is recommended for all cultural resources (APM C-1b). However, if impacts cannot be avoided, impacts to CA-RIV-5877, CA-RIV-5878, CA-RIV-7659, and P-33-7221 could be potentially significant but would be mitigable to a less-than-significant level (Class II) through compliance with FERC/USFS permit requirements, including the HRMP (FERC-16), and through the implementation of APMs C-1a, C-1c, C-1d, C-1e, and C-1f. The full text of these APMs can be found in Attachment 5 (Applicant Proposed Measures).

Impact C-3: Construction of the project would cause an adverse change to unknown significant buried prehistoric and historical archaeological sites or buried Native American human remains (Class I or II).

Types of subsurface features that could be encountered within the LEAPS area include prehistoric resources, such as buried living surfaces, artifact deposits, hearths, burials, and cremations. Historical resources that could be unearthed during construction include refuse pits, privies, and structural foundations. Buried archaeological resources may be encountered during vegetation removal, grading, and excavation.

Impacts to most unknown significant prehistoric and historic archaeological sites could be potentially significant but would be mitigable to a less-than-significant level (Class II) through compliance with FERC/USFS permit requirements and through the implementation of APMs C-1a, C-1b, C-1c, C-1d, C-1e, and C-1f. The full text of these APMs can be found in Attachment 5 (Applicant Proposed Measures).

Construction effects, if any, relating to Native American human remains would be significant (Class I) even with mitigation. APMs C-2a and C-3a are, however, recommended and will reduce potential impacts to the maximum extent feasible.

Impact C-4: Construction of the project would cause an adverse change to Traditional Cultural Properties (Class I or II.)

Lake Elsinore serves at the lower reservoir (afterbay) for LEAPS. Lake Elsinore (P-33-11009) was recorded as a TCP in the State inventory in 1982. Lake Elsinore is viewed by the Pechanga Band of Luiseño Mission Indians and the Juaneño Band of Mission Indians (Acjachemen Nation) as a part of their traditional homeland and its presence in Luiseño creation songs. The Forest Service considers it eligible for listing on the NRHP.

FERC has initiated government-to-government consultation Section 106 of the NHPA has with appropriate Native American groups and provided notification to other public groups regarding potential effects on traditional cultural values. Consultation will determine whether there are other TCPs that could be adversely affected.

Although impacts to TCPs are often significant, mitigation, as defined by NEPA (King, 2003), can include "minimizing impacts by limiting the degree or magnitude of the action," rectifying or reducing the impact, and/or "compensating for the impact by replacing or providing substitute

resources or environments." When properly coordinated with Native Americans or other traditional groups, potentially significant impacts to TCPs would be mitigable to a less-than-significant level (Class II) through compliance with FERC/USFS permit requirements and the implementation of APM C-4a. The full text of this APM can be found in Attachment 5 (Applicant Proposed Measures).

Following Tribal consultation and the implementation of all feasible measures, in recognition of Lake Elsinore's designation, LEAPS-related impacts to that TCP may be determined to remain significant (Class I) or be found to be mitigated to a less than significant level (Class II). A final determination of potential significance remains subject to consultation under Section 106 of National Historic Preservation Act (NHPA) (36 CFR Part 800).

Impact C-5: Operation and long-term presence of the project would cause an adverse change to known historic properties (Class I or II).

There are two "locally significant" historical residences within a 0.5-miles radius of LEAPS facilities and a third (Lake Elsinore) that may be NRHP or CRHR eligible and are potentially subject to long-term and operational impacts. Direct and indirect impacts could occur to historic properties within and in the vicinity of the Talega-Escondido corridor during operation and throughout the facility's operational life. Direct impacts to known resources or other newly identified resources could result from maintenance or repair activities. Indirect impacts, such as erosion, could also adversely affect historic properties. These impacts could be potentially significant but would be mitigable to a less-than-significant level (Class II) through compliance with FERC/USFS permit requirements and the implementation of those site protection measures and monitoring procedures presented in APMs C-1e, C-1f, and C-5a. The full text of these APMs can be found in Attachment 5 (Applicant Proposed Measures).

Impacts to human remains, if any such remains are located, would remain significant (Class I). APMs C-2a and C-3a are, however, recommended and will reduce potential impacts to the maximum extent feasible.

Impact C-6: Long-term presence of the project would cause an adverse change to known historic architectural (built environment) resources (Class II).

Three historic built-environment resources, located within a 0.5-mile radius of LEAPS, are potentially subject to long-term visual impacts. Each of these resources has been determined "locally significant" but have not been formally evaluated for NRHP or CRHR eligibility. Actions that cause an adverse change to historic architectural resources could be potentially significant but would be mitigable to a less-than-significant level (Class II) through compliance with FERC/USFS permit requirements and the implementation of APMs C-1a, C-1b, C-5a, C-6a. The full text of this APM can be found in Attachment 5 (Applicant Proposed Measures).

Impact PAL-1: Construction of the project would destroy or disturb significant paleontological resources (Class II).

Depending upon the area impacted, the potential for the discovery of paleontological resources during construction of LEAPS ranges from zero-to-high. The discovery, removal, damage, or

alteration to paleontological resources could be potentially significant but would be mitigable to a less-than-significant level (Class II) through compliance with FERC/USFS permit requirements, including the HPMP (USFS-28), and the implementation of APMs PAL-1a, PAL-1b, PAL-1c, PAL-1d, PAL-1e. The full text of these measures can be found in Attachment 4 (Articles, Conditions, and Measures) and in Attachment 5 (Applicant Proposed Measures).

5.5.3 Project - Cultural Resource Impacts

Impacts to cultural resources from the TE/VS Interconnect are presented in Section 5.5.1. Cultural resource impacts from LEAPS are presented in Section 5.5.2. The cumulative cultural resource impacts resulting from the implementation of the Project (inclusive of both transmission and generation) would be similar to the combined effects presented in those two preceding sections.

5.6 Geology, Soils, and Seismicity

Impacts on geology, soils, and seismicity attributable to the TE/VS Interconnect are discussed in Section 5.5.1. Impacts on geology, soils, and seismicity associated with LEAPS are presented in Section 5.5.2. Potential cumulative impacts on geology, soils, and seismicity relating to the Project (inclusive of both transmission and generation) are presented in Section 5.6.3.

5.6.1 TE/VS Interconnect - Geology, Soils, and Seismicity Impacts

TE/VS Interconnect

Portions of the TE/VS Interconnect including, but not limited to, the Lake Switchyard and Santa Rosa Substation, would be located in portions of the San Jacinto River Basin. The San Jacinto River Basin is located in southern California, about 20 miles inland from the Pacific Ocean and covers more than 780 square miles of widely varying terrain. The river basin is bounded by north-south mountains, including the Santa Ana Mountains (including the Elsinore Mountains, Santa Margarita, and the Santa Rosa Plateau) to the west and the more distant San Jacinto Mountains to the east (FERC, 2007). The TE/VS Interconnect area spans the boundary between two geologic environments - an actively subsiding fault-bounded basin containing Lake Elsinore and a more stable mountain block underlain by minor metamorphic rocks and undivided granitic rocks of the Peninsular Ranges Batholith. Both geologic environments are a part of the Peninsular Ranges Geomorphic Province of Southern California (FERC, 2007).

TE/VS Interconnect would pass through the Santa Ana Mountains. The Santa Ana Mountain Range forms the northernmost segment of the Peninsular Ranges Geomorphic Province. The Peninsular Ranges Province is characterized by a northwest-striking structural fabric (faulting and folding) influenced by the San Andreas fault system. The northern Peninsular Ranges Province is divided (in terms of physiography) into three major fault-bounded blocks: the Santa Ana, Perris, and San Jacinto. The westernmost of the three, the Santa Ana block, extends eastward from the coast to the Whittier-Elsinore fault zone. Tertiary sedimentary rocks (Paleocene through Pliocene in age) lie under the western foothills portion of the Santa Ana block, and further east the highly faulted Santa Ana Mountains are comprised of a basement assemblage of Mesozoic metasedimentary and Cretaceous volcanic and batholitic rocks, overlain by

a thick section of primarily upper Cretaceous marine rocks and Paleocene marine and non-marine rocks. The southern part of the Santa Ana Mountains opens into an expansive, nearly horizontal erosion surface that is partly covered with Miocene basalt flows (FERC, 2007).

At the eastern base of the mountains is the Elsinore Basin. The geology of the Elsinore Basin comprises essentially three major units. At the surface lies alluvium from a variety of sources. Underneath the surface alluvium, is the sedimentary Pauba Formation. Under that lies the "basement rocks" of the Peninsular Ranges Batholith. The alluvial formation covers the lower portions of the valley and can be divided into alluvial fan deposits, floodplain deposits, and recent lacustrine deposits.

The Elsinore Basin is a complexly faulted trough formed by the movement along a series of parallel northwest-trending faults. This Elsinore fault zone is a part of the Whittier-Elsinore fault system. The parallel series of faults within this zone includes the Willard, Rome Hill, Wildomar, Lake, Burchkhalter, Sedco, Glen Ivy, and Freeway faults. The three main faults within the Elsinore Basin are the Willard, Wildomar, and Glen Ivy faults. These faults appear very young in age, evidenced by features such as the steep northeast side of the Elsinore Mountains to the southwest of Lake Elsinore. At its northern end, the Elsinore fault zone splays into two segments, the Chino fault and the Whittier fault. At its southern end, the Elsinore fault is cut by the Yuha Wells fault from what amounts to its southern continuation, the Laguna Salada fault.

The Elsinore fault is a part of the San Andreas fault system and runs southeast from the Los Angeles basin for about 250 km to the border of Mexico, where it continues southeast as the Laguna Salada fault. To the east are the San Jacinto and San Andreas fault zones and faults associated with the Eastern California Shear Zone. To the west is the Newport-Inglewood-Rose Canyon fault zone, which only locally comes on shore, and the offshore zone of deformation including the Coronado Bank, San Diego Trough and San Clemente faults. A comparison of the Elsinore and the San Jacinto fault zones suggests that the Elsinore fault may produce larger, less frequent earthquakes on longer segments than the nearby San Jacinto fault zone.

It is estimated that the Elsinore fault accommodates 10-15 percent of the plate-boundary slip in southern California. Previous work on the Elsinore fault has established the late Quaternary slip rate at about 4.5 to 5.5 millimeters per year (mm/yr), apparently decreasing to the southeast. The fault has been divided into five major segments, based on geometry and geomorphology, which are from north to south, the Whittier, Glen Ivy, Wildomar-Wolf Valley-Pala-Temecula, Julian, and Coyote Mountain segments.
Construction of the TE/VS Interconnect could potentially accelerate erosion. Excavation and grading activities associated with the towers, substations, and switchyard could cause slope instability. Transmission facilities would be subject to seismic forces and could be potentially be damaged by landslides, earthflows, debris flows, or rockfalls.

Table 5.6.1-1 (TE/VS Interconnect/Talega-Escondido Upgrades – Geology, Soils, and Seismicity Impacts) summarizes the potential geology, soils, and seismic impacts of the TE/VS Interconnect and Talega-Escondido 230-kV Transmission and Substation Upgrades. The TE/VS Interconnect and Talega-Escondido upgrades are separately examined below.

Table 5.6.1-1
TE/VS Interconnect/Talega-Escondido Upgrades – Geology, Soils, and Seismicity Impacts

Impact	Description	Significance
G-1	Erosion would be triggered or accelerated due to construction activities.	II
G-3	Project would expose people or structures to potential substantial adverse effects as a result of problematic soils.	II
G-4	Project would expose people or structures to potential substantial adverse effects as a result of seismically-induced groundshaking and/or ground failure.	II
G-5	Project would expose people or structures to potential substantial adverse effects as a result of surface fault rupture at crossings of active faults.	II
G-6	Project would expose people or structures to potential substantial adverse effects as a result of slope instability created during excavation and/or grading.	II
G-7	Project would expose people or structures to potential substantial adverse effects as a result of landslides, earthflows, debris flows, and/or rockfall.	II

Source: The Nevada Hydro Company, Inc.

Impact G-1: Erosion would be triggered or accelerated due to construction activities (Class II).

Construction of two new substations, a new switchyard, and approximately 9.3 linear miles of new temporary access roads (resulting in approximately 30.3 acres of disturbance) would potentially accelerate erosion. Road-related stream crossings, including culverts, bridges, or low-water crossings, and trenching have the potential to cause considerable erosion and sedimentation. Smaller, unmapped intermittent or ephemeral stream channels are numerous in the Santa Ana Mountains. These stream types are typically just as adept at moving sediment as perennial streams and, because they are often steeper and higher in elevation, can also offer additional potential for debris flows.

The southern segment of the proposed Lake-Case Springs transmission line and any related access roads would cross San Mateo Creek and its tributaries. The USACE has prepared a "Final Environmental Impact Statement – San Juan Creek and Western San Mateo Creek Watershed Special Area Management Plan (SAMP)" (USACE, 2007), identifying San Juan and San Mateo Creeks as "area of special sensitivity."

The Lake Switchyard would be located on a disturbed site near Temescal Wash, and construction activities would potentially result in sedimentation production during the rainy season. The Case Springs Substation would be located at the northern boundary of Camp Pendleton within a relatively undisturbed oak woodland. Construction could result in increased erosion and sedimentation in nearby waterways.

In accordance with the CWA, a Storm Water Pollution Prevention Plan (SWPPP) would be prepared and implemented, including appropriate Best Management Practices (BMPs), in order to minimize construction impacts on surface and groundwater quality. The SWPPP would be prepared once the action is approved and after final design is complete.

Construction activities resulting in increased erosion and sedimentation could be potentially significant but would be mitigable to a less-than-significant level (Class II) through the implementation of SWPPP, in combination with APMs H-1f and G-1e. The full text of these APMs can be found in Attachment 5 (Applicant Proposed Measures).

Impact G-3: Project would expose people or structures to potential substantial adverse effects as a result of problematic soils (Class II).

Potentially corrosive soils could potentially impact the chemical stability of concrete and uncoated steel used in support structures. These effects could have adverse consequences to structures or people in the vicinity of the transmission line, substations, and the switchyard if structures were to become weakened and fail.

Expansive soils possess a shrink-swell characteristic. Shrink-swell is the cyclic change in volume (expansion and contraction) that occurs in fine-grained clay sediments from the process of wetting and drying. Structural damage may occur over a long period of time, usually the result of inadequate soil and foundation engineering or the placement of structures directly on expansive soils. Expansive soils may, among other things, cause foundations and flatwork to heave and become damaged.

The structural damage that may result from corrosive and expansive soils can be effectively mitigated through proper preparation of soil subgrade areas, proper foundation design, construction and maintenance of proper surface/subsurface drainage, prudent irrigation practices, and compliance with applicable code requirements.

A geotechnical study to assess soils characteristics has not yet been undertaken. Unidentified and unmitigated corrosive and expansive soils could potentially damage structures, facilities, and equipment, potentially resulting in their collapse or failure. Since the collapse of tower or damage to equipment located in the substations and switchyard could produce power outages, damage to nearby roads or structures, and injury or death to nearby people, the resulting impact could be potentially significant but would be mitigable to a less-than-significant level (Class II) through the implementation of APM G-3a. The full text of this APM can be found in Attachment 5 (Applicant Proposed Measures).

Impact G-4: Project would expose people or structures to potential substantial adverse effects as a result of seismically induced groundshaking and/or ground failure (Class II).

Moderate to strong groundshaking should be expected in the event of an earthquake on the active Elsinore fault. Over its operational life, it is likely that the transmission facilities would be subjected to one or more moderate or larger earthquake occurring close enough to produce strong groundshaking. Portions of the transmission line would be subject to strong groundshaking with vertical and horizontal ground accelerations that could exceed lateral wind loads, resulting in potential damage to or the collapse structures. Since the collapse of transmission structures could produce power outages, damage to nearby roads or structures, and injury or death to nearby people and property, the resulting impact could be potentially significant but would be reduced to a less-than-significant level though the implementation of APMs G-4a. The full text of this APM can be found in Attachment 5 (Applicant Proposed Measures).

Strong groundshaking could potentially result in seismically-induced ground failures, including liquefaction and slope failures. Portions of the transmission lines that cross active river washes, streams, and floodplains, where lenses and pockets of loose sand may be present and may become saturated seasonally, resulting in liquefaction damage to transmission structures should a

large earthquake occur while these soils are saturated. Slope failures, such landslides and rockfalls, could occur in the event of a large earthquake along portions of the transmission route.

Since the collapse of transmission structures could produce power outages, damage to nearby roads or structures, and injury or death to nearby people, seismically-induced groundshaking and/or ground failure could be a potentially significant impact but would be mitigable to a less-than-significant level (Class II) through the implementation of AMPs G-4b, G-6a, and G-6c. The full text of these APMs can be found in Attachment 5 (Applicant Proposed Measures).

Impact G-5: Project would expose people or structures to potential substantial adverse effects as a result of surface fault rupture at crossings of active faults (Class II).

Because portions of the proposed 500-kV transmission line (between the Lake Switchyard and Santa Rosa Substation) and upgraded 115-kV transmission line (between the Santa Rosa and Skylark Substation) traverse Alquist-Priolo seismic hazard zones (as established under the Alquist-Priolo Earthquake Fault Zoning Act), transmission facilities would be subject to surface fault rupture hazards. Since the collapse of transmission structures could produce power outages, damage to nearby roads or structures, and injury or death to people, the resulting impact could be potentially significant but would be mitigable to a less-than-significant level (Class II) though the implementation of APM G-6b. The full text of this APM can be found in Attachment 5 (Applicant Proposed Measures).

Since APM G-6b will ensure proper placement of conductors and allow distribution of fault displacements over a comparatively long span, transmission lines would be less likely to collapse in the event of an earthquake.

Impact G-6: Project would expose people or structures to potential substantial adverse effects as a result of slope instability created during excavation and/or grading (Class II).

Since the proposed new 500-kV line does not follow existing corridors, where authorized by the Forest Service, new access roads would be constructed to access the transmission line. Road grading and excavation for transmission tower footings on the steep terrain that characterizes the transmission line route has the potential to create unstable slope conditions and/or expose personnel and facilities to existing unstable slope conditions.

The United States Geological Survey (USGS) has developed a generalized debris flow hazard map that includes the proposed transmission area. Areas with slopes of 26 degrees or greater are highlighted on the map and correspond with slopes capable of producing debris flows given critical rainfall conditions. The areas indicated to have potential for debris flows in the area include a contiguous band along the steep eastern slopes of the Elsinore Mountains above the southwestern shores of Lake Elsinore. The mapping is general but indicates the potential for debris flow to affect the transmission towers and Santa Rosa Substation. Surficial instability in the form of slopewash and the accumulation of colluvium was observed during geologic reconnaissance. However, evidence of deep-seated landsliding was not observed during review of aerial photographs and geologic reconnaissance.

This potentially damaging impact of these conditions is potentially significant but would be mitigable to a less-than-significant level (Class II) through the implementation of APMs G-6a and G-6c. The full text of these APMs can be found in Attachment 5 (Applicant Proposed Measures).

Impact G-7: Project would expose people or structures to potential substantial adverse effects as a result of landslides, earthflows, debris flows, and/or rockfall (Class II).

Transmission line towers located in steep terrain could be subjected to landslides or debris flows. Steep slopes loaded with sufficient quantities of colluvium and/or loose or weathered rock are susceptible to landslides and debris flows given sufficient initiation. This initiation could come from a seismic event, addition of water (such as might occur from a reservoir or penstock breach), the concentration of hillslope runoff by a road or drainage structure onto a slope, or from a period of heavy or frequent precipitation. Unstable slopes or areas of unidentified unstable slopes could potentially fail during the facility's lifetime.

Since slope failures could potentially cause collapse of transmission structures resulting in power outages, damage to nearby roads or structures, and injury or death to people, the resulting impact would be potentially significant. Available measures including avoiding the placement of structures in unstable areas and removing or stabilizing boulders located upslope of structures, thus reducing the threat of possible slope failures or rock falls. This potentially significant impact would be mitigable to a less-than-significant level (Class II) through the implementation of APMs G-6a and G-6c. The full text of these APMs can be found in Attachment 5 (Applicant Proposed Measures).

Talega-Escondido 230-kV Transmission and Substation Upgrades

The Talega-Escondido upgrades involves installation of an approximately 52-mile second 230-kV circuit (Talega-Escondido No. 2) along existing support structures (already containing one 230-kV circuit) connecting SDG&E's existing Talega and Escondido Substations. In addition, upgrades will be made to the existing Talega and Escondido Substations and an approximately 7.8-mile section of an existing 69-kV subtransmission line between the Pala and Lilac Substations will be rebuilt, relocated, and placed on new steel and/or wood poles.

The Talega-Escondido upgrades cross the Santa Ana Mountains portion of the Peninsular Ranges Geomorphic Province. Cretaceous-age granitic rocks (generally in the eastern section) and Jurassic to Cretaceous-age marine sedimentary rocks (in the western section) underlie the alignment. The western end of the Talega-Escondido upgrades is underlain by Eocene and Miocene marine sedimentary bedrock susceptible to landslides.

The transmission line crosses a region of locally steep terrain and deeply incised canyons. Because of steep terrains, there is a moderate potential for rockslides and falls along the transmission line during a seismic event or following heavy rainfall.

The Talega-Escondido upgrades are located in the seismically active southern California region, which has historically experienced repeated moderate-to-large earthquakes. It is likely that periodic minor-to-moderate earthquakes and potentially major earthquake (moment magnitude 6.9) would occur during the Talega-Escondido upgrades service life. The nearest active faults

include, but may not be limited to, the offshore segment of the Newport-Inglewood fault and the Whittier-Elsinore fault. The Talega-Escondido upgrades do not cross any known active faults but do cross several potentially active faults, including the Harris, Tenaja, Aliso, and Cristianitos faults (Dudek, 2002).

Impact G-1: Erosion would be triggered or accelerated due to construction activities (Class II).

Excavation and grading for tower foundations, work areas, access roads, and spur roads for the 69-kV Pala-Lilac transmission line would potentially loosen soil and trigger or accelerate erosion. This impact is potentially significant but would be mitigable to a less-than-significant level (Class II) through implementation of the SWPPP, in combination with APMs G-1e and H-1f. The full text of these APMs can be found in Attachment 5 (Applicant Proposed Measures).

Impact G-3: Project would expose people or structures to potential substantial adverse effects as a result of problematic soils (Class II).

A geotechnical study for soils to assess characteristics has not yet been conducted. However, potentially corrosive soils in the 69-kV line area could impact the chemical stability of concrete and uncoated steel used in support structures potentially resulting in collapse. Expansive soils can cause foundations and flatwork to heave and become damaged.

The collapse of transmission structures could produce power outages, damage to nearby roads or structures, and injury or death to nearby people, the resulting impact could be potentially significant. This impact would be mitigable to a less-than-significant level (Class II) through the implementation of APM G-3a. The full text of this APM can be found in Attachment 5 (Applicant Proposed Measures).

Impact G-4: Project would expose people or structures to potential substantial adverse effects as a result of seismically-induced groundshaking and/or ground failure (Class II).

New structures associated with the 69-kV line would potentially be damaged by groundshaking and/or ground failure as the path of the line is generally located within three to ten miles of the active Elsinore fault. Strong seismic ground shaking can result in significant damage to aboveground structures; however, transmission lines and support structures are designed to withstand strong ground shaking and moderate ground deformations.

The existing Talega-Escondido transmission line crosses a region of locally steep terrain and deeply incised canyons (EVMWD, 2007). Due to the steep terrain along the existing Talega-Escondido line segment, there is a moderate potential for rockslides and falls during a seismic event. The Talega-Escondido transmission line does not cross any known active faults but does cross several potentially active faults, including the Harris, Tenaja, Aliso, and Cristianitos faults. The marine sedimentary bedrock within the western portion of the Talega-Escondido transmission line is susceptible to landslides. It is likely that periodic minor-to-moderate earthquakes and one or more major earthquake (moment magnitude 6.9) would occur during the facility's service life (Dudek, 2002; EVMWD, 2007).

The potential impact from seismic ground shaking would be moderate (Dudek, 2002) and is potentially significant but would be mitigable to a less-than-significant level (Class II) through the implementation of APMs G-4a, G-4b, and G-6a. The full text of these APMs can be found in Attachment 5 (Applicant Proposed Measures).

Impact G-5: Project would expose people or structures to potential substantial adverse effects as a result of surface fault rupture at crossings of active faults (Class II).

Project facilities would be subject to hazards of surface fault rupture at crossing of the active Elsinore fault and the potentially active Harris, Tenaja, Aliso, and Cristianitos faults. Fault crossings, where multiple feet of displacement are expected along active faults, are best crossed as overhead lines with towers placed well outside the fault zone to allow for the flex in the conductor lines to absorb offset.

Damage resulting from fault rupture occurs only where structures are located astride fault traces that move. The nearest active faults include the Newport-Inglewood fault and the Whittier-Elsinore fault (Dudek, 2002). As described above, the line does cross several potentially active faults. Because the 69-kV upgrades would involve the construction of a new steel and/or wood poles, there is the potential for placement of towers and poles along fault traces. Transmission structures would potentially be damaged or collapse in the event of fault rupture beneath or adjacent to a tower or pole due to inaccurate fault location during facility design.

Since the collapse of transmission structures could produce power outages, damage to nearby roads or structures, and injury or death to people, the resulting impact could be potentially significant but would be mitigable to a less-than-significant level (Class II) through the implementation of APMs G-6b. The full text of this APM can be found in Attachment 5 (Applicant Proposed Measures).

Impact G-6: Project would expose people or structures to potential substantial adverse effects as a result of slope instability created during excavation and/or grading (Class II).

Connectivity between the new Lake-Case Springs and the existing Talega-Escondido transmission lines will necessitate the construction of only a limited number of new steel-lattice towers. As a result, potential slope stability impacts associated with the construction of new towers would be expected to be minimal. However, the existing 230-kV Talega-Escondido transmission line crosses a region of locally steep terrain and deeply incised canyons. Due to the steep terrain along the existing line, there is a moderate potential that excavation and grading could create unstable slope conditions. Similarly, the terrain along the 69-kV upgrade is steep and there is a moderate potential that excavation and grading could create unstable slope conditions.

Slope failures would potentially cause damage to the environment, to transmission facilities, or to nearby structures and could potentially cause injury or death to workers and/or the general public. Slope instability impacts could be potentially significant but would be reduced to a less-than-significant level (Class II) through the implementation of APMs G-6a and 6-c. The full text of these APMs can be found in Attachment 5 (Applicant Proposed Measures).

Impact G-7: Project would expose people or structures to potential substantial adverse effects as a result of landslides, earthflows, debris flows, and/or rockfall (Class II).

Connectivity between the new Lake-Case Springs and the existing Talega-Escondido transmission lines will necessitate the construction of only a limited number of new steel-lattice towers. As a result, potential slope stability impacts associated with the construction of new towers would be expected to be minimal. However, the marine sedimentary bedrock within the western portion of the Talega-Escondido upgrades is susceptible to landslides and, due to the steep terrain, there is a moderate potential for rock slides and falls along the existing 230 kV transmission line. Similarly, due to the steep terrain, there is a moderate potential for rock slides and falls along the 69-kV line upgrades during a seismic event or following heavy rainfall.

Damage to transmission structures from a landslide, earthflow, debris flow, and/or rockflow could result in the collapse of transmission structures, producing a power outages, damage to nearby roads or structures, and injury or death to nearby people. The resulting impact could be potentially significant but would be reduced to a less-than-significant level (Class II) through the implementation of APMs G-6a and G-6c. The full text of these APMs can be found in Attachment 5 (Applicant Proposed Measures).

5.6.2 LEAPS - Geology, Soils, and Seismicity Impacts

A portion of the proposed hydroelectric facilities would be located within the San Jacinto River Basin with other associated structures located in the adjacent San Juan Creek watersheds. The San Jacinto River Basin is located in southern California, about 20 miles inland from the Pacific Ocean and covers more than 780 square miles of widely varying terrain. The river basin is bounded by north-south mountains: the Santa Ana Mountains (including the Elsinore Mountains, Santa Margarita, and the Santa Rosa Plateau) to the west and the more distant San Jacinto Mountains to the east (FERC, 2007). LEAPS spans the boundary between two geologic environments - an actively subsiding fault-bounded basin containing Lake Elsinore and a more stable mountain block underlain by minor metamorphic rocks and undivided granitic rocks of the Peninsular Ranges Batholith. Both geologic environments are a part of the Peninsular Ranges Geomorphic Province of Southern California (FERC, 2007).

The Elsinore Basin is located in the southeast part of the Los Angeles Basin. The Los Angeles Basin is a region of alluvial outwash, encompassing most of Los Angeles and Orange Counties, as well as western Riverside and San Bernardino Counties. The Los Angeles Basin is considered part of the Peninsular Ranges Geomorphic Province of Southern California, characterized by elongated ranges and fault-formed and alluvial valleys with a general northwesterly trend. The Elsinore Basin is a down-faulted (trough) about eight miles long and between two and three miles wide. The long axis of the valley parallels the northwesterly regional structural trend, and rugged hills and mountains border the basin on all but the southeastern side. The lowest portion of the basin floor is a broad, relatively flat area known as “La Laguna,” which is partially occupied by Lake Elsinore. La Laguna forms the terminus for the San Jacinto River, which flows into the Elsinore Basin from the northeast. To the southwest are the steep slopes of the Elsinore Mountains. The northeastern edge of the basin is bordered by the Sedco and Cleveland Hills, part of the Temescal Mountains. The Elsinore fault parallels the base of the Cleveland Hills and marks the structural edge of the basin in this area; the Elsinore fault continues northwest at the

base of the Santa Ana Mountains and is the principle segment of the Elsinore fault zone north of Lake Elsinore. The southeastern end of the basin is formed by a low alluvial divide built up by streams draining the Elsinore Mountains (FERC, 2007).

The geology of the Elsinore Basin comprises essentially three major units. At the surface lies alluvium from a variety of sources. Underneath the surface alluvium is the sedimentary Pauba Formation, and under that lies the "basement rocks" of the Peninsular Ranges Batholith. The alluvial formation covers the lower portions of the valley and can be divided into alluvial fan deposits, floodplain deposits, and recent lacustrine deposits. Lake Elsinore, which is a structural depression formed within a graben along the Elsinore fault, is surrounded by a combination of predominantly igneous and metamorphic rocks. Lake Elsinore is constrained along its southern edge by the steep, deeply incised Elsinore Mountains. The Elsinore Mountains provide a local sediment source. Total sediment thickness underlying Lake Elsinore is estimated to be more than 3,000 feet. Two exploratory wells drilled at the east end of the lake to 1,780 feet and 1,800 feet encountered unconsolidated sediment described as mostly fine grained (EVMWD, 2007).

The Elsinore Mountains are a portion of the Santa Ana Mountain Range, which form the northernmost range of the Peninsular Ranges Geomorphic Province. The Peninsular Ranges Province is characterized by a northwest-striking structural fabric (faulting and folding) influenced by the San Andreas fault system. The northern Peninsular Ranges Province is divided (in terms of physiography) into three major fault-bounded blocks: the Santa Ana, Perris, and San Jacinto. The westernmost of the three, the Santa Ana block, extends eastward from the coast to the Elsinore fault zone. Tertiary sedimentary rocks (Paleocene through Pliocene in age) lie under the western foothills portion of the Santa Ana block, and further east the highly faulted Santa Ana Mountains are comprised of a basement assemblage of Mesozoic metasedimentary and Cretaceous volcanic and batholitic rocks, which is overlain by a thick section of primarily upper Cretaceous marine rocks and Paleocene marine and non-marine rocks. The southern part of the Santa Ana Mountains opens into an expansive, nearly horizontal erosion surface that is partly covered with Miocene basalt flows (FERC, 2007).

The LEAPS high-head conduit and upper reservoir would be constructed within the Santa Ana (Elsinore) Mountains. The proposed Decker Canyon Reservoir is located in the headwaters of San Juan Creek. San Juan Creek flows west toward the Pacific Ocean and is separate from the drainages on the east flank of the Santa Ana (Elsinore) Mountains. Because the Decker Canyon Reservoir site is at the top of the watercourse, no stream bypass system would be required.

The Decker Canyon site is bounded by Morgan Hill on the south, a ridge to the north, and South Main Divide Road to the east. The rugged, mountainous terrain of the Santa Ana Mountains is characteristic of the reservoir site. The geologic units at Decker Canyon are comprised of granitic bedrock, alluvium, and slopewash. The bedrock is typically light gray, medium-to coarse-grained, and moderately fractured. Weathering of the granitic rock is variable near the surface. Surface alluvium and thick accumulations of slopewash are largely absent. The erosion gullies into the side slopes and base of Decker Canyon show only a minor amount (less than 2 inches) of soil development overlying intact bedrock. No evidence of groundwater near the surface was noted during geologic reconnaissance (FERC, 2007).

The proposed penstock connecting the Decker Canyon Reservoir and the LEAPS Powerhouse would run through the eastern edge of the Santa Ana (Elsinore) Mountains. It is expected that the penstock would be excavated into granitic bedrock similar to that described for the upper reservoir. Because of the nature of such large expanses of bedrock and the characteristics of the Santa Ana (Elsinore) Mountains, faults, joints, fractures, and groundwater probably would be encountered during excavation of the penstock and tunnel system (FERC, 2007).

The proposed tailrace tunnel extend from the proposed powerhouse sites (which will be located on granitic bedrock), across the Willard and probably across the Wildomar faults into Lake Elsinore. It is anticipated that a portion of the tailrace tunnel will be constructed in soft or loose, saturated sedimentary deposits.

The LEAPS Powerhouse site is located at the base of the steep, east face of the Elsinore Mountains. The powerhouse site is located in an area with surface alluvium. This material is a relatively young alluvial fan deposit of mostly gravel-sized sediment. Because of the location at the base of a steep mountain side (a location heavily influenced by gravity-induced erosion from upslope), this site is expected to contain a substantial amount of larger cobble- and boulder-sized clasts as well. Geophysical survey data for the powerhouse site indicate 10 to 30 feet of loose alluvial soils underlain by 60 to 125 feet of dense, unsaturated alluvial soils and/or weathered bedrock. Crystalline bedrock was encountered at depths ranging from 70 to 140 feet below the ground surface; therefore, from the data, the Applicant infers that groundwater is not present at the LEAPS Powerhouse site (FERC, 2007).

Lake Elsinore water surface elevations have historically experienced significant fluctuations due to periods of flooding followed by prolonged dry periods. Lake Elsinore is a historically ephemeral lake, with the main sources of water being direct natural runoff from the surrounding mountains and drainage from the San Jacinto River. The surficial geology of this area is characterized by a transition from the alluvial fans found at the toe of the Elsinore Mountains out to the floodplain and lacustrine sediments of La Laguna. The tailrace tunnel would exit the powerhouse, which is expected to be founded on granitic bedrock, and head toward Lake Elsinore. Leaving the bedrock, the tunnel would likely be excavated through loose to dense alluvium (saturated and unsaturated) and weathered bedrock. Between the powerhouse site and Lake Elsinore are portions of the active Elsinore fault zone. The Willard fault is located near the base of the Elsinore Mountains and runs roughly under or between the proposed powerhouse site and Lake Elsinore. The Wildomar fault is mapped within the limits of Lake Elsinore; however, its exact location is unknown. FERC suspects that this fault crosses the alignment of the tailrace tunnel. Because the intake structure is located within the sediment of Lake Elsinore, it is expected that a portion of the tailrace tunnel would be constructed in soft or loose saturated alluvium and/or lacustrine sedimentary deposits (FERC, 2007).

LEAPS facilities are located in seismically-active southern California and may be subjected to strong ground motions from earthquakes during the life of the project. According to the Uniform Building Code's (UBC) "Maps of Known Active Fault Near-Source Zones in California and Adjacent Portions of Nevada" (UBC, 1997), portions of LEAP, including the powerhouse site and tailrace tunnel, would be located within the Elsinore Fault Zone - Glen Ivy segment. The upper reservoir sites are located within a few kilometers of the faults zone. A historic records of earthquakes in the site vicinity available from the National Earthquake Information Center,

greater than Magnitude 6.0 within a 100-mile radius of the site for the period from 1735 to present, was conducted. The search indicated that 28 earthquakes of Magnitude 6.0 and above have occurred within a 100-mile radius of the site between 1735 and 2008. The maximum magnitude encountered was the 1992 Magnitude 7.6 Landers Earthquake, located about 66 miles from the site. The closest earthquake with Magnitude 6.0 and above was the 1910 Magnitude 6.0 Elsinore Earthquake located about four miles from the site. The exact epicenter location for this event relative to the LEAPS is not known since there was no instrumentation in 1910 and the epicenter was estimated from anecdotal reports of damage within a sparsely-populated area.

Based on a assessment of available geologic, geotechnical, and seismic information, while recommending further geotechnical investigation, a geotechnical feasibility study concluded that there exists "no apparent geotechnical constraints to prevent the construction of the project" (GENTERRA, 2007).

Table 5.6.2-1 (LEAPS – Geology, Soils, and Seismicity Impacts) summarizes the potential geology, soils, and seismicity impacts of LEAPS.

Table 5.6.2-1. LEAPS – Geology, Soils, and Seismicity Impacts

Impact	Description	Significance
G-1	Erosion would be triggered or accelerated due to construction activities.	II
G-4	Project would expose people or structures to potential substantial adverse effects as a result of seismically-induced groundshaking and/or ground failure.	II
G-7	Project would expose people or structures to potential substantial adverse effects as a result of landslides, earthflows, debris flows, and/or rockfall.	II, III
G-10	Project construction would result in geologic waste material	III

Source: The Nevada Hydro Company, Inc.

Impact G-1: Erosion would be triggered or accelerated due to construction activities (Class II).

The clearing of vegetation in the Lake Elsinore area would potentially produce erosion by disturbing the soil and removing the stabilizing vegetation. Construction of the proposed dam at Decker Canyon would use material from within the reservoir footprint to achieve a balance of excavation and fill material. Vegetation removal, excavation, and grading during construction would loosen soil or remove stabilizing vegetation and expose areas of loose soil. These areas, if not properly stabilized during construction, would potentially be subject to increased soil loss and erosion by wind and stormwater runoff.

Once the action is approved and after final design is complete, in accordance with the CWA and in order to minimize construction impacts on surface and groundwater quality, a SWPPP would be prepared and implemented.

Construction activities resulting in increased erosion and sedimentation could be potentially significant but would be mitigable to a less-than-significant level (Class II) through compliance with FERC/USFS permit requirements and the implementation of SWPPP, in combination with APMs H-1f and G-1e. The full text of these APMs can be found in Attachment 5 (Applicant Proposed Measures).

Impact G-4: Project would expose people or structures to potential substantial adverse effects as a result of seismically- induced groundshaking and/or ground failure (Class II).

The Willard and Wildomar faults are not identified as "active" by the State of California. The Lake Elsinore Fault Zone, however, is defined as active by the State and the Uniform Building Code (UBC, 1997) identifies the Willard and Wildomar faults as within the Glen Ivy segment of the Lake Elsinore Fault Zone. Weber (1977) also identifies geomorphic evidence of active faulting along the traces of the Willard and Wildomar faults. For planning purposes, the Willard and Wildomar faults should, therefore, be considered active. The location and activity of the Willard and Wildomar faults would be verified and evaluated during subsequent design phases. Additionally, potential ground rupture along these faults will be examined as part of those later studies to evaluate the impact of fault movement to the tailrace tunnel.

The latest USGS mapping shows that the Wildomar fault possible position beneath Lake Elsinore as being a short distance from the southwestern shore. The potential lateral displacement of this fault in a magnitude 7 to 7.5 earthquake as measured on the Richter scale is estimated to be in the order of 5 to 16 feet (Berger, 1997). The direction of the Willard fault is approximately parallel to the longitudinal axes of the LEAPS Powerhouse cavern, the transformer gallery, and the surge chamber (shaft). The powerhouse is centered at an elevation of approximately 1420-feet above msl ground surface contour, which would place it between the lowest surface expression of the Willard fault strands and Lake Elsinore, and the series of fault strands would be crossed by the low-pressure tunnel(s).

Because of the lateral extent (upstream-downstream) of this facility, positioning it to avoid the Willard fault zone would be extremely difficult, possibly requiring it to be moved deeper into the Elsinore Mountains or closer to the lake. The former move would affect access, and the latter move would raise a concern as to the adequacy of the rock cover (FERC, 2007). A currently unknown depth of overburden would separate the structures from the rupture surface of the Wildomar fault. A lateral displacement of the magnitude reported would likely be accompanied by substantial disturbance of the overlying materials.

The Applicant proposes a number of measures to address potential adverse geologic and geotechnical effects, including a board of three or more qualified independent engineering consultants who would assess, among other issues: (1) the geology of the site; (2) design, specifications, and construction of the dam, spillways, powerhouse, electrical and mechanical equipment, and emergency power supply; (3) instrumentation; (4) filling schedule for the reservoir and plans and surveillance during the initial filing; (5) construction procedures and progress (FERC, 2007).

Because LEAPS is a federally-licensed hydroelectric facility, all key design elements must conform to FERC standards and guidelines. LEAPS must comply with FERC's "Engineering Guidelines for the Evaluation of Hydroelectric Projects" (FERC, 2005). As stipulated in Part 12 (Safety of Water Power Projects and Project Works) therein, the licensee must use sound and prudent engineering practices in any action relating to the design, construction, operation, maintenance, use, repair, or modification of a water power project or project works (Section 12.5). In accordance with Subpart D (Inspection by Independent Consultant) therein, LEAPS

will be periodically inspected and evaluated by or under the responsibility and direction of at least one independent consultant in order to identify any actual or potential deficiencies, whether in the condition of the project works or in the quality or adequacy of maintenance, surveillance, or methods of operation, that might endanger public safety (Section 12.32).

Because the presence of an active fault or extensive adjacent shear zone whose existence was not adequately addressed in the facility's design could result in electrical supply reliability constraints if fault movement were to damages the powerhouse or its underground components. The resulting impact could be potentially significant but would be mitigable to a less-than-significant level (Class II) through compliance with FERC design requirements, standards, and guidelines, in combination with on-going monitoring activities outline and APMs G-3a, G-4a, and G-4b, as described in Attachment 5 (Applicant Proposed Measures).

Impact G-7: Project would expose people or structures to potential substantial adverse effects as a result of landslides, earthflows, debris flows, and/or rockfall (Class II or III).

Slope instability, including landslides, earth flows, and debris flows during LEAPS operation has the potential to undermine foundations, cause distortion and distress to overlying structures, and displace or destroy facility components. Faulting in the Lake Elsinore area has been relatively well documented (Impact G-4).

It is very unlikely that any of the activities related to LEAPS construction would induce seismic instability and result in a seismic event. This includes the effects of blasting for tunnels, penstocks, and powerhouses and the effects of groundwater disturbance. However, the adverse effects of a seismic event on construction activities would be potentially substantial depending on the component of the facility being worked on. Adherence to applicable United States Occupational Safety and Health Administration (OSHA) standards would ensure that workplace safety concern do not exceed a less-than-significant level (Class III) (FERC, 2007).

LEAPS facilities located beneath steep terrain could be subjected to landslides or debris flows. Steep slopes loaded with sufficient quantities of colluvium and/or loose or weathered rock are susceptible to landslides and debris flows given sufficient initiation. This initiation could come from a seismic event, addition of water (such as might occur from a reservoir or penstock breach), the concentration of hillslope runoff by a road or drainage structure onto a slope, or from a period of heavy or frequent precipitation. Unstable slopes or areas of unidentified unstable slopes could potentially fail during the facility's lifetime. Available measures including avoiding the placement of structures in unstable areas and removing or stabilizing boulders located upslope of structures, thus reducing the threat of possible slope failures or rock falls. This potentially significant impact would be mitigable to a less-than-significant level (Class II) through compliance with FERC/USFS permit requirements and the implementation of APMs G-6a and G-6c. The full text of these APMs can be found in Attachment 5 (Applicant Proposed Measures).

The proposed Decker Canyon Reservoir would be classified as a "high hazard dam" or "high hazard potential structure" (FERC, 2004). Final dam design and specification remain subject to the findings of the design-level seismic investigation conforming to FERC, Federal Emergency Management Agency (FEMA), and applicable California Department of Water Resources -

Division of Safety of Dams (DSOD) standards. Compliance with those design, development, and monitoring standards will ensure that the potential for dam failure and inundation of downstream areas is reduced to the maximum extend feasible (Class III).

Impact G-10: Project construction would result in geologic waste material (Class III).

As proposed, only deleterious soils materials excavated from the shafts, tunnels, powerhouse cavern, and upper reservoir would be disposed of off the site; all other materials will be used in the facility's design and development (e.g., structural material for the proposed dam) or retained on the site. Excess spoil material generated in the area of the LEAPS Powerhouse will be as engineered fill and will create a more level and useable development pad located along Grand Avenue. With the exception of a clay-liner for the upper reservoir (the material for which is available locally), on-site and off-site borrow of geologic fill material would primarily occur internally within and between the individual LEAPS construction areas and facility sites. Off-site disposal of geologic waste material and other spoils would, therefore, be reduced to the extent feasible (Class III).

It is anticipated that the FERC license will stipulate that material may be dredged or excavated from or placed as fill in lands and/or waters only in the prosecution of work specifically authorized under the license or after obtaining FERC. Any such material shall be removed and/or deposited in such manner as to reasonably preserve environmental values and not interfere with traffic on land or water. Dredging and filling in a navigable water of the United States shall also be done to the satisfaction of the USACE District Engineer in charge of the locality (Article 21).

5.6.3 Project - Geology, Soils, and Seismicity Impacts

Impacts to geology, soils, and seismicity from the TE/VS Interconnect are presented in Section 5.6.1. Impacts to geology, soils, and seismicity from LEAPS are presented in Section 5.6.2. The cumulative impacts to geology, soils, and seismicity resulting from the implementation of the Project (inclusive of both transmission and generation) would be similar to the combined effects presented in those two preceding sections.

5.7 Public Health and Safety

Impacts on public health and safety attributable to the TE/VS Interconnect are discussed in Section 5.7.1. Public health and safety impacts associated with LEAPS are presented in Section 5.7.2. Potential cumulative public health and safety impacts relating to the Project (inclusive of both transmission and generation) are presented in Section 5.7.3.

5.7.1 TE/VS Interconnect - Public Health and Safety Impacts

TE/VS Interconnect

The TE/VS Interconnect would pass through a mixture of privately-owned rural residential areas, USFS-administered undeveloped NFS lands, a USMC-administered military reservation, rural residential areas, and industrial sites. For the purpose of assessing hazards and hazardous material impacts, new environmental databases (EDR, 2007j) were obtained and reviewed.

Based on a review of that environmental databases, with regards to the proposed TE/VS Interconnect, there are no known recognized environmental conditions (RECs) and no contaminated or hazardous material sites within a 0.25-mile radius of the proposed transmission alignment, substations, and switchyard sites. "Recognized environmental conditions" (RECs) are defined to mean the presence or likely presence of any hazardous substances or petroleum products (other than de minimus conditions not subject to enforcement actions by appropriate governmental agencies) on a property under conditions that indicated the existing release, a past release, or a material threat of a release of any hazardous substances or petroleum products into structures on the property or into the ground, ground water, or surface waters of the property.

The area of the proposed Case Springs Substation is designated by the USMS as "Echo." To the south of the substation site is the "Whiskey/Zulu Impact Area" or the "Central Impact Area." Other proximal areas are designated "Mortar Firing Areas" (MFAs), "Artillery Firing Areas" (AFAs), and "Live Fire and Maneuver" (LFAM). Helicopters use the door gunner ranges near Case Springs for live fire into the "Whiskey Impact Area." West of the proposed substation is a designated "Drop Zone." In recognition of the nature of those proximal areas and because of Camp Pendleton's historic use as a military facility, the potential exists to encounter ordnance and explosives (OE), including unexploded ordnance (UXO) during construction operations.

Table 5.7.1-1 (TE/VS Interconnect/Talega-Escondido Upgrades – Public Health and Safety Impacts) summarizes the potential health and safety impacts of the TE/VS Interconnect and Talega-Escondido 230-kV upgrades. The TE/VS Interconnect and Talega-Escondido upgrades are separately examined below.

Table 5.7.1-1. TE/VS Interconnect/Talega-Escondido Upgrades – Public Health and Safety Impacts

Impact	Description	Significance
P-1	Improper handling and/or storage of hazardous materials during construction could cause soil or groundwater contamination.	II
P-2	Residual pesticides and/or herbicides could be encountered during grading or excavation in agricultural areas.	II
P-3	Unanticipated preexisting soil and/or groundwater contamination could be encountered during excavation or grading.	III
P-4	Areas used by the military may contain unexploded ordnance and could explode and injure workers during construction.	II
P-5	Soil or groundwater contamination could result from accidental spill or release of hazardous materials during operation and maintenance.	II
P-6	Herbicides used for vegetation control around towers and other project facilities could result in adverse health effects to the public or maintenance workers.	II
P-7	Excavation or grading could result in mobilization of existing soil or groundwater contamination from known sites.	II

Source: The Nevada Hydro Company, Inc.

Because the TE/VS Interconnect would not traverse significant agricultural areas (aside from grazing allotments), Impact P-2 would only manifest as part of the Talega-Escondido 230-kV Transmission and Substation Upgrades. Similarly, with the exception of the possible discovery of OE and UXO during construction, because the TE/VS Interconnect is primarily located within NFS lands, Impact P-7 is addressed only under the discussion of the Talega-Escondido upgrades.

There remains a lack of consensus in the scientific community with regards to public health impacts due to electromagnetic fields (EMFs) at the levels expected from electric power facilities. There are no federal or State standards limiting human exposure to EMFs from

transmission lines, substation, and/or switchyard facilities in California. For those reasons, EMFs are not further addressed herein and no determination of impact significance is presented.

Impact P-1: Soil or groundwater contamination results due to improper handling and/or storage of hazardous materials during construction activities (Class II).

During construction, hazardous materials and petroleum products, such as vehicle fuels, oils, lubricants, vehicle maintenance fluids, and hazardous materials typically and customarily used for transmission facility construction (Section D.10, Table D.10-7 of the Sunrise DEIR/DEIS) would be transported, used, stored, and dispensed in construction staging areas. Helicopters will be used to support construction activities in areas where access is limited or where there are environmental constraints preventing access with standard construction vehicles and equipment. All helicopter construction and maintenance activities would be based at an off-site fly yard. Refueling activities for the helicopters could potentially result in soil contamination from improper handling and storage of helicopter fuel at the staging areas or during refueling. Since all aircraft operations, including fueling, would be in accordance with Federal Aviation Administration (FAA) standards, the transport, use, storage, and disposal of hazardous materials and petroleum products at off-site fly yards is assumed to result in no impact (Class IV).

A hazardous substance spill resulting from the use, storage, or disposal of hazardous materials and/or petroleum products could be potentially significant but would be mitigated to a less-than-significant level (Class II) through the development of a hazardous substances spill prevention and control plan (USFS-7) designed to minimize hazardous materials and petroleum products being deposited on soils or entering surface and/or groundwater. In addition, APMs P-1a, P-1b, P-1c, P-1d, P-1f, and P-1g will provide further controls over the transport, use, storage, and disposal of hazardous materials and petroleum products associated with transmission facility construction, operation, and maintenance activities. The full text of these APMs can be found in Attachment 5 (Applicant Proposed Measures).

Impact P-3: Previously unknown soil and/or groundwater contamination could be encountered during grading or excavation (Class III).

Based on a database search, no known contaminated sites or hazardous material site occur within a 0.25-mile radius of the TE/VS Interconnect. However, where the transmission route is adjacent to or crosses Camp Pendleton, the potential exists to encounter soil contamination or hazardous materials. Possible types of contamination include gasoline and diesel fuel residuals, heavy metals, and/or other hazardous materials disposed of by the military. There also exists the potential for unknown contamination to have occurred along and near area roads due to illegal dumping activities. However, due to the low probability of encountering contamination given the location of the route primarily across National Forest lands, this impact is less than significant (Class III) and no mitigation is required.

Impact P-4: Areas used by the military may contain unexploded ordnance and could explode and injure workers during construction (Class II).

In Camp Pendleton, the potential exists to encounter ordnance and explosives (OE), including unexploded ordnance (UXO), associated with weapons and artillery training operations

conducted within the military reservation. Since the discovery of OEs and UXOs may occur during the construction of transmission facilities in Camp Pendleton, the resulting impact could be potentially significant (Class II) but would be mitigable to a less-than-significant level (Class II) through the implementation of APMs P-4a and P-4b. The full text of these APMs can be found in Attachment 5 (Applicant Proposed Measures).

Impact P-5: Soil or groundwater contamination could result from accidental spill or release of hazardous materials during operation and maintenance (Class II).

Soil and/or groundwater contamination could result from accidental spill or through the release of hazardous materials and/or petroleum products at tower sites, substations, and the switchyard or along associated access and spur roads during construction, operation, and maintenance activities. Since the presence of soil and/or groundwater contamination could result in exposure of the facility, maintenance workers, and the general public to hazardous materials and/or result in environmental damage, this impact could be potentially significant but would be mitigable to a less-than-significant level (Class II) through the implementation of a hazardous substances plan (USFS-7) and APMs P-1c and P-1g. The full text of these APMs can be found in Attachment 5 (Applicant Proposed Measures).

Impact P-6: Herbicides used for vegetation control around towers and other project facilities could result in adverse health effects to the public or maintenance workers (Class II).

Herbicides used for vegetation control in the transmission right-of-way, around substations, at the switchyard, and along access roads have the potential to harm personnel and members of the general public and produce environmental damage if not appropriately transported, handled, applied, and disposed. This impact is potentially significant but would be mitigable to a less-than-significant level (Class II) through the implementation of APM P-6a. The full text of this APM can be found in Attachment 5 (Applicant Proposed Measures).

Talega-Escondido 230-kV Transmission and Substation Upgrades

The western end of the Talega-Escondido 230-kV transmission route starts near the northern boundary of Camp Pendleton, at the existing Talega Substation, and from there, travels westward through undeveloped open space and forest land consisting of grasses, scrub brush, and trees. As the alignment continues east beyond Camp Pendleton, it approaches and crosses the rural community of De Luz, which consists primarily of scattered rural residential properties and small ranches with agricultural fields and groves. As the Talega-Escondido alignment continues east, it crosses the I-15 Freeway into the community of Rainbow where it turns south and continues to cross scattered rural residential properties and agricultural land (primarily orchards or groves). As the alignment continues south and enters the City of Escondido, residential properties and developments become denser, with some commercial and light-industrial properties along main roads and near the I-15 Freeway. The southernmost end of the alignment, the transmission line traverses an area that includes light industrial and warehouse properties.

New environmental databases (EDR, 2007j) were obtained and reviewed for the Talega-Escondido upgrades. Based on review of the EDR environmental databases, as summarized in Table 5.7.1-2 (Identified Hazardous Material Sites within 0.25-Mile Radius of Talega-Escondido

Upgrades), there are numerous known contaminated and hazardous material sites within a 0.25-mile radius of the Talega-Escondido alignment.

Table 5.7.1-2
Identified Hazardous Material Sites within 0.25-Mile Radius of Talega-Escondido Upgrades

EDR Map No.[1]	Site Name	Site Address	Database Lists[2,3]	Comments
1	TRW Incorporated/ Northrop Grumann	33000 Avenida Pico, San Clemente	HIST UST, FINDS, RCRA_LQG, HAZNET	Two gasoline USTs listed. Site uses, stores, and disposes of large quantities of chemicals.
2	SDG&E Rainbow Gas Compressor Station	3051 Rainbow Valley Blvd, Fallbrook	FINDS, AST, RCRA_LQG, HAZNET, LUST, SD CO. HMMD	Site disposes of miscellaneous organic and inorganic solid and liquid waste and stores and uses miscellaneous chemicals on site. LUST was lubrication oil and is now case closed.
5	Rainbow Conservation Camp	8215 Rainbow Heights Road, Fallbrook	HIST UST, SWEEPS UST, SD Co. HMMD	Two USTs listed, one gasoline and one diesel. Disposes of miscellaneous solid and liquid wastes.
8	John A Wills Co.	32776 Via Del Venado, Valley Center	HIST UST, FINDS, RCRA-SQG, SD Co. HMMD	Two USTs listed, one gasoline and one diesel. Small quantity generator.
16	Entek Manufacturing/ Escondido Roofing	2368 Vineyard Ave, Escondido	LUST, SD Co. HMMD, SD Co SAM, SWEEPS UST	Two gasoline leaks in 1987, now both case closed. One gasoline UST listed on site.
16	Escondido Veterinary Hospital	630 Enterprise Street, Escondido	LUST, SD Co. HMMD, SD Co SAM, SWEEPS UST	Soil only diesel leak in 1990, now case closed. One UST listed on site.
16	TRUEPARCO	655 Enterprise Street, Escondido	LUST, SD Co. HMMD, SD Co SAM, HAZNET	Soil only waste oil leak in 1999, now case closed. Site listed as having one UST.
16	Superior Ready Mix	1508 Mission Road, Escondido	LUST, SD Co. HMMD, HIST UST, HAZNET, SWEEPS UST	Waste oil leak in 1992, case closed. Six USTs listed on site, containing diesel and motor oil.
16	Dion International/ Rush Truck Center	1620 Mission Road, Escondido	LUST, CORTESE, RCRA-SQG, SWEEPS UST, HAZNET	Waste oil leak in 1993, now case closed. Three USTs listed on site.
16	Sempra Energy/SDG&E	1623 Mission Road, Escondido	LUST, SD Co. HMMD, SD Co SAM, HAZNET, FINDS, RCRA-SQG	1998 gasoline leak, case closed. 2004 waste oil leak, preliminary site assessment underway. Site listed as having 3 USTs, 2 fuel and one waste oil.
16	SKS Inc./Pacific Pride Fuel Center/Inland Oil Company	1726 -1730 Mission Road, Escondido	LUST, SD Co. HMMD, HIST UST, SWEEPS UST, HAZNET, RCRA-SQG, SD Co. SAM	Gasoline leak sin 1986 and 1990, both case closed. Soil only diesel leak in 2002, case closed. Twenty USTs listed on site containing gasoline, diesel, and kerosene.
16	International Marble and Onyx	1914 West Mission Road, Escondido	LUST, SD Co. HMMD	Soil only gasoline leak in 1997, now case closed.
16	Contractors Equipment Co/ HDS Auto Parts & Machine/North County Rebuilders	1960 West Mission Rd, Escondido	LUST, SD Co. HMMD, HAZNET, UST, HIST UST, SWEEPS UST	1987 gasoline leak, case closed. 1999 gasoline leak listed as undergoing preliminary assessment. Six motor vehicle fuel USTs listed on site.
16	Shell Gas Station	780 El Norte Parkway, Escondido	LUST, SD Co. HMMD, SD Co SAM, HAZNET, UST, FINDS, CORTESE, SWEEPS UST	1995 gasoline leak reported as undergoing site assessment. Three motor vehicle fuel USTs listed onsite.

1. EDR Environmental Information Data Site I.D.
2. Federal Records: (1) RCRA-LQG: Resource Conservation and Recovery Act Information. Large Quantity Generator; and (2) FINDS: Facility Index System/Facility Registry System, contains both facility information and 'pointers' to other sources that contain more detail.
3. State and Local Databases: (1) UST: Active UST Facilities, Active UST facilities gathered from the local regulatory agencies; (2) HIST UST: Hazardous Substance Storage Container Database, a historical listing of UST sites; (3) SWEEPS UST: Statewide Environmental Evaluation and Planning System, listing of USTs from 1980's; LUST: Leaking Underground Storage Tank Incident Reports, contains an inventory of reported leaking underground storage tank incidents; (4) HAZNET: Facility and Manifest Data, data is extracted from the copies of hazardous waste manifests received each year by the DTSC; (5) SD Co. HMMD: San Diego County Hazardous Materials Management Division Database; (6) SD Co. SAM: Contains listing of all underground tank release cases and projects actively under review by the Site Assessment and Mitigation Program; (7) UST: Active UST Facilities, Active UST facilities gathered from the local regulatory agencies; and (8) CORTESE: "Cortese" Hazardous Waste & Substances Sites List.

Source: EDR, 2007a.

In the City of Escondido area, between the I-15 Freeway and Vineyard Avenue (south of the existing Escondido Substation), more than 300 sites are listed in the EDR database, ranging from sites that use and store small amounts of hazardous materials to sites with known contamination. Because of the large number of sites in this area, including gasoline dispensing stations, light-industrial facilities, and warehouses with underground storage tanks (UST), only sites with known contamination are listed.

Impact P-1: Improper handling and/or storage of hazardous materials during construction could cause soil or groundwater contamination (Class II).

During construction, hazardous materials and petroleum products, such as vehicle fuels, oils, lubricants, vehicle maintenance fluids, and others materials typically and customarily used for transmission facility construction (Section D.10, Table D.10-7 of the Sunrise DEIR/DEIS) would be transported, used, stored, and dispensed in construction staging areas.

A hazardous substance spill resulting the transport, use, storage, or disposal of those products and those materials could be potentially significant but would be mitigated to a less-than-significant level (Class II) through the development, implementation, and enforcement of a hazardous substances spill prevention and control plan (USFS-7) designed to minimize the amount of petroleum products deposited on soils or entering surface and/or groundwaters in the event of a spill or other discharge. In addition, APMs P-1a, P-1b, P-1c, P-1d, P-1f, and P-1g will provide further controls over the transport, use, storage, and disposal of hazardous materials and petroleum products. The full text of these APMs can be found in Attachment 5 (Applicant Proposed Measures).

Impact P-2: Residual pesticides and or herbicides could be encountered during grading or excavation in agricultural areas (Class II),

The Talega-Escondido transmission line traverses numerous agricultural areas, including small orchards, groves, and nurseries. Because pesticide and herbicide contamination is not always readily apparent by visual or olfactory indicators, the potential presence of residual agricultural contamination of the soil and/or groundwater in those agricultural areas located along the transmission alignment represents a potentially significant impact (Class II) due to the potential health hazards to construction workers and to the general public stemming from exposure. This impact would be mitigable to a less-than-significant level (Class II) through the implementation of APM P-6a. The full text of this APM can be found in Attachment 5 (Applicant Proposed Measures).

Impact P-3: Previously unknown soil and/or groundwater contamination could be encountered during grading or excavation (Class III).

Based on an EPA database search, no EPA-regulated facilities exist on or in close proximity to the Talega-Escondido upgrades (EVMWD, 2007). However, where the transmission route is situated adjacent to and crosses through Camp Pendleton, the potential may exist to encounter unanticipated soil and/or groundwater contamination. Possible types of such contamination may include gasoline and diesel fuel residuals, heavy metals, and/or other hazardous materials. There also exists the potential for unknown contamination to have occurred along and near area access

roads due to illegal dumping. Due to the low probability of encountering contamination, this impact is less than significant (Class III). If contaminants are, however, existing regulations are already in place so that no additional mitigation is required.

Impact P-4: Areas used by the military may contain unexploded ordnance (UXO) and could explode and injure workers during construction (Class II).

In Camp Pendleton, the potential exists to encounter ordnance and explosives (OE), including unexploded ordnance (UXO), associated with weapons and artillery training operations conducted within the military reservation. Since the discovery of OEs and UXOs may occur during the stringing the second circuit (Talega-Escondido No. 2) in Camp Pendleton, the resulting impact could be potentially significant (Class II) but would be mitigable to a less-than-significant level (Class II) through the implementation of APMs P-4a and P-4b. The full text of these APMs can be found in Attachment 5 (Applicant Proposed Measures).

Impact P-5: Soil or groundwater contamination could result from accidental spill or release of hazardous materials during operation and maintenance (Class II).

Soil and/or groundwater contamination could result from accidental spill or through the release of hazardous materials at tower and pole sites, at substations, and along access and spur roads during construction and/or maintenance activities. Since the presence of soil and/or groundwater contamination could result in exposure of the facility, maintenance workers, and the general public to hazardous materials, this impact could be potentially significant but would be mitigable to a less-than-significant level (Class II) through the implementation of APMs P-1c, P-1e, and P-1g. The full text of these APMs can be found in Attachment 5 (Applicant Proposed Measures).

Impact P-6: Herbicides used for vegetation control around towers and other project facilities could result in adverse health effects to the public or maintenance workers (Class II).

Following the installation of the Talega-Escondido upgrades, those facilities would be owned, operated, and maintained by SDG&E in accordance with existing SDG&E policies and procedures. It can, therefore, be assumed that SDG&E herbicide application protocols would be followed. While the addition of about 52 miles of new conductor to the existing towers in the right-of-way would not be expected to substantially increase herbicidal application above baseline conditions, new herbicidal applications would be carried out in association with operation and maintenance of the rebuilt Pala-Lilac 69-kV subtransmission line.

SDG&E applies herbicide, in conjunction with mechanical clearing of vegetation, to prevent or remove vegetation at facility sites, and in the right-of-way. The vegetation removal program, known as “pole brushing,” uses eight different herbicides to clear all vegetation to mineral soil within a 10-foot radius around poles and structures as a fire-prevention measure (SDG&E, 2006). SDG&E and its contractors follow an established “Herbicide Application Protocol” (SDG&E, 2006) to prevent environmental and health hazards (Table D-10-8 in Section D.10 of the Sunrise DEIR/DEIS). All herbicide is applied by hand sprayer to restrict the chemical to within 10-feet of the structures (SDG&E, 2006).

This herbicide application during operation and maintenance of the new approximately 7.8-mile Pala-Lilac 69-kV rebuilt and relocated subtransmission line could potentially impact the workers applying the chemical, maintenance workers operating in the right-of-way, or members of the general public that enter the affected ROW; however all of these herbicides are classified as Class III (Low Toxicity) by the EPA. The potential exposure of workers applying the herbicide would be minimized by following the manufacturer's recommendations for mixing and applying the chemical and through the use of protective clothing and respiratory protection. Maintenance workers in the right-of-way could be exposed to residual herbicides if the soil application was recent and excessive dust was inhaled. Public access to the right-of-way may cause dust to become air-borne and inhaled. This is a potentially significant impact but would be mitigable to a less-than-significant level (Class II) through the implementation of APM P-6a. The full text of this APM can be found in Attachment 5 (Applicant Proposed Measures).

Impact P-7: Excavation or grading could result in mobilization of existing soil or groundwater contamination from known sites (Class II),

A number of contaminated sites have been identified within a 0.25-mile radius of the Talega-Escondido upgrades. With the following exceptions, these sites are listed as "case closed": (1) Shell Service Station (780 El Norte Parkway, Escondido) listed as undergoing site assessment; and (2) Sempra/SDG&E District Operations Facility (1623 Mission Road, Escondido) listed as undergoing preliminary site assessment (EDR, 2006a). The Sempra/SDG&E facility is located adjacent to the Escondido Substation. The presence of these sites presents a potential for contaminated soil and/or groundwater to have migrated to the facility's right-of-way and be encountered during the proposed improvements. This is a potentially significant impact but would be mitigable to a less-than-significant level (Class II) through the implementation of APMs P-1g, P-7a, and P-7b, as described in Attachment 5 (Applicant Proposed Measures).

5.7.2 LEAPS - Public Health and Safety Impacts

New environmental databases (EDR, 2007a, b) were obtained and reviewed for LEAPS. Based on a review of those environmental databases, there are no known contaminated sites and only one hazardous material site located within a 0.25-mile radius of LEAPS with the potential to impact those facilities. The existing hazardous materials site is listed in Table 5.7.2-1 (Identified Hazardous Material Sites within 0.25-Mile Radius of LEAPS).

Table 5.7.2-1. Identified Hazardous Material Sites within 0.25-Mile Radius of LEAPS

EDR Map No.[1]	Site Name	Site Address	Database Lists[2]	Comments
3	WHI James Truck & Auto	16817 Grand Avenue, Lake Elsinore	RCRA-SQG, FINDS	Site is located approximately 800 feet southwest of LEAPS Powerhouse.

1. EDR Environmental Information Data Site I.D.
2. Federal Records: (1) RCRA-SQG: Resource Conservation and Recovery Act Information; and (2) FINDS: Facility Index System/Facility Registry System, contains both facility information and 'pointers' to other sources that contain more detail.

Source: EDR, 2007a.

Table 5.7.2-2 (LEAPS – Public Health and Safety Impacts) summarizes the potential hazards and hazardous Materials impacts of LEAPS.

Table 5.7.2-2. LEAPS – Public Health and Safety Impacts

Impact	Description	Significance
P-1	Improper handling and/or storage of hazardous materials during construction could cause soil or groundwater contamination.	II
P-5	Soil or groundwater contamination could result from accidental spill or release of hazardous materials during operation and maintenance.	II
P-6	Herbicides used for vegetation control around towers and other project facilities could result in adverse health effects to the public or maintenance workers.	II
P-7	Excavation or grading could result in mobilization of existing soil or groundwater contamination from known sites.	II
P-8	Project construction would result in noxious gas release.	III
P-9	Project construction would require use of a toxic substance, resulting in public exposure.	III
P-10	Generation could cause contamination of project waters with hazardous materials.	II

Source: The Nevada Hydro Company, Inc.

Impact P-1: Improper handling and/or storage of hazardous materials during construction could cause soil or groundwater contamination (Class II).

Petroleum products, such as vehicle fuels, oils, lubricants, vehicle maintenance fluids, and other hazardous materials (Section D.10, Table D.10-7 of the Sunrise DEIR/DEIS) would be transported, used stored, and disposed of during LEAPS construction activities, resulting in a potential for soil and/or groundwater contamination from improper handling, spills, leaks, and disposal. Additionally, helicopters will be used to support construction activities in areas where access is limited or where there are environmental constraints preventing access with standard construction vehicles and equipment. All helicopter construction and maintenance activities would be based at an off-site fly yard. Refueling activities for the helicopters could potentially result in soil contamination from improper handling and storage of helicopter fuel at the staging areas or during refueling. Since all aircraft operations, including fueling, would be in accordance with FAA standards, the transport, use, storage, and disposal of hazardous materials and petroleum products at off-site fly yards is assumed to result in no impact (Class IV).

A hazardous substance spill resulting from the use, storage, or disposal of hazardous materials and/or petroleum products could be a potentially significant impact but would be mitigated to a less-than-significant level (Class II) through the development, implementation, and enforcement of a hazardous substances spill prevention and control plan (USFS-7) designed to minimize the amount of hazardous materials and petroleum products deposited on soils or entering surface and/or groundwater in the event of a spill or other discharge. In addition, compliance with FERC/USFS permit requirements and the implementation of APMs P-1a, P-1b, P-1c, P-1d, P-1f, and P-1g will provide controls over the transport, use, storage, and disposal of hazardous materials and petroleum products associated with LEAPS construction, operation, and maintenance activities. The full text of these APMs can be found in Attachment 5 (Applicant Proposed Measures).

Impact P-5: Soil or groundwater contamination could result from accidental spill or release of hazardous materials during operation and maintenance (Class II).

Soil and/or groundwater contamination could result from accidental spill or release of hazardous materials and/or petroleum products at LEAPS facilities during maintenance operations. Since this could potentially result in exposure of maintenance workers and the general public to hazardous materials and petroleum products and result in the contamination of soil, surface

and/or groundwater, the impact could be potentially significant. The resulting impact would be mitigable to a less-than-significant level (Class II) through compliance with FERC/USFS permit requirements and the implementation of APMs P-1c, P-1e, and P-1g. The full text of these APMs can be found in Attachment 5 (Applicant Proposed Measures).

Impact P-6: Herbicides used for vegetation control around towers and other project facilities could result in adverse health effects to the public or maintenance workers (Class II).

Herbicides used for vegetation control at LEAPS facilities and along access roads have the potential to harm personnel and members of the general public and produce environmental damage if not appropriately transported, handled, applied, and disposed. This is a potentially significant but would be mitigable to a less-than-significant level (Class II) through compliance with FERC/USFS permit requirements and the implementation of APMs P-6a and P-6b. The full text of these APMs can be found in Attachment 5 (Applicant Proposed Measures).

Impact P-7: Excavation or grading could result in mobilization of existing soil or groundwater contamination from known sites (Class II).

As part of the "San Juan Creek Watershed Management Study" (USACE, 2002) a preliminary hazardous toxic radioactive waste (HTRW) assessment was conducted within the San Juan Creek watershed. As indicated by the USACE, the streambed throughout this reach has the potential to contain impacted soil due to municipal and agricultural runoff, an adjacent industrial zone, adjacent present and former wastewater treatment plants, incidences of leaking petroleum underground storage tanks (USTs) on the adjacent banks, and potential illegal dumping. Miscellaneous debris was observed in the streambed.

With regards to Lake Elsinore, nutrient-rich sediments are transported to the lake from the San Jacinto River watershed and accumulate in the bottom sediments. In-lake sediments are a major source of nutrients that affect the water quality of Lake Elsinore. Three types of sediments have been identified within Lake Elsinore. In <4 meter of water, the sediments tend to be sandy, with little organic matter (Type I). At 6-7 meter depth, sediments are finely textured with high organic matter and high nitrogen and phosphorus contents (Type III). At the 4-6 meter depth, the sediment is transitional (Type II), with texture, carbon, nitrogen, and phosphorus contents in between Type I and Type III sediments.

To the extent that contaminants are present in lakebed sediments, excavation activities occurring within and adjacent to Lake Elsinore could produce actionable material. This impact would be potentially significant but would be mitigable to a less-than-significant level (Class II) through compliance with FERC/USFS permit requirements and the implementation of APMs P-1f, P-1g, P-2b, P-2c, and P-2d. The full text of these APMs can be found in Attachment 5 (Applicant Proposed Measures).

Impact P-8: Project construction would result in noxious gas release (Class III).

Construction of LEAPS creates two public health and safety concerns. First, during construction excavated sediment would be displaced from the lakebed. Some lakebed sediments would be disturbed to prepare the construction area for "dry" construction (placement of a cofferdam).

Construction of the intake/outlet structure would have relatively short-term effects on the disruption (displacement) of lakebed sediments and concurrent short-term effects on water quality. Further characterization of lakebed sediments will completed prior to the start of construction.

The organic matter and gasses associated with algal breakdown become trapped at the bottom of the lake and exposing the sediments and bottom material to the atmosphere would allow this material to break down. The removal of the sediments from the water and the placement of that excavated material along the shoreline would expedite the off-gassing process, possibly producing a concentrated or objectionably odorous gas plume. These effects are expected to be short-term, and receptors located in close proximity to construction operations would be at highest risk of exposure; however, distant communities across the lake could potentially also be affected, depending on the wind patterns and concentrations at the time of gas release. Since these pungent gases are not expected to be hazardous, any occurrences would not be deemed significant (Class III) and no mitigation is required.

In addition, construction operations, including asphalt paving operations, may produce perceptible odors. Dust and diesel odors are typical near construction sites and large diesel-powered vehicles will be present during construction activities. Diesel exhaust from vehicles is not typically a health concern unless vehicles operate or idle in close proximity to air intakes, pedestrian areas, or close to sensitive receptors. The operation of diesel-powered construction equipment could generate nuisance diesel odors at nearby receptors. Because no sensitive receptors are located in close proximity to active construction areas, these odors are not deemed significant (Class III) and no mitigation is required.

Impact P-9: Project construction would require use of a toxic substance, resulting in public exposure (Class III).

As indicated in the FEIR, rotenone may be used as a poison within Lake Elsinore to eliminate fish populations. Rotenone is a naturally occurring chemical with insecticidal, acaricidal (mite and spider-killing) and piscicidal (fish-killing) properties, obtained from the roots of several tropical and subtropical plant species (PestNews, 2007). It is a selective, non-specific insecticide, used in home gardens for insect control, for lice and tick control on pets, and for fish eradications as part of the management of inland water bodies. Rotenone is rapidly broken down in soil and water: its half-life in both is between one and three days. Nearly all its toxicity is lost in five to six days of spring sunlight, or two to three days of summer sunlight. It does not readily leach from soil and it is not expected to be a groundwater pollutant. However, research shows some concern about development of Parkinson's Disease from chronic exposure to rotenone (Journal of Neuroscience, 2007).

The Applicant is not proposing and has no plans on using and no agency has impose a condition obligating the Applicant to use rotenone or any other form of poisoning for any part of the LEAPS construction or operation, including the control of any fish species in Lake Elsinore. As such, in the absence of any planned LEAPS-related application by the Applicant, the use of piscicidals is not expected to be significant (Class III) and no mitigation is required.

An air contaminant is “any discharge, release, or other propagation into the atmosphere and includes, but is not limited to, smoke, charred paper, dust, soot, grime, carbon fumes, odors, particulate matter, acids, or any combination thereof” (Section 39013, H&SC). Section 39655 of the H&SC defines "toxic air contaminants" (TACs) as “an air pollutant which may cause or contribute to an increase in mortality or in serious illness, or which may pose a present or potential hazard to human health.” California regulates TACs primarily through Assembly Bill 1807 (Tanner Air Toxics Act) and Assembly Bill 2588 (Air Toxics “Hot Spot” Information and Assessment Act of 1987). As indicated by the California Air Resource Control Board (CARB), the majority of the estimated health risks from TACs can be attributed to a relatively few compounds, the most important being particulate matter from diesel PM, a complex mixture of gaseous vapors, fine particles, and numerous associated TACs. All but electric-powered motor vehicles are sources of TAC emissions (CARB, 2002).

Based on the findings of the EPA’s “Health Assessment Document for Diesel Engine Exhaust” (CARB, 1998), acute or short-term exposure to diesel exhaust can cause acute irritation (e.g., eye, throat, bronchial), neurophysiological systems (e.g., lightheadedness, nausea), and respiratory symptoms (e.g., cough, phlegm). There is also evidence for an immunologic effect, such as the exacerbation of allergenic responses to known allergens and asthma-like symptoms.

Because of the isolated location of LEAPS relative to proximal sensitive receptors, despite the extent of associated earthwork, the off-site transmission of diesel PM emissions would not reasonably result in construction operations individually or collectively exceeding the maximum individual cancer risk of ten in one million. Construction-related toxic emission impacts would be less than significant (Class III) and no mitigation is required.

Impact P-10: Generation could cause contamination of project waters with hazardous materials (Class II).

Federal oil pollution prevention regulations (40 CFR 112) require the preparation of a “Spills Prevention and Countermeasures Plan” (SPCC) plan if oil is stored at the facility in excess of 1,320 gallons in above-ground storage. The SPCC regulations place restrictions on the management of petroleum materials. Since LEAPS would require the storage of more than 1,320 gallons of petroleum products in above-ground facilities, it is not required to develop and implement a SPCC plan.

Construction and operation of LEAPS and the associated use, storage, and disposal of oils, fuels, lubricants, vehicle maintenance fluids, and other hazardous materials (Section D.10, Table D.10-7 of the Sunrise DEIR/DEIS) has the potential to introduce hazardous substances and petroleum products into surface and/or groundwater. Since the cycling of water between the upper and lower reservoirs, the fluctuating shorelines, and the maintenance of transmission facilities could affect multiple water quality parameters within Lake Elsinore, San Juan and San Mateo Creeks, and other watersheds which could have resultant effects on public health and environmental quality, this impacts are potentially significant (Class II) but would be mitigable to less-than-significant levels (Class II) through compliance with FERC/USFS permit requirements and the implementation of APMs P-7c and P-7d. APMs P-1d, P-1e, P-1f, P-1g, P-2b, P-2c, and P-2d will all serve to reduce the potential contamination of surface waters resulting

from the construction, operation, and maintenance of LEAPS facilities. The full text of these APMs can be found in Attachment 5 (Applicant Proposed Measures).

5.7.3 Project – Public Health and Safety Impacts

Impacts from hazards and hazardous materials from the TE/VS Interconnect are presented in Section 5.7.1. Impacts from hazards and hazardous materials from LEAPS are presented in Section 5.7.2. The cumulative impacts from the Project (including both transmission and generation) with regards to hazards and hazardous materials would be similar to those presented in those two preceding sections.

5.8 Water Resources

Impacts on water resources attributable to the TE/VS Interconnect are discussed in Section 5.8.1. Impacts on water resources associated with LEAPS are presented in Section 5.8.2. Potential cumulative impacts on water resources relating to the Project (inclusive of both transmission and generation) are presented in Section 5.8.3.

5.8.1 TE/VS Interconnect – Water Resource Impacts

TE/VS Interconnect

The California Department of Water Resources (DWR) subdivides the State into regions for planning purposes. The State is divided into ten Hydrologic Regions (HR). The TE/VS Interconnect and the Talega-Escondido upgrades are located in the South Coast Region. Each HR is subdivided into six smaller, nested levels comprising of the Hydrologic Unit (HU), the Hydrologic Area (HA), the Hydrologic Sub-Area (HSA), the Super Planning Watershed (SPWS), and the Planning Watershed (PWS). Table 5.8.1-1 (Hydrologic Units, Areas, and Subareas), lists the different hydrologic units, areas, and subareas located traversed by the TE/VS Interconnect and Talega-Escondido upgrades in Riverside, Orange, and San Diego Counties.

Table 5.8.1-1. Hydrologic Units, Areas, and Subareas

Hydrologic Unit	Hydrologic Area	Hydrologic Subarea
Santa Ana (801.00)	Lake Mathews (801.33)	Lee Lake (801.24)
San Jacinto (802.00)	Elsinore Valley (802.31)	
San Juan (901.00)	Mission Viejo (901.20)	Upper San Juan Creek (901.25)
	San Mateo Canyon (901.40)	
	San Onofre (901.50)	San Onofre Valley (901.51)
Santa Margarita (902.00)	DeLuz Creek (902.20)	DeLuz Creek (902.21)
San Luis Rey (903.00)	Lower San Luis (903.10)	Bonsall (903.12); Moosa (903.13)
	Monserate (903.20)	Pala (903.21)
Carlsbad (904.00)	Escondido Creek (904.60)	Escondido (904.62)

Source: The Nevada Hydro Company, Inc.

The TE/VS Interconnect spans a number of watersheds, including portions of the 765-square mile San Jacinto River and 2,650-square mile Santa Ana River basins north and west of Lake Elsinore. Both watersheds are administered by the Regional Water Quality Control Board, Santa Ana Region (SARWQCB). In addition, the TE/VS Interconnect and Talega-Escondido upgrades

span the 176-square mile San Juan Creek and 132-square mile San Mateo Creek basins south and east of Lake Elsinore. These watersheds are administered by the Regional Water Quality Control Board, San Diego Region (SDRWQCB). The Talega-Escondido upgrades further span portions of the 750-square mile Santa Margarita and 558 square mile San Luis Rey River basins and the 246-square mile Escondido Creek watershed, also under the jurisdiction of the SDRWQCB.

The proposed Lake-Santa Rosa transmission line segment is located in the Santa Ana Basin. The major river systems within this basin include the San Jacinto and the Santa Ana Rivers. The San Jacinto River watershed originates in the San Jacinto Mountains, drains westerly into Canyon Lake and terminates in Lake Elsinore. Urban areas within this watershed include Gilman Hot Springs, Hemet, Lake Elsinore, Menifee, Moreno Valley, Perris, San Jacinto, Sun City, and Winchester. The San Jacinto River system is also included within the Santa Ana River watershed. Under normal rainfall conditions, the San Jacinto River ends at Lake Elsinore and does not connect with the Santa Ana River. However, during years with high precipitation and runoff, the San Jacinto River flows through to the Santa Ana River.

The proposed Santa Rosa-Case Springs transmission line segment is located within the San Diego Basin whose northern boundary is formed by a hydrologic divide starting near Laguna Beach and extending inland through El Toro and easterly along the ridge of the Elsinore Mountains into the CNF. The eastern boundary is formed by the Laguna Mountains and the mountains located in the CNF. The United States and Mexico border forms the southern boundary. Within this basin, watersheds traversed by the transmission line include San Juan Creek, San Mateo Creek, and San Onofre Creek. The San Mateo Creek watershed is located in the southern portion of Orange County, the northern portion of San Diego County, and the western portion of Riverside County. Portions of the creek and marsh are managed by the California Department of Parks and Recreation and are located on Camp Pendleton. San Mateo Creek is bounded on the north and west by the San Juan Creek watershed, to the south by the San Onofre Creek watershed, and to the northeast by the San Jacinto River watershed. The San Onofre Creek watershed is located partly within Camp Pendleton. Case Springs, an 8.2-acre spring-fed pond, is found in the upper part of the watershed.

Table 5.8.1-2 (TE/VS Interconnect/Talega-Escondido Upgrades – Water Resource Impacts) summarizes the potential water resource impacts of the TE/VS Interconnect and Talega-Escondido upgrades. The TE/VS Interconnect and Talega-Escondido upgrades are separately examined below.

Table 5.8.1-2
TE/VS Interconnect/Talega-Escondido Upgrades – Hydrology and Water Quality Impacts

Impact	Description	Significance
H-1	Construction activity could degrade water quality due to erosion and sedimentation.	II
H-2	Construction activity could degrade water quality through spills of potentially harmful materials.	II
H-3	Excavation could degrade groundwater quality in areas of shallow groundwater.	II
H-5	Creation of new impervious areas could cause increased runoff resulting in flooding or increased erosion downstream.	III
H-6	Transmission towers or other aboveground project features located in a floodplain or watercourse could result in flooding, flood diversions, or erosion.	II

Source: The Nevada Hydro Company, Inc.

Because new 500-kV transmission towers would be sited to avoid floodplain areas and thus minimize the potential for affecting watercourses (FERC, 2002), Impact H-6 is only addressed in the context of the Talega-Escondido upgrades.

Impact H-1: Construction activity could degrade water quality due to erosion and sedimentation (Class II).

Disturbed soils are susceptible to erosive processes and may be transported into downstream waters, compromising water quality. Construction of the new transmission alignment may, therefore, affect the rates of erosion and sedimentation, resulting in degraded water quality. Because of the inherent nature of overhead transmission systems (lines suspended above the ground surface), the construction of the majority of the new 500-kV transmission lines is anticipated to produce relatively little effect on erosion and sedimentation. Transmission towers would be sited to avoid floodplain areas and thus minimize the potential for affecting watercourses. Trenching or tunneling for the underground segment and construction of maintenance roads, however, are expected to increase the potential for erosion and sedimentation, potentially affecting water quality.

The TE/VS Interconnect will span about 22 stream along the proposed approximately 32-mile transmission alignment would be affected during construction. Subject to Forest Service authorization, new temporary or permanent access roads will be constructed in the National Forest to provide access to new transmission towers. Some of those roads might involve stream crossings and could include culverts, bridges, or low-water crossings. Effects may include temporary diversion during access road construction. Open streams may also be channeled through culverts over the course of construction. Construction of those roads and stream crossing could cause or contribute to erosion. These impacts are potentially significant but would be mitigable to a less-than-significant level (Class II) through the implementation of APMs H-1f, H-3b, and H-5a. The full text of these APMs can be found in Attachment 5 (Applicant Proposed Measures).

Impact H-2: Construction activity could degrade water quality through spills of potentially harmful materials (Class II).

Construction of the proposed 500-kV transmission line would require the use of a variety of motorized heavy equipment including, but not limited to, 4x4 pickups, fuel trucks, cranes, dozers, forklifts, concrete trucks, backhoes, air compressors, graders, conductor pullers, shield tensioners, and drill rigs. Much of this equipment would require job-site replenishment of petroleum products and other hazardous materials, including oils, grease, coolants, lubricants, and other fluids. The accidental spill of these products, or similar construction-related materials, could lead to the discharge of contaminants onto the soil or into existing surface waters crossed by the proposed transmission line or at the site of the substations and switchyard.

Conveyance of contaminants could take place directly at the time of the spill or could be retained in place (such as soil contaminants) until a runoff event delivered them to a watercourse later or could infiltrate into the soil and/or groundwater below. A chemical spill affecting a water body, stream channel, wetland area, or groundwater is a potentially significant impact but would be

mitigable to a level-that-significant level (Class II) through the implementation of APMs H-2b, H-2c, and H-7a.

The development, implementation, and enforcement of the hazardous substances spill prevention and control plan (APM P-1e) would help to minimize the amount of hazardous materials and petroleum products that would enter surface and/or groundwater in the event of a spill. APMs P-1d, P-1f, P-1g, P-2b, P-2c, and P-2d will all serve to reduce the potential contamination of surface waters resulting from the construction, operation, and maintenance of TE/VS Interconnect facilities. The full text of these APMs can be found in Attachment 5 (Applicant Proposed Measures).

Impact H-3: Excavation could degrade groundwater quality in areas of shallow groundwater (Class II).

Construction of the proposed transmission facilities, including the placement of the overhead towers and the construction of the new substations, and switchyard, has only minimal potential to affect groundwater. However, construction of both the underground segment of the transmission line and construction of temporary and permanent access and spur roads could intercept, daylight, and/or destabilize shallow groundwater resources and may exist in the area of those construction activities.

The main effect of excavation and intersecption of groundwater and the daylighting of a slope is the draining of the groundwater that had been held in place by the removed soil. In topographic draws and creek valleys, such interception of groundwater can substantially dry up the area down slope, thus cutting off the supply of shallow groundwater and creating new surface drainage and/or flooding conditions. Upslope and downslope areas can realize a decline in groundwater levels. In arid environments, such effects could be profound for vegetation and the species that depend upon existing hydrologic conditions. Similarly, a number of rural residents located within the Congressional boundaries of the CNF rely upon groundwater wells as their sole water source. Any loss of or disruption to groundwater supplying those wells could substantially affect those residents. This impact is potentially significant but would be mitigable to a less-than-significant level (Class II) through the implementation of APMs H-9b and H-12a. The full text of these AMPs can be found in Attachment 5 (Applicant Proposed Measures).

Impact H-5: Creation of new impervious areas could cause increased runoff resulting in flooding or increased erosion downstream (Class III).

Construction of the TE/VS Interconnect could result in an increase in runoff due to construction vehicles compacting pervious area, installation of concrete pads required for the new transmission towers, and the introduction of impervious surfaces at the new substations and switchyard. If is assumed that each new 500-kV tower will convert approximately 100 square feet of pervious surface to impervious, a total of only about 0.4 acres of new impervious surfaces will be introduced (spanning multiple watersheds) from the construction of transmission tower foundations and footings.

Similarly, the construction of new substations and switchyard will result in a decrease in permeable surface areas as portions of each site is replaced with concrete pads, asphalt paving,

buildings, and other impervious surfaces. Although the extent of that coverage remains subject to final design plans, any change in the volume of surface water discharged from each site would not be expected to be significant (Class III) based on the limited extent of each change in the context of the size of each affected watershed.

Talega-Escondido 230-kV Transmission and Substation Upgrades

Several intermittent and ephemeral creeks are crossed by the existing Talega-Escondido 230-kV line, including Moosa Canyon Stream, Govez Creek, San Luis Rey River, Keys Creek, Rainbow Creek, Santa Margarita River, DeLuz Creek, Roblar Creek, and Christianitos Creek. The Pala-Lilac 69-kV corridor is drained by the San Luis Rey River, Pala Creek, and Gomez Creek. These rivers and creeks, plus a number of smaller creeks, including Maggie Creek, Trujilla Creek, Rice Canyon Creek, and Keys Creek, are also located along the transmission corridor (Dudek, 2002).

The Talega-Escondido transmission line corridor crosses a 100-year floodplain just west of Rainbow and south of Pala Substation. With the exception of ephemeral streams, no known water supply features occur within the Talega-Escondido transmission right-of-way. The right-of-way is not located within an area of potential inundation in the event of a dam failure. Surface water within the study area and vicinity includes perennial flow in a number of larger drainages, intermittent storm runoff, and runoff from agricultural and landscape irrigation. These types of flow may be subject to wide variations in water quality from factors such as runoff volumes, adjacent land uses, and chemical applications.

The Talega-Escondido upgrades will entail the installation of a second 230-kV circuit (Talega-Escondido No. 2) on the vacant position of SDG&E's Talega-Escondido transmission line, installing new 69-kV wood and/or steel poles along an approximately 7.8-mile section extending between the Pala and Lilac Substations, and making improvements and upgrades within the existing fence-line of the existing Talega and Escondido Substations. With the exception of the rebuilt and relocated Pals-Lilac subtransmission line, minimal effects to hydrology or water quality would occur as a result of these improvements and modifications as no new structures external to existing development footprints are proposed. Potential hydrology and water quality impacts would, therefore, relate primarily to the new structures associated with the placement of new 69-kV wood and/or steel poles.

Impact H-1: Construction activity could degrade water quality due to erosion and sedimentation (Class II).

Construction associated with the installation of a second 230-kV circuit (Talega-Escondido No. 2) on existing transmission structures and construction associated with the placement of new wood and/or steel poles and 69-kV subtransmission line along an approximately 7.8-mile long alignment would require only minimal site clearance and grading activities. Those activities could, nonetheless, contribute to erosion and increase sediment loading to surface waters. The transmission corridor crosses several intermittent and ephemeral streams which could be impacted by sediment loading.

The potential for construction-related sediment and excavated spoils to enter surface waters represents a potentially significant water quality impact but would be mitigable to a less-than-

significant level (Class II) through the implementation of APMs H-1e, H-1f, H-1g, H-1h, H-1i, and H-7a, as described in Attachment 5 (Applicant Proposed Measures).

Impact H-2: Construction activity could degrade water quality through spills of potentially harmful materials (Class II).

Construction of the proposed rebuilt 69-kV subtransmission segment would require the use of a variety of motorized heavy equipment including, but not limited to 4 x 4 pickups, fuel trucks, cranes, dozers, forklifts, concrete trucks, backhoes, air compressors, graders, conductor pullers, shield tensioners, and drill rigs. Much of this equipment requires job-site replenishment of petroleum products and other hazardous materials, including oils, grease, coolants, lubricants, and other fluids. The accidental spill of these, or other construction-related materials, could lead to the discharge of contaminants onto the soil or into existing surface waters crossed by the subtransmission line.

Conveyance of contaminants could take place directly at the time of the spill or could be retained in place (such as soil contaminants) until a runoff event delivered them to a watercourse later or could infiltrate into the soil and/or groundwater below. A chemical spill affecting a water body, stream channel, wetland area, or groundwater is a potentially significant impact but would be mitigable to a less-than-significant level (Class II) through the implementation of APM H-2b, H-2c, and H-7a. In addition, the development, implementation, and enforcement of the hazardous substances spill prevention and control plan (APM P-1e) would help to minimize the amount of hazardous materials and petroleum products that would enter surface and/or groundwater in the event of a spill. APMs P-1d, P-1f, P-1g, P-2b, P-2c, and P-2d will all serve to reduce the potential contamination of surface waters resulting from the construction, operation, and maintenance of the Talega-Escondido upgrades. The full text of these APMs can be found in Attachment 5 (Applicant Proposed Measures).

Impact H-5: Creation of new impervious areas could cause increased runoff resulting in flooding or increased erosion downstream (Class III).

Construction of this segment could result in an increase in runoff due to construction vehicles compacting pervious area and from construction of footings required for the installation of the addition approximately 7.8 miles of rebuilt 69-kV subtransmission line. Facility construction and access road building activities will cross stream and may alter the existing surface runoff patterns, such that more surface flow will be concentrated at particular crossings. In comparison to the overall size of affected watershed area, this impact comprises a small potential increase in the quantity of impervious cover, resulting in small and less-than-significant potential increase in surface runoff (Class III).

Impact H-6: Transmission towers or other aboveground project features located in a floodplain or watercourse could result in flooding, flood diversions, or erosion (Class II).

Existing flooding could be increased if facility construction, operation, or maintenance were to obstruct, impound, or otherwise alter the normal flow of surface waters in the vicinity of the Talega-Escondido upgrades. Construction impacts, including the construction of new access roads and the placement of material, equipment, and facilities within a 100-year floodplain,

could alter the direction of surface flows, divert or modify stream channels or riverbed crossing, and/or redirect flows around introduced obstruction. Flooding or inundation of the construction area by active low-flows could interfere with construction activities and affect the quality of surface flow and/or groundwater.

The 69-kV line upgrade crosses a 100- and 500-year floodplain directly south of the Pala Substation and a few minor flooding areas exist to the north of the Lilac Substation. Where structures can be spaced far enough apart to span a FEMA-designated floodplain, no impact would result. However, where structures are located in designated 100-year floodplains, flooding impacts could be potentially significant because floods could erode or undermine structural support (Dudek, 2002). This impact could be reduced to a less-than-significant level (Class II) through the implementation of APMs H-1i, H-1g, and H-3b. The full text of this APM is contained in Attachment 5 (Applicant Proposed Measures).

A number of structures associated with the 69-kV transmission line upgrade would have to be placed in the floodplain or adjacent to exiting watercourses. In those locations where the transmission upgrades would cross through or pass adjacent to streams with erodible bed or banks, the burial depth of the footings would need to be extended below the estimated 100-year depth of scour for that stream or located at a sufficient distance from the bank as to avoid erosion that can reasonably be expected to occur during the facility's life. This impact could be reduced to a less-than-significant level (Class II) through the implementation of APM H-6a. The full text of this APM is contained in Attachment 5 (Applicant Proposed Measures).

5.8.2 LEAPS - Water Resource Impacts

Lake Elsinore is a natural lake which is about five miles long and about two miles wide. It is a terminal lake and a natural low point in the San Jacinto River Basin; it does not connect with the Santa Ana River under normal rainfall conditions. In high precipitation and runoff years, the San Jacinto River flows through Lake Elsinore to the Santa Ana River via Temescal Wash, a natural drainage system that extends about 28 miles from Lake Elsinore to the Santa Ana River, which eventually drains to the Pacific Ocean. Lake Elsinore has overflowed to the northwest through Walker Canyon very rarely, only three times in the 20th Century and 20 times since 1769 based on Mission diaries. Each overflow event was short-lived demonstrating that Lake Elsinore is essentially a closed-basin lake system (FERC, 2007).

Lake Elsinore is an ephemeral lake, and water surface elevations have historically experienced significant fluctuations due to periods of flooding followed by prolonged dry periods. Lake Elsinore has dried completely on four occasions since 1769 (EVMWD, 2007). Lake Elsinore has a relatively small drainage basin (<1,240 square kilometers) from which the San Jacinto River flows (semi-annually) into and terminates within the lake's basin. Lake Elsinore is a shallow lake (average depth of 24.7 feet) with a large surface area: (approximately 3,074 acrea at elevation 1240-feet above msl). The main natural sources of water flowing into Lake Elsinore are direct natural runoff from the surrounding mountains and drainage from the San Jacinto River. Annual average precipitation in the Lake Elsinore watershed is about 11.6 inches and the average annual evaporative loss is 56.2 inches. This excessive evaporative loss, when compared to the low natural inflow, results in unstable lake levels.

The primary source for make-up water is the EVMWD's Regional Water Reclamation Facility (RWRF), located adjacent to Lake Elsinore. The EVMWD relies on Water Rights Permit No. 30520 for an exclusive right to all water discharged from the reclamation plant. The EVMWD also can supplement make-up water with water from its island wells. The Applicant is also in discussions with the Eastern Municipal Water District (EMWD) as a potential supplier of tertiary treatment water that could be secured for discharge into Lake Elsinore. Water from those or other sources could be secured by the Applicant for LEAPS operations.

Lake Elsinore has a long history of water quality problems, the most severe of which is hypereutrophication, or the over-enrichment of the lake with the nutrients phosphorus and nitrogen. Elevated nutrient levels result in high algal productivity, leading to algal blooms that block sunlight to the water column and reduce photosynthesis of aquatic plants, creating low dissolved oxygen (DO) levels that result in fish kills. The majority of oxygen produced by algal respiration is lost to the atmosphere rather than being dissolved in lake water, and decay of floating mats of algae is a chemical process that further removes DO from the water column, exacerbating low oxygen levels experienced by the turbid water. The shallow lake depths and large surface area of Lake Elsinore allow water temperatures to increase dramatically during the summer months and high water temperatures support lower levels of DO. These complex processes result in excessive oxygen depletion that adversely affects aquatic biota, including fish.

Nutrient levels are elevated in Lake Elsinore from a combination of natural and anthropogenic causes. Nutrients tend to build up in terminal lake bottoms. Lake Elsinore is essentially the endpoint of a closed hydrologic system. Nutrient runoff from surrounding urban development, faulty septic systems, and dairy and agricultural operations contributes to the nutrient loading problem in Lake Elsinore. In addition, nutrient-rich sediment at the lake bottom is stirred up by the burrowing and bottom foraging behavior of introduced carp. Under conditions of low DO, phosphorus trapped in suspended sediment becomes bio-available to algae.

Lake Elsinore is listed by the State as "impaired" per Section 303(d) of the Clean Water Act (CWA) for failing to meet applicable water quality objectives, including DO levels. Measurements that are below State water quality objectives are continually recorded throughout the water column in Lake Elsinore for the majority of the year. The Lake Elsinore and San Jacinto Watershed Authority (LESJWA) installed a "lake mixing system" (axial flow pump aeration system) in 2004 and has initiated an environmental review process for an "aeration project" (diffused air in-lake aeration system) designed to increase oxygen levels in Lake Elsinore.

Pumped-storage electrical generation operations would involve the cycling of water between Lake Elsinore and a new upper reservoir (forebay), generating peak power with releases from the upper reservoir to Lake Elsinore (afterbay) and returning water to the upper reservoir for non-peak storage. This closed-loop cycling operation would be accompanied by upper reservoir water-level fluctuations of about 40 feet on a daily basis and about 75 feet during the course of a full-week cycle. In Lake Elsinore, the daily water-level fluctuation would be about one foot, with the lake level fluctuating about 1.7 feet during the course of a weekly cycle.

Significant hydraulic modification has already occurred in Lake Elsinore. However, potential effects during construction will include a greater-than-normal lake-level draw downs to facilitate construction and initial filing. This would be a short-term measure and the drawdown elevation

would largely be dictated by the hydrologic conditions present at that time. About 5,500 acre-feet (AF) of water would be needed for the initial filling of the upper reservoir. Since the Applicant proposes to obtain this water from recycled water sources available to the EVMWD and/or EMWD, effects on local potable water supplies would be negligible. Water use during construction is also a short-term use and the Applicant would purchase the water needed from the EVMWD, the EMWD, or from other sources.

Construction of the intake/outlet structure would require work to be performed in Lake Elsinore. This work would be conducted within the confines of a cofferdam, which would limit the interface between the construction activities and lake water. Installation of the intake/outflow structure would require the removal of lake bed material which would be replaced with a steel and concrete structure. The structure would be backfilled and secured prior to removal of the cofferdam. Once the cofferdam was removed, the lake bed would be re-submerged. Based on the findings of technical studies conducted by the SARWQBC, construction activities are not anticipated to significantly disturb or re-suspend lakebed sediments (Anderson, 2006, 2007a, 2007b).

Table 5.8.2-1 (LEAPS – Water Resource Impacts) summarizes the potential water resource impacts of LEAPS.

Table 5.8.2-1. LEAPS – Water Resource Impacts

Impact	Description	Significance
H-7	Accidental releases of contaminants from project facilities could degrade water quality.	II
H-9	Project construction or operation would potentially impact local water supply.	II
H-10	Project construction would deliver sediment resulting in increased turbidity.	II
H-11	Project reservoir would capture runoff.	III
H-12	Project operations could impact the quantity and quality of groundwater recharge.	II
H-13	Project operations could change water quality parameters.	III, IV
H-14	Project operations could degrade water quality in San Juan Creek.	II
H-15	Project operations could result in dam breach and a consequent loss of human life.	II

Source: The Nevada Hydro Company, Inc.

Impact H-7: Accidental releases of contaminants from project facilities could degrade water quality (Class II).

Construction activities, including the construction of the new Decker Canyon Reservoir and an intake/outlet structure in Lake Elsinore, would require the placement, consumption, and storage of fuels, oils, lubricants, and other petroleum products and hazardous materials near existing water resources. The release or spill of petroleum products and/or hazardous substances into surface waters or streams located proximal to construction, operation, or maintenance activities could have negative effects on water quality, including corresponding impact on terrestrial and aquatic resources.

Lake Elsinore is a hypereutrophic lake and listed by the State as "impaired" under Section 303(d) of the CWA for failing to meet applicable water quality objectives for nutrients, organic enrichment/low DO, sedimentation/siltation, and unknown toxicity. The release of additional hazardous substances could exacerbate this condition. This impact is potentially significant but would be mitigable to a less-than-significant level (Class II) through compliance with

FERC/USFS permit requirements and the implementation of APMs H-2a, H-2b, H-2c, and H-7a. The full text of these APMs can be found in Attachment 5 (Applicant Proposed Measures).

Impact H-9: Project construction or operation would potentially impact local water supply (Class II).

Extensive tunneling will be required to construct the penstocks connecting the new Decker Canyon reservoir and the LEAPS Powerhouse. Excavation activities associated with that tunneling could encounter and destabilize artesian groundwater systems. In addition, excavation for reservoir construction and the placement of a seepage collection system could destabilize localized artesian groundwater. Groundwater extent, including the depth to any underlying aquifer and hydrostatic pressures, will be determined through subsequent hydrogeologic investigations conducted by the Applicant prior to the start of construction (FERC, 2007).

Dewatering (groundwater pumping for construction) would likely be necessary for construction of the penstocks, tailrace tunnels, and intake/outlet structure; however, the effect is likely to be localized and for a short duration until a shaft casing could be installed. Long-term effects on the local and regional groundwater, such as the lowering of the piezometric surface, are not anticipated for the construction, operation, or maintenance of the proposed powerhouse, penstocks, tailrace, and intake/outlet structures. Additional groundwater level monitoring and geotechnical investigations will be conducted by the Applicant prior to the start of construction (FERC, 2007). Potential dewatering impacts could be potentially significant but would be mitigated to a less-than-significant (Class II) through compliance with FERC/USFS permit requirements and the implementation of APMs H-1h and H-2a. The full text of these APMs can be found in Attachment 5 (Applicant Proposed Measures).

There are approximately 600 residents living downstream near the Ortega Highway–San Juan Creek crossing. The water source of these residents is dominated by groundwater supplies (FERC, 2007). Any disruption of the groundwater that serves those residents or any interruption to existing groundwater seeps discharging groundwater to the surface would be a potentially significant impact but would be mitigated to a less-than-significant level (Class II) through compliance with FERC/USFS permit requirements and the implementation of APMs 9-b and 12a. The full text of this APM can be found in Attachment 5 (Applicant Proposed Measures).

Impact H-10: Project construction would deliver sediment resulting in increased turbidity (Class II).

Construction could increase turbidity in area streams and in Lake Elsinore through two primary pathways: (1) increased surface erosion; and (2) in-water construction activities. Construction activities could affect temperature, DO, and nutrient cycling and would likely contribute to continued and overall poor water quality in Lake Elsinore. Construction of the proposed Decker Canyon Reservoir would necessitate the removal of existing vegetation covering an approximately 150-acre area, exposing soils to increased erosion. Increased sediment loading in Decker Canyon would discharge to San Juan Creek. These impacts are significant but would be mitigable to a less-than-significant level (Class II) through compliance with FERC/USFS permit requirements and the implementation of APM H-1f, H-1h, and H-1l, as described in Attachment 5 (Applicant Proposed Measures).

Impact H-11: Project reservoir would capture runoff (Class III).

The San Juan Creek watershed encompasses a drainage area of 176 square miles (113,000 acres) extending from the CNF to the Pacific Ocean at Doheny State Beach, near Dana Point Harbor. The approximately 100-acre Decker Canyon Reservoir is located in that watershed and captures a surface area representing less than 0.1 percent of that drainage basin.

Through the inclusion of a double-liner system (low-permeability liner material and a geomembrane) and collection system, the proposed Decker Canyon Reservoir is designed to preclude water retained in the reservoir (water imported from Lake Elsinore) not to discharge to the San Juan Creek watershed. As a result, rainwater falling into the reservoir will also be contained therein.

Construction of the reservoir would preclude this captured water from flowing downstream into the San Juan Creek watershed. Interception of rainfall by the uncovered reservoir would be expected to be minimal on a watershed level. It is estimated that precipitation over the Decker Canyon Reservoir could contribute as much as 135 acre-feet per year (AFY) during an average year to the San Juan Creek watershed. This amounts to about one percent of the average runoff as measured at the La Novia Street Bridge Gage, approximately 17 miles downstream.

This resulting impact is less than significant (Class III) and no mitigation is required

Impact H-12: Project operations could impact the quantity and quality of groundwater recharge (Class II).

Waters used for the operation of the LEAPS Powerplant will be pumped from Lake Elsinore (Santa Ana Basin) into the Decker Canyon Reservoir. The installation of a double-liner (low-permeability liner material and a geomembrane) and collection system and the maintenance of adequate freeboard at the proposed reservoir will maintain separation between the water within the reservoir and the surface and groundwater of the San Diego Basin, thus preventing any chemical constituent and biological transference between those basins. Experience with liners of the type proposed shows that leakage or failure would be unlikely. However, if the liner and collection system were to leak or otherwise fails, there could be a release of water originating from Lake Elsinore into the surface waters of San Juan Creek, which could then infiltrate into groundwater supplies. Such releases could potentially affect groundwater quantity in the San Juan Creek watershed.

The proposed high-pressure water conduit (penstock) system would be aligned through the east side of the Santa Ana (Elsinore) Mountains. Construction will occur through a combination of tunnel boring machine (TBM) technology and conventional hard-rock mining techniques. Groundwater inflows into tunnel excavation can adversely affect groundwater, including contributing to groundwater withdrawal or depletion, as well as create additional issues (dewatering) with regards to the discharge of waters generated by construction operations.

If the native groundwater pressures exceed the tunnel pressures, native groundwater could seep into the tunnels and lower the groundwater level if the water table lies above the tunnel. Conversely, if pressure is greater inside the tunnel, water may seep into the native groundwater

table and possibly raise the surrounding groundwater elevation. Because portions of the tunnels would be concrete lined, it is not anticipated that operation of the tunnels would result in any water diversion or otherwise adversely affect groundwater.

Operation of the underground LEAPS Powerhouse could have localized effects on groundwater flow patterns. Groundwater may need to be pumped out of the powerhouse cavity and could potentially be redirected to Lake Elsinore at the surface.

FERC stipulates that, within specified time lines, the Applicant file with FERC a plan approved by the Forest Service for the management of groundwater and associated surface waters on or affecting NFS lands. The purpose of the plan is to reduce the potential for groundwater extraction or contamination and related effects to surface water resources.

Control of groundwater may involve the discharge of such water to receiving waters (surface waters) in the Lake Elsinore Basin. As regulated under the CWA, all point source discharges to the waterways of the United States are required to meet the applicable water quality standards. All discharges must apply and comply with the National Discharge Elimination System (NPDES) permit requirements. In accordance therewith, the direct discharge of debris, soil, silt, sand, cement, concrete, or washings thereof, or other construction-related materials or wastes, oil, or petroleum products or other organic or earthen material into surface waters or at any place where it may be washed from the site by rainfall or runoff into waters of the State is prohibited. When operations are completed, any excess material shall be removed from the work area and any areas adjacent to the work area where such material may be washed into waters of the State. Compliance with NPDES requirements is identified as an APM herein (APMs H-1h and H-2a).

LEAPS-related impacts on groundwater are potentially significant but would be mitigated to a less-than-significant level (Class II) through compliance with FERC/USFS permit requirements and implementation of APMs H-9b and H-12a. The full text of these APMs can be found in Attachment 5 (Applicant Proposed Measures).

Impact H-13: Project operations could change water quality parameters (Class III and IV).

Operation of LEAPS (the cycling of water between the upper reservoir and Lake Elsinore, the fluctuating shoreline, and the maintenance of facilities and transmission lines) could potentially affect multiple water quality parameters within Lake Elsinore (SARWQCB) and San Juan and San Mateo Creeks (SDRWQCB). Changing water levels could potentially cause shoreline soils to expand and contract, asserting a stress that eventually causes the soil structure to break down to the point of failure and resulting in erosion and sedimentation. As Lake Elsinore is already a heavily turbid lake, this unanticipated effect would be considered minimal (Class III) (Anderson, 2007a) and no mitigation is required.

Operation of LEAPS could affect the temperature, DO, and nutrient cycling occurring in Lake Elsinore. Water transferred and stored at the upper reservoir during nighttime hours, and passing through the turbine during the day, could raise or lower water temperatures beyond current observed trends in Lake Elsinore. The pumping of water and operation of the turbines could aerate the water above existing levels benefiting water quality (Class IV), while discharges could disturb bottom sediments, increasing turbidity and altering the nutrient cycling in the reservoir

(Class III). Changing shoreline elevations could also stir up sediments, increasing turbidity and affecting nutrient cycling. Depending on other factors at the time of release, a large nutrient release could stimulate additional algal growth in Lake Elsinore. Each of these issues have been addressed through technical studies undertaken by the SARWQCB (Anderson, 2006, 2007a, and 2007b).

Transferring water from Lake Elsinore at night and returning it during daylight hours would have minimal impacts on water temperature (Anderson, 2006). Anderson surmises that the friction associated with moving the water through the generating units could slightly raise the temperature of the water while storage at higher elevation and transfer timing (at night) could result in slight decreases to the temperature. Given that the conduits would be underground where temperatures would be much cooler than the summer time air temperatures at the lake, any gains in temperatures due to friction would likely be negated by the surrounding conditions. These impacts would be less than significant (Class III) and no mitigation is required.

Although impacts may be localized in the area of the outfall, operation of LEAPS could increase the concentration of DO in waters returning to Lake Elsinore. The activity of transferring the water through the conduit, penstock pipes, and turbines in conjunction with a greater surface area to volume ratio within the upper reservoir would allow for a greater amount of oxygen to become dissolved in the existing stream waters than under current conditions. Maintaining oxygenated water throughout the water column prevents the nutrients stored within the sediments from being released into the water column, which reduces the amount available for use by algae thus improving water quality. Over time, as additional nutrients settle they become stored in the sediments as long as oxygenated conditions persist. Beneficial impacts to water quality are expected to be incremental (Class IV).

LEAPS operations would involve the cycling of water between Lake Elsinore and a new upper reservoir. Although impacts may be localized in the area of the outfall, there is an expected beneficial increase in DO as a result of this daily water cycling. It is expected that, over time, LEAPS operations should provide a measurable benefit to the annual mean water quality by using temperature and oxygen concentration differences between the upper and lower reservoirs to promote mixing of the water column and control internal nutrient loading within Lake Elsinore; however, LEAPS alone is not expected to improve water quality to the point where water quality objectives could be met. This water quality effect would be incremental relative to the effects outlined in the Lake Elsinore and San Jacinto Watershed Authority's (LESJWA) "Lake Elsinore Stabilization and Enhancement Project," which includes the installation of a mechanical aeration system to improve water quality and the importation of recycled wastewater to Lake Elsinore to stabilize lake levels. According to Joint Watershed Authority (2005), dry lake conditions would be eliminated entirely, whereas, under current conditions, lake levels will be below 1225-feet above msl (close to empty) 20 percent of the time.

Because lake level stabilization is a necessary condition of LEAPS operation, a long-term water purchase agreement, or similar document, will be executed with the EVMWD and/or other water providers in order to ensure the long-term availability of water in Lake Elsinore at elevations above 1240-feet above msl. Since no significant impacts have been identified, no mitigation is required.

Impact H-14: Project operations could degrade water quality in San Juan Creek (Class II).

The storage of Lake Elsinore water in the upper reservoir within the San Juan Creek watershed could negatively affect water quality in the San Juan Creek drainage. Spills or releases of water stored in the upper reservoir or leaks in the upper reservoir liner or collection system, membrane system, water conveyance system, or subterranean diversion structure that would allow the water from the upper reservoir to reach the San Juan Creek drainage could potentially degrade the water quality in the San Juan Creek watershed (Class II). This impact would be mitigable to a less-than-significant level (Class II) compliance with FERC/USFS permit requirements and the implementation of APM H-14a. The full text of this APM can be found in Attachment 5 (Applicant Proposed Measures).

Impact H-15: Project operations could result in dam breach and a consequent loss of human life (Class II).

Earlier development plans for the proposed Decker Canyon Reservoir include an elevated reservoir comprised of both a dam (downstream) and dike (upstream) system. Proposed development plan have been modified to reduce the height of the reservoir and better conform to the existing topography. As now proposed, the dike has been eliminated and the water elevation of the stored water lowered. The following analysis addresses the conceptual design presented in the FEIS and not the reservoir configuration presented in this PEA.

Dam breach and dike failure is a public health and safety concern of the construction and operation of the proposed upper reservoir. Prior to the determination by FERC of the precise location and configuration of the proposed upper reservoir, the Applicant included in their license application a dam break analyses for normal pool conditions based on the preliminary design of the structures. The Applicant noted that an incremental hazard evaluation will be provided as part of the "emergency action plan" which would also examine potential inundation hazards associated with flood-flow conditions.

Because the proposed upper reservoir site is located near the headwaters of San Juan Creek, roughly coincident with the drainage divide between that watershed and that of Lake Elsinore, a dam failure could discharge water into San Juan Creek, and a dike failure could discharge water toward Lake Elsinore. Mode of failure in the Applicant's dam breach analyses were via a hypothetical piping failure; the hypothetical failure modes for the dike breach analyses included overtopping of the dike crest and internal erosion (piping) through the dike embankment materials.

FERC's Division of Dam Safety and Inspection's San Francisco Regional Office performed a Pre-License inspection and issued a report, dated January 6, 2005. Paragraph A of the Pre-license Inspection Report discusses the downstream hazard potential of the project. The report notes that based on the dam break analyses included in the federal hydropower license application, a dam breach at the Decker Canyon Reservoir site would generate a flood wave that would cause overbank flow along San Juan Creek for about 15 miles to the Pacific Ocean. The areas subject to flooding include campgrounds, residential and commercial buildings, and Ortega Highway (State Route 74) stream crossings. The study estimates that depths could be as high as 39 feet in the narrow canyon areas. A similar study was performed to estimate inundation toward Lake

Elsinore should a upper elevation dike fail. A dike breach could result in flooding, however, with less release of water. Structures and possibly residences in the City of Lake Elsinore would be inundated by up to six feet. The report notes that observations made during the inspection confirm that the Decker Canyon Reservoir would be classified as having a high downstream hazard potential. In accordance with the "Federal Guidelines for Dam Safety–Hazard Potential Classification Systems for Dams" (October 1998), dams assigned the high hazard potential are those for which failure or disoperation would probably cause loss of human life.

Inundation studies are conducted as a routine part of reservoir construction. The proposed reservoir's design must conform to both FERC and California Department of Water Resources, Division of Safety of Dams' (DSOD) dam safety requirements. In accordance therewith, substantial safety standards are required in order to minimize, to the maximum extent feasible, the potential for dam failure. Similarly, because electronic and visual monitoring of the reservoir will be required, evidence of potential safety considerations will be identified at the earliest possible time. If public safety conditions are identified, water in the upper reservoir can be released to Lake Elsinore and any remedial measures undertaken.

This impact would be potentially significant but would be reduced to a less-than-significant level (Class II) through compliance with FERC/USFS permit requirements and applicable federal and State design standards, including maintenance and monitoring requirements, and the implementation of the Applicant's proposed protection, mitigation, and enhancement measures (PME-23, PME-26, and PME-Q), in combination with APM H-14a. The full text of these measures can be found in Attachment 4 (Articles, Conditions, and Measures) and in Attachment 5 (Applicant Proposed Measures).

5.8.3 Project – Water Resource Impacts

Impacts to water resources from the TE/VS Interconnect are presented in Section 5.8.1. Water resource impacts from LEAPS are presented in Section 5.8.2. Cumulative impacts to water resources from the Project (transmission and generation) would be similar to those presented in those two preceding sections.

5.9 Land Use and Planning

Impacts on land use and planning attributable to the TE/VS Interconnect are discussed in Section 5.9.1. Impacts on land use and planning associated with LEAPS are presented in Section 5.9.2. Potential cumulative impacts on land use and planning relating to the Project (inclusive of both transmission and generation) are presented in Section 5.9.3.

5.9.1 TE/VS Interconnect – Land Use and Planning Impacts

The proposed TE/VS Interconnect crosses primarily undeveloped lands, sometimes in the vicinity of single-family homes or other land uses, such as a private airstrip and the Wildomar OHV area. Most of the proposed transmission line is located within National Forest boundaries (as administered by the United States Department of Agriculture - Forest Service) or on Camp Pendleton (as administered by the United States Department of the Navy – United States Marine Corp). In accordance with its enabling legislation and the "Cleveland National Forest Land

Management Plan," the Forest Service has the authority to impose permit conditions on land uses conducted on NFS lands. Similarly, the USMC can authorize uses of its military reservation in accordance with its enabling legislation and "Integrated Natural Resources Management Plan – Marine Corps Base and Marine Corps Air Station, Camp Pendleton."

The Forest Service's land-use designations for those NFS lands traversed by the proposed 500-kV transmission line include: "Back Country (BC)," "Back Country, Non Motorized (BCNM)," "Back Country, Motorized Use Restricted (BCMUR)," and "Developed Area Interface (DAI)." Figure 4.11.1-1 shows these land use designations.

The "Back Country (BC)" zone includes areas that are undeveloped, with few roads. The level of human use and infrastructure is generally low to moderate. The characteristic Recreational Opportunity Spectrum (ROS) objective is Semi-Primitive, Motorized (SPM), with limited areas of "Roaded Natural (RN)," and the zone is managed for motorized public access on designated roads and trails. A network of low standard Back Country roads provide access for a wide variety of dispersed recreation opportunities in remote areas, and some new trails may be constructed to improve opportunities between trails on the existing system. Although this zone generally allows a broad range of uses, the management intent is to retain the natural character inherent in the zone and limit the level and type of development. USFS managers expect to manage the zone for no increase or a very low level of increase in the National Forest road system in this zone. Major utility corridors are permitted in designated areas within this land use zone; roads are suitable within this zone.

The "Back Country, Motorized Use Restricted (BCMUR)" zone includes areas that are undeveloped, with few roads. Few facilities are found in this zone and the level of human use and infrastructure is low to moderate. The characteristic ROS objectives are "Semi-Private Motorized (SPM)" and "Semi-Primitive, Non-Motorized (SPNM)," and the zone is managed for non-motorized (mechanized, equestrian, and pedestrian) access. The zone allows for a range of low-intensity land uses, and the management intent is to retain the natural character of the zone and limit the level and type of development. Some roads may be constructed and maintained, but the intent is to manage the zone for no increase or a very low level of increase in road system development. Major utility corridors are permitted in designated areas within this land-use zone; roads are suitable for authorized use within this zone.

The "Back Country, Non Motorized (BCNM)" zone also includes areas that are undeveloped with few, if any, roads. The characteristic ROS objective is "Semi-Private Non-Motorized (SPNM)." Developed facilities supporting dispersed recreation activities are minimal and generally limited to trails and signage. The level of human use and infrastructure is low. This zone is managed for a range of non-motorized uses that include mechanized, equestrian, and pedestrian public access. Administrative access, usually for community protection, is allowed by exception for emergency situations and for short duration management purposes, such as fuel treatment. The intent is to use temporary routes while management is occurring and then close or remove the route. Access to authorized facilities and to private land is not anticipated, but may occur by exception when there are existing rights to such access. Except for trails, facility construction is generally not allowed, but may occur in remote locations where road access is not needed for maintenance. Temporary facilities are expected to be removed when they are no longer needed. Major utility corridors and roads are not suitable within this land use zone.

Except where otherwise precluded, those portions of the TE/VS Interconnect, Talega-Escondido 230-kV Transmission and Substation Upgrades, and LEAP that are not located on federal lands may be subject to the jurisdiction of the following local land-use entities:

- **United States Department of the Navy** (DON). A portion of the Case Springs-Santa Rosa segment of the transmission line and the Case Springs Substation would be located on Camp Pendleton.

- **Riverside County**. Portions of the Lake-Santa Rosa segment of the 500-kV line, including the Santa Rosa Substation, would be located in unincorporated areas of Riverside County within the sphere of influence of the City of Lake Elsinore. The proposed Lake Switchyard and a segment of the northern segment of the 500-kV line would be located in unincorporated Riverside County within the sphere of influence of the City of Corona.

- **City of Lake Elsinore**. Lake Elsinore, the Elsinore and Skylark Substations, and the 115-kV subtransmission lines extending between the Santa Rosa Substation and the Elsinore and Skylark Substations are located in the City of Lake Elsinore.

- **Orange County**. Portions of the proposed transmission line northwest of Ortega Highway may extend into Orange County.

- **San Diego County**. That portion of the Santa Rosa-Case Springs segment of the transmission line located generally south of Tenaja Canyon, the proposed Case Springs Substation, and the Talega-Escondido upgrade, including the Talega and Escondido Substations, are located in San Diego County.

- **City of Escondido**. A portion of SDG&E's transmission and subtransmission lines and the Escondido Substation are located in the City of Escondido.

Table 5.9.1-1 (TE/VS Interconnect/Talega-Escondido Upgrades – Land Use and Planning Impacts) summarizes the potential land-use and planning impacts of the TE/VS Interconnect and Talega-Escondido 230-kV Transmission and Substation Upgrades. The E/VS Interconnect and Talega-Escondido upgrades are separately examined below.

Table 5.9.1-1. TE/VS Interconnect/Talega-Escondido Upgrades – Land Use and Planning Impacts

Impact	Description	Significance
L-1	Construction would temporarily disturb land uses at or near the alignment	II, III
L-2	Presence of a transmission line or substation would divide an established community or disrupt land uses at or near the alignment	II, III

Source: The Nevada Hydro Company, Inc.

Impact L-1: Construction would temporarily disturb land uses at or near the alignment (Class II for nearby residences; Class III for other residences)

Along the TE/VS Interconnect, including the National Forest and Camp Pendleton and the uses therein, land uses traversed by or adjacent to the proposed route include, but may not be limited to, single-family and multi-family residences (Lakeland Village, Rancho Capistrano, El Cariso Village, La Cresta, Tenaja, and DeLuz), rural residences (National Forest in-holdings),

commercial and light-industrial uses (Glen Ivy Hot Springs and Alberhill). In addition, the "Lake Mathews – Estelle Mountain Reserve" is located to the north of the I-15 Freeway.

With regards to residences and other sensitive receptors located more than 1,000 feet from a construction area, short-term impacts would be adverse but less than significant due to the separation distance (Class III). Based on the presence of intervening obstacles (blocking the line-of-site) and the nature of the equipment utilized, separation distances could be substantially less and remain at less-than-significant levels. Detailed site-specific noise studies would be required to assess construction-generated noise levels at lesser distances.

Residences within a 1,000-foot radius located along the transmission route include only 262 residential structures, including 233 residential structures located along the Lake-Santa Rosa segment (MPs 0-12.6) and 29 residential structures located along the Santa Rosa-Case Springs segment (MPs 12.6-31.8). The construction of the TE/VS Interconnect would temporarily disturb surrounding areas as a result of the use of heavy equipment, construction activities (including associated earthwork), the importation and exportation of material, manpower, and equipment, and helicopter operations. Those activities would generate dust, air contaminants, and noise affecting proximal receptors. Measures to reduce noise and air quality impacts are presented in Section 5.11 (Noise) and Section 5.3 (Air Quality), respectively.

During construction operations, potential significant short-term impacts could occur but would be mitigable to a less-than-significant level (Class II) through the implementation of APMs L-1a, and L-1d, L-1e, and L-1f. The full text of these APMs can be found in Attachment 5 (Applicant Proposed Measures).

With regards to the National Forest, new temporary and/or permanent access roads totaling approximately 9.3-linear miles would be built for construction, installation, and maintenance of transmission facilities on NFS lands. This impact is potentially significant but would be mitigable to a less-than-significant level (Class II) through special use permit (SUP) conditions imposed by the Forest Service authorizing that use, in combination with the implementation of APMs B-1a, B-3a, H-1l, G-1e, and L-1f. The full text of these APMs can be found in Attachment 5 (Applicant Proposed Measures).

With regards to Camp Pendleton, construction of 0.6 miles of the transmission line and the Case Springs Substation could potentially affect military training and other operations, including helicopter flights in and around the area (FERC, 2007). The Applicant will demarcate the transmission lines (APM B-10a) and follow applicable FAA requirements. Interference with military training and operations could be potentially significant but would be mitigable to a less-than-significant level (Class II) through USMC-imposed permit conditions and the implementation of APMs L-1e, L-1f, and L-1h. Since the USMC would not allow any use that would substantially interfere with its primary mission and deny authorization for any use that would be adverse to military operations or activities, impacts to Camp Pendleton would remain at a less-than-significant level (Class II).

With regards to the "Lake Mathews – Estelle Mountain Reserve," transmission towers will be located within a Core Reserve Area for the SKR. As compensation for impacts, the Applicant will mitigate permanent and temporary disturbance on a 1:1 basis by acquiring additional habitat.

This additional habitat will be located in, contiguous with, or directly adjacent to the boundaries of the "Lake Mathews-Estelle Mountain Core Reserve," to the extent feasible, and the specific area will be subject to the concurrence of the USFWS. Impacts to the reserve could be potentially significant but would be mitigable to a less-than-significant level through the implementation of APMs B-7k and B-17a. The full text of these APMs can be found in Attachment 5 (Applicant Proposed Measures).

Impact L-2: Presence of a transmission line or substation would disrupt land uses at or near the alignment (Class II for CNF and Camp Pendleton; Class III for other land uses)

Construction of the TE/VS Interconnect would introduce transmission facilities and create a transmission right-of-way in areas where those used do not currently occur. Once construction is completed, at least along the transmission alignment, those areas would rapidly return to their pre-construction use as wildlife habitat and/or grazing land.

Although electrical transmission and generation facilities are defined as eligible National Forest uses, segments of the proposed transmission line would not be consistent with the "Cleveland National Forest Land Management Plan" land-use designations. Approximately 2.7 miles of transmission line and 1.1 miles of new access road would be routed through the "Back Country Non-Motorized (BCNM)" zone. Because transmission facilities within that area would impede the attainment of the "Cleveland National Forest Land Management Plan," impacts associated with the corresponding segments of the TE/VS Interconnect would be significant but would be mitigable to a less-than-significant (Class II) level through a use-specific amendment to that National Forest plan, issuance of a SUP, imposition of reasonable and appropriate conditions for that use, in combination with the implementation of APMs B-1a, B-3a, H-1l, G-1e, and L-1f. The full text of these APMs can be found in Attachment 5 (Applicant Proposed Measures). Avoiding the BCNM zone would not be feasible because the alignment is along the National Forest boundary and any re-routing would require either a substantial increase in the length of the line or shifting the alignment onto private land that has been and continue to be developed for residential uses.

With regards to Camp Pendleton, construction of 0.6 miles of the transmission line and the Case Springs Substation could potentially affect military training and other operations, including helicopter flights in and around the area (FERC, 2007). The Applicant will demarcate the transmission lines (APM B-10a) and follow applicable FAA requirements. Interference with military training and operations could be potentially significant but would be mitigable to a less-than-significant level (Class II) through USMC-imposed permit conditions and the implementation of APMs L-1e, L-1f, and L-1h. Since the USMC would not allow any use that would substantially interfere with its primary mission and would deny authorization to any use adverse to military operations or activities, impacts to Camp Pendleton would remain at a less-than-significant level (Class II).

The operation and maintenance of the transmission line could affect future development of nearby lands, although the extent of this potential effect cannot be precisely known since the nature of any proximal development cannot be reasonably anticipated. The transmission line would cross or parallel about 15.9 miles of land designated for residential development under the "Riverside County Comprehensive General Plan," including about 13.4 miles in or near the edge of La Cresta, about 0.5 miles near the "El Cariso Rural Village Overlay" area, and 2.0 miles

between the planned "Sycamore Creek Specific Plan" (Riverside County, Specific Plan No. 256) and the Glen Eden Sun Club.

No sensitive land uses exist in proximity to the proposed Lake and Case Springs Substations. However, the proposed Santa Rosa Substation (located in Lakeland Village) is situated in an area with proximal mostly low-density housing. The proposed Santa Rosa Substation site is designated "Medium Density Residential" in the "Riverside County Comprehensive General Plan" (County of Riverside, 2005). The proposed above-ground substation will be a low-rise structure surrounded by a 8 to 10-foot masonry block wall. Since the substation site is set away from Grand Avenue, visibility of the area would be limited. Once landscaped, the Santa Rosa Substation would receive regular operations and maintenance use on a scale consistent with neighboring uses. The development of the Lake, Case Springs, and Santa Rosa Substations would produce a less-than-significant impact (Class III) and no mitigation is required.

An above-ground 500-kV transmission line, constructed on steel-lattice towers, would extend southward from the Santa Rosa Substation to a transition station located near the crest of the Santa Ana (Elsinore) Mountains, north of South Main Divide Road. Because no residences or other sensitive receptors would be located in proximity to that line, the facility would not interfere with any land use located that alignment. The resulting impact would be less than significant (Class III).

From an operational and maintenance perspective, the TE/VS Interconnect would not disrupt actual use of residential properties or structures. Access to all uses and adjoining areas would be fully restored once construction was completed. The TE/VS Interconnect would not permanently cause the nature or condition of any use to change. For these reasons, land-use-related operational impacts would be less than significant (Class III) and no mitigation is required.

Talega-Escondido 230-kV Transmission and Substation Upgrades

The existing transmission line is located within San Diego County and the majority of land within the easement is private and under the jurisdiction of San Diego County. Approximately 16 miles of the existing SDG&E easement is located within the northern boundary of Camp Pendleton. The "Santa Margarita Ecological Reserve" (SMER) and BLM's "Area of Critical Environmental Concern" (ACEC) are crossed by the existing transmission lines for a short distance (MPs 24.1-25). The area within the SMER is included in the "Western Riverside County Multiple Species Habitat Conservation Plan." In addition, the Talega-Escondido transmission line crosses additional lands administered by the BLM (MPs 20.4-20.7 and MPs 25.3-25.6). BLM has the authority to impose permit conditions on the activities conducted on BLM lands.

SDG&E's existing Talega Substation (33000 Avenida Pico, San Clemente) is located on a 7.9-acre site near the northwestern boundary of Camp Pendleton in San Diego County near the Orange County-San Diego County line. The existing Escondido Substation (2037 Mission Avenue, Escondido) is located on an approximately five-acre site located in the City of Escondido, west of Escondido Avenue and south of Mission Road (Dudek, 2002).

With the exception of new transition towers and the new 69-kV poles between the Pala and Lilac Substations, no new structures are required. The existing transmission towers and right-of-way

were originally designed and licensed to accommodate the additional 230-kV circuit (Talega-Escondido No. 2). No site expansion or improvements located beyond the current fence line would be required at either the existing Escondido or Talega Substations. No additional right-of-way would be required (SDG&E, 2007). As a result, no significant construction-related and/or operational land-use impacts would, therefore, be expected to occur to residences, businesses, utilities, or agricultural uses located along and adjacent to that alignment (Dudek, 2002). However, impacts to military facilities could occur.

Impact L-1: Construction would temporarily disturb land uses at or near the alignment (Class II)

The existing Talega-Escondido 230 kV transmission line traverses Camp Pendleton for about 17 miles. It is anticipated that adding a second circuit on this existing transmission towers would be completed in accordance to and in compliance with the conditions of the current easement. However, the stringing of the new 230-kV circuit could impact military activities (Dudek, 2002). Conflicts with military operations would be potentially significant but woud be mitigable to a less-than-significant level (Class II) through USMC-imposed permit conditions and the implementation of APMs L-1e, L-1f, and L-1h. Since the USMC would not allow any use that would substantially interfere with its primary mission and would deny authorization to any use adverse to military operations or activities, impacts to Camp Pendleton would remain at a less-than-significant level (Class II).

The SMER (including a portion of the ACEC) is crossed by the existing transmission line. Retrofitting the existing Talega-Escondido transmission towers with the proposed 230-kV circuit (Talega-Escondido No. 2) would not require expanding or modifying the existing easement through these areas. However, construction activities could temporarily conflict with the management directives to conserve sensitive species and their habitat within these conservation areas (Dudek, 2002). Conflicts with an habitat conservation plan or natural community conservation plan would be a potentially significant impact but would be mitigable to a less-than-significant impact (Class II) through the implementation of APMs B-1a, B-1b, and B-1i. The full text of these APMs can be found in Attachment 5 (Applicant Proposed Measures).

5.9.2 LEAPS - Land Use and Planning Impacts

In accordance with its enabling legislation, the Forest Service is authorized to permit non-forest and non-recreational land uses on NFS lands. Lands within CNF are managed by the Forest Service according to the vision, strategy, and design criteria laid out in the "Cleveland National Forest Land Management Plan" (USFS, 2005b). Electrical transmission and generation are identified as authorized uses therein. The Decker Canyon Reservoir would be located in a "Back Country, Motorized Use Restricted (BCMUR)" land-use zone. The BCMUR zone includes areas that are undeveloped, with few roads. The zone allows for a range of low-intensity uses and the management intent is to retain the natural character of the zone and limit the level and type of development. Some roads may be constructed and maintained but the intent is to manage the zone for no increase or a very low level of increase in road system development. Major utility corridors are permitted in designated areas within this land-use zone and roads are suitable for authorized use within this zone.

The LEAPS Powerhouse, construction laydown areas, and those portions of the electrical and water conduits, including power shafts, power tunnels, and penstocks not located in the National Forest are located in unincorporated Riverside County. A portion of the tailrace tunnel and both the inlet/outlet structure and the lower reservoir (Lake Elsinore) are located in the City of Lake Elsinore. Land-use activities in the County of Riverside may be subject to compliance with the "Riverside County Comprehensive General Plan" (County of Riverside, 2005). Similarly, land-use activities in the City of Lake Elsinore may be subject to compliance with the "City of Lake Elsinore General Plan" (City of Lake Elsinore, 1990).

Table 5.9.2-1 (LEAPS – Land Use and Planning Impacts) summarizes the potential land use and planning impacts of LEAPS.

Table 5.9.2-1. LEAPS – Land Use and Planning Impacts

Impact	Description	Significance
L-1	Construction would temporarily disturb land uses at or near the alignment.	II, III
L-2	Presence of a transmission line or substation would divide an established community or disrupt land uses at or near the alignment.	II, III

Source: The Nevada Hydro Company, Inc.

Impact L-2: Construction would temporarily disturb land uses at or near the project facilities (Class II for residential and school displacement; Class III for residential proximity)

The construction staging area for the powerhouse is located in close proximity to an occupied 12-unit apartment building (Santa Rosa Mountain Villa Apartments). Because of its proximity to the active construction area, the Applicant has indicated their intent to acquire that multi-family use in order to minimize potential impacts to its residents. Existing tenants would be displaced by that action. The building would be retained and used as offices and/or employee housing during construction. After the commencement of operations, the property would be refurbished and disposed, reducing LEAPS-related impacts on the regional housing inventory.

The proposed tailrace tunnel from the powerhouse site to Lake Elsinore would be constructed underground, beneath Grand Avenue, and would affect a parcel with a single-family home and a number of vacant parcels zoned for residential use. Construction of the tunnel would require the use of heavy equipment in the otherwise undisturbed mix of vacant and residential properties. The single-family home would be acquired and demolished

Butterfield Elementary Visual and Performing Arts Magnet School and the Ortega Trails Youth Center (16275 Grand Avenue, Lake Elsinore) are located within about 1,000 feet of the LEAPS Powerhouse site. Construction activities, including blasting, could disrupt educational activities and introduce an attractive nuisance for school-age children. Heavy equipment operations, including the on-site and off-site transport of materials, could increase safety hazards to children and other pedestrians.

Land use impacts, including the displacement of existing residents, a reduction in the available housing inventory, and short-term impacts on an existing elementary school, would be potentially significant but would be mitigable to a less-than-significant level (Class II) through compliance with FERC permit requirements, implementation of Applicant proposed protection, mitigation, and enhancement measures (PME-30 and PME-31), implementation of APMs L-1a,

L-1d, and L-1e. The full text of these measures can be found in Attachment 4 (Articles, Conditions, and Measures) and in Attachment 5 (Applicant Proposed Measures).

For residences greater than 1,000 feet from the planning area, construction-related impacts would be adverse but less than significant (Class III) due to their separation distance.

Impact L-2: Presence of a transmission line or substation would disrupt land uses at or near the alignment (Class II for CNF; Class III for powerhouse site)

The proposed LEAPS Powerhouse site is designated "Medium Density Residential" in the "Riverside County Comprehensive General Plan" (County of Riverside, 2005). Low-rise development would be generally compatible with this designation.

As proposed, the LEAPS Powerhouse will be most constructed below ground but will include an approximately three-story building constructed aboveground for access to the powerhouse and for communication and heating, ventilation, and air conditioning (HVAC) equipment. The area around the structure will be landscaped and set back from Grand Avenue, thus reducing its visibility. Much of the site will be retained as open space and a neighborhood park is planned along Grand Avenue. Once landscaped, the LEAPS Powerhouse would receive regular operations and maintenance use on a scale consistent with neighboring uses. This is a less-than-significant impact (Class III) and no mitigation is required.

The underground electrical and water conduits tunneled under the mountain and connecting the underground line and upper reservoir with the LEAPS Powerhouse would be located in an area designed "Conservation-Habitat" on the "Riverside County Comprehensive General Plan" (County of Riverside, 2005) and is within a "Back Country, Motorized Use Restricted (BCMUR)" in the "Cleveland National Forest Land Management Plan." Since the presence of the underground conduits and transmission interconnection line, with no or only minimal surface disruption, would not preclude current and/or future uses for that area, the impact would be less than significant (Class III).

The development of the Decker Canyon Reservoir would result in the loss of public access to that area. Use would be restricted to the facility operator and fire protection agencies who would have access to the facility and its water resources for fire suppression, including access by both ground personnel and helicopters (bambi buckets). Working in cooperation with the Forest Service, the Applicant would develop a day-use area in the location of the construction staging area. No plans for that facility have been formulated by the Forest Service but the site will be graded and landscaped by the Applicant in accordance with a recreational development plan to be formulated by the Applicant in conjunction with FERC and the Forest Service. The resulting impact could be potentially significant but would be mitigable to a less-than-significant level (Class II) through the provision of the proposed new day-use area and the additional access to National Forest facilities that the day-use area will allow.

5.9.3 Project - Land Use and Planning Impacts

Impacts to land-use and planning from the TE/VS Interconnect are presented in Section 5.9.1. Impacts to land use and planning from LEAPS are presented in Section 5.9.2. The cumulative

land use and planning impacts resulting from the implementation of the Project (inclusive of both transmission and generation) would be similar to the combined effects presented in those two preceding sections.

5.10 Mineral Resources

Impacts on mineral resources attributable to the TE/VS Interconnect are discussed in Section 5.10.1. Impacts on mineral resources associated with LEAPS are presented in Section 5.10.2. Potential cumulative impacts on mineral resources relating to the Project (inclusive of both transmission and generation) are presented in Section 5.10.3.

5.10.1 TE/VS Interconnect - Mineral Resource Impacts

As indicated in the "Riverside County Comprehensive General Plan," there are three permitted surface mining zones between Lake Elsinore and Lee (Corona) Lake (County of Riverside, 2005). Active mining activities within the general area include clay extraction and brick and other ceramic fabrication operations (Pacific Clay Products, Inc.), located in the unincorporated area of Alberhill. Several active clay pits are being operated at that location. Both residual and sedimentary clay can be found within these deposits. The residual clay formed in place during Paleocene time by deep weathering of the mezozoic crystalline bedrock. Sedimentary clay was formed of erosion that deposited in the Silvarado Formation. This clay-bearing zone underlines an area of approximately 1.5 square miles.

Table 5.5.10-1 (TE/VS Interconnect/Talega-Escondido Upgrades – Mineral Resource Impacts) summarizes the potential mineral resource impacts of the TE/VS Interconnect and Talega-Escondido upgrades.

Table 5.10.1-1. TE/VS Interconnect/Talega-Escondido Upgrades - Mineral Resources Impacts

Impact	Description	Significance
G-2	Unique geologic features would be damaged due to construction activities	IV

Source: The Nevada Hydro Company, Inc.

Impact G-2: Unique geologic features would be damaged due to construction activities (Class IV).

No portion of the TE/VS Interconnect would encroach within any active mining area (Class IV).

The SDG&E's existing 230-kV transmission line traverses the site of the proposed Liberty Quarry in southwestern Riverside County (County of Riverside, 2005). Since that quarry become operations, SDG&E will retain authorization to access to their existing right-of-way to allow for the maintenance and improvement of their facilities. As a result, no impacts on or from mining operations are anticipated (Class IV)

5.10.2 LEAPS - Mineral Resource Impacts

Table 5.5.10.2-1 (LEAPS – Mineral Resource Impacts) summarizes the potential mineral resource impacts of LEAPS.

Table 5.10.2-1. TE/VS Interconnect/Talega-Escondido Upgrades - Mineral Resources Impacts

Impact	Description	Significance
G-2	Unique geologic features would be damaged due to construction activities	IV

Source: The Nevada Hydro Company, Inc.

Impact G-2: Unique geologic features would be damaged due to construction activities (Class IV).

Based on water quality considerations, the proposed Decker Canyon Reservoir will include a double-liner system (comprised of a low-permeability liner and a geomembrane). The closest known clay borrow source is in unincorporated Alberhill located approximately ten miles northwest of the site. Pacific Clay Product's Alberhill facility (14741 Lake Street, Lake Elsinore) has been identified as a potential borrow site for the reservoir's clay liner. Alternatively, a low-permeability material could be manufactured at he reservoir site by mixing bentonite with the on-site soils to achieve the desired low-permeability performance criteria.

The clay deposits in the Alberhill area represent a unique geologic feature. The Alberhill area, in the northern part of the Lake Elsinore quadrangle and at the southeast end of the Temescal Valley, contains the largest known high-aluminous clay deposits in southern California. In the Lake Elsinore quadrangle this clay-bearing zone underlies an area of about one and one-half square miles along the borders of and within the Temescal Valley. Since sufficient clay deposits locally exist in the quantities required, no impact on unique geologic features are anticipated (Class IV).

5.10.3 Project - Mineral Resource Impacts

Since no mineral resource impacts will result from the TE/VS Interconnect or LEAPS, no cumulative mineral resource impacts are associated with the Project.

5.11 Noise

Noise impacts attributable to the TE/VS Interconnect are discussed in Section 5.11.1. Noise impacts associated with LEAPS are presented in Section 5.11.2. Potential cumulative noise impacts relating to the Project (inclusive of both transmission and generation) are presented in Section 5.11.3.

5.11.1 TE/VS Interconnect - Noise Impacts

TE/VS Interconnect

The predominant noise sources in the Lake Elsinore area are mobile sources, particularly motor vehicles. Major highways (I-15 and SR-74) and several arterial roadways expose portions of the Lake Elsinore area to high noise levels, especially in areas immediately adjacent to the noise sources. General aviation aircraft operations from Skylark Airport, ultra-light operations over the lake, and frequent power boat operations also contribute to the noise environment. Power boat and jet-ski activities on the lake create intermittent spikes of noise at many residences along the lake. Other sources include industrial and commercial facilities. In general, the noise environment in the Lake Elsinore area is typical of a rural setting, under 50 dBA Ldn away from

locations affected by transportation, recreational, and industrial sources with noise levels approaching 60 dBA near commercial uses, roads, and minor highways and approaching 80 dBA in the vicinity major highways (FERC, 2007).

The majority of the TE/VS Interconnect is within undeveloped mountainous areas; however, a few small housing developments and rural residences are located in proximity to proposed facility sites. The noise environment with these undeveloped areas is typical of natural areas and rural settings. The proposed right-of-way within the National Forest provides a rural and natural setting but is not noise-sensitive. Recreational areas within the National Forest that are considered sensitive include the Morgan Trailhead (situated between the proposed Decker Canyon Reservoir and its associated construction staging area), the Tenaja Trailhead (where the line would cross the parking lot within 300 feet of trailhead), Horsethief Trail (where the line would cross the trail), El Cariso Campground (within about 500 feet of the proposed transmission line), Wildomar Campground (within about 0.5 miles of the line), and the most proximal portions of the San Mateo Canyon Wilderness (within 300 feet of the line). Noise impacts related to wildlife are discussed as part in Section 5.4 (Biological Resources).

Table 5.11.1-1 (TE/VS Interconnect/Talega-Escondido Upgrades – Noise Impacts) summarizes the potential noise impacts of the TE/VS Interconnect and Talega-Escondido upgrades. The TE/VS Interconnect and the Talega-Escondido upgrades are separately examined below.

Table 5.11.1-1. TE/VS Interconnect/Talega-Escondido Upgrades - Noise Impacts

Impact	Description	Significance
N-1	Construction noise would substantially disturb sensitive receptors and violate local rules, standards, and/or ordinances.	II
N-2	Construction activity would temporarily cause ground-borne vibration.	III
N-3	Permanent noise levels would increase due to corona noise from operation of the transmission lines and noise from other project components.	I, II, III
N-4	Routine inspection and maintenance activities would increase ambient noise levels.	II, III

Source: The Nevada Hydro Company, Inc.

Impact N-1: Construction noise would substantially disturb sensitive receptors and violate local rules, standards, and/or ordinances (Class II).

During construction, noise levels would increase in the vicinity of active construction sites and along haul routes along which equipment, manpower, and materials would travel. Construction activities would include the installation of concrete footings and cable wires, the erection of substations and the switchyard, and the placement of transmission towers using excavators, dump trucks, cranes, and wire stringing units. Since helicopters would be used for remote construction operations, aircraft noise would increase within the area of the TE/VS Interconnect.

The projected maximum intermittent noise levels attributable to construction operations would range from 80-90 dBA at 50 feet from a work site and up to 99 dBA near helicopter operations. No blasting activities will be required for the construction of the TE/VS Interconnect.

Only a limited number of sensitive receptors are located within in proximity to any of the proposed TE/VS Interconnect facilities. Residences within a 1,000-foot radius located along the transmission route include only 262 residential structures, including 233 residential structures

located along the Lake-Santa Rosa segment (MPs 0-12.6) and 29 residential structures located along the Santa Rosa-Case Springs segment (MPs 12.6-31.8).

Noise attenuation also depends upon the character of the intervening surface between the source and receiver. If the underlying surface is acoustically "hard" (without landscaping or across elevated terrain), the noise attenuation with distance for a point source is about 6 dB per doubling of distance. The attenuation for a line source is about 3 dB per distance doubling with a paved underlying surface. For "soft" underlying surfaces, line sources are attenuated by about 4.5 dB per doubling of distance. Similarly, point sources propagating across irregular ground with landscaping decay at a rate of about 7.5 dB per distance doubling because the reflected ground wave is attenuated by the ground surface. If there is an obstruction of the direct line of sight for noise propagation, the attenuation rate further increases. Based on an 80-dBA reference noise level at 50 feet, at a distance of about 280 feet, construction noise from mobile sources is calculated to be below 65 dB. Noise levels above 65 dBA would be periodically experienced based on the location, number, and types of equipment in operation at any one time.

For routine construction, receptors located within 280 feet of construction operations would experience noise levels that are both in conformance to local and State noise standard and that closely replicate ambient conditions.

Although construction noise is an irritant to those sensitive receptors located in proximity to construction operations, construction noise is not typically categorized as a significant impact. Because construction work is limited to the hours imposed by local noise ordinances (7:00AM to 7:00PM), the number of sensitive receptors exposed to short-term noise impacts is often reduced. Construction noise could be potentially significant but would be mitigable to a less-than-significant level (Class II) through compliance with local noise ordinance and the implementation of AMPs L-1a and N-1a. The full text of these APMs can be found in Attachment 5 (Applicant Proposed Measures).

Impact N-2: Construction activity would temporarily cause ground-borne vibration (Class III)

Vibration levels from construction equipment and activities including blasting could be perceptible in the immediate vicinity of the construction sites. Perceptible vibration could be experienced by residents or workers inside structures within 50 feet of trucks traveling over uneven surfaces. However, the activities that would be most likely to cause ground-borne vibration would be rock drilling or blasting. The level of ground-borne vibration that would reach sensitive receptors would depend on what equipment is used and the soil conditions surrounding the construction site. Since no blasting operations are planned during the construction of the TE/VS Interconnect, potential impacts from ground-borne vibrations would be less than significant (Class III) and no mitigation is required.

Impact N-3: Permanent noise levels would increase due to corona noise from operation of the transmission lines and noise from other project components (Class I for CNF; Class III for others)

The TE/VS Interconnect would cause a permanent noise increase due to the corona effect. Audible power line noise would be generated from corona discharge, which is usually

experienced as a random crackling or hissing sound. At the edge of the transmission right-of-way, this corona noise would likely be between 50 and 55 dBA CNEL during rain or fog conditions. Levels of 40 dBA or less would occur at most sensitive located at distances of 1,000 feet or more from the TE/VS Interconnect (FERC, 2007).

In natural areas where existing noise levels could be as low as 35 dBA, audible corona noise could cause a permanent increase of more than 5 dBA, potentially elevate the current audible noise levels within 500 feet of the edge of the 500-kV right-of-way. This could adversely affect passive enjoyment of the National Forest from sensitive receptor sites, including the Tenaja Trailhead, Horsethief Trail, El Cariso Campground, Wildomar Campground, and adjoining portions of the San Mateo Canyon Wilderness. For those receptor sites, this would likely be a significant impact (Class I)

There are few options for mitigating this noise source. Audible corona noise is a function of conductor design and configuration, which could be changed but would likely trigger other environmental impacts (e.g., taller towers would impact visual resources). APM N-3a is, however, recommended to reduce corona noise impacts experienced by recreational uses to the maximum extent feasible. The full text of this APM can be found in Attachment 5 (Applicant Proposed Measures).

Based on the limited size of the TE/VS Interconnect, maintenance activities associated with this transmission facility are projected to be limited. Line inspectors will routinely inspect the transmission route. Because of the remote location of many of the transmission towers, inspections will be conducted by helicopter. Helicopter operations will be confined to the line route, occur on a schedule to be developed in consultation with the Commission, and aircraft will hover at individual tower sites only as long as needed for a complete inspection. Based on the limited number of receptors, the intermittent nature of inspection operations, and the limited time period during which inspections and maintenance personnel will occur at any one site, operational noise impacts would be less than significant (Class III) and no mitigation is required.

Impact N-4: Routine inspection and maintenance activities would increase ambient noise levels (Class III)

Inspection and maintenance activities are both limited and time and duration. Inspection and maintenance activities are analogous to construction operations and are, therefore, no generally addressed in local noise ordinances, other than limitations those activities to daylight hours (7:00AM to 7:00PM).

Inspection and maintenance noise would be intermittent over the life of the line. Helicopter and ground-level inspection and maintenance, including insulator washing, access road repair, and emergency response, would cause occasional noise. During this activity, light-duty helicopters would generate noise levels of under 80 dBA at 200 feet and crew trucks would cause levels of approximately 75 dBA at 50 feet. Almost the entire length of the TE/VS Interconnect is located in the National Forest. The number of residential receptors located in remote areas of the National Forest (where helicopter maintenance activities would be performed) are limited and most exist at substantial distances from the transmission line. Similarly, ground-crews operating within the National Forest will not be working in close proximity to sensitive receptors.

Based on the limited number of receptors, the intermittent nature of inspection operations, and the limited time period during which inspections and maintenance personnel will occur at any one site, operational noise impacts would be less than significant (Class III) and no mitigation is required. Emergency response operations are except from compliance with local noise standards and because such operations would occur infrequently, emergency response impacts have not be examined herein.

Talega-Escondido 230-kV Transmission and Substation Upgrades

The east-west portion of the existing Talega-Escondido 230-kV transmission line traverses mostly undeveloped land and the north-south portion becomes increasingly urban with residential uses near the edge of the existing right-of-way as it approaches the City of Escondido. Along the Talega-Escondido transmission line, ambient noise measurements have been previously conducted at several areas. The noise measurements indicate that the daytime average sound level ranges from approximately 40 to 59 dBA and the nighttime average sound level ranges from 26 to 53 dBA (Dudek, 2002). The major noise sources in the area of the Talega-Escondido upgrades is traffic along the I-15 Freeway, State Highway 78, and various major roadways.

Impact N-1: Construction noise would substantially disturb sensitive receptors and violate local rules, standards, and/or ordinances (Class II)

During construction, noise levels would increase in the vicinity of active construction sites and along haul routes along which equipment, manpower, and materials would travel. Construction noise sources would include blading and clearing existing access roads along the transmission line route, stringing conductor and possibly minor grading at some pulling and tensioning sites. Equipment would include dozers, cranes, graders, crew trucks, man lifts, pullers, tensioners, wire reel trailers, and potentially helicopters. The projected maximum intermittent noise levels would range from 80 to 90 dBA at 50 feet from a work site and up to 99 dBA near helicopter operations for installing the line or certain structures.

Residences and workers of local business parks in San Marcos and Escondido could be adversely affected by noise from transmission line construction. This impact could be potentially significant but would be mitigable to a less-than-significant level (Class II) through the implementation of APMs L-1a and N-1a. The full text of these APMs can be found in Attachment 5 (Applicant Proposed Measures).

Impact N-2: Construction activity would temporarily cause ground-borne vibration (Class III)

Vibration levels from construction equipment and activities would be perceptible in the immediate vicinity of the construction sites. Perceptible vibration could be experienced by residents or workers inside structures within 50 feet of trucks traveling over uneven surfaces.

The level of ground-borne vibration that would reach sensitive receptors would depend on what equipment is used and the soil conditions surrounding the construction site. Since no blasting operations are planned during the construction of the TE/VS Interconnect, potential impacts from ground-borne vibrations would be less than significant (Class III) and no mitigation is required.

Impact N-3: Permanent noise levels would increase due to corona noise from operation of the transmission lines and noise from other project components (Class II).

The additional 230-kV circuit (Talega-Escondido No. 2) would cause a permanent noise increase of up to approximately 49 dBA at the edge of the right-of-way. The increased noise would be substantial (more than 5 dBA) during rain or fog conditions for quiet locations in natural settings at the edge of the rigth-of-way. The corona noise levels could exceed San Diego County standards, City of Escondido limits for single-family residential zones, and the City of San Marcos noise criteria for low density residential zones (Dudek, 2002).

There are few options for mitigating this noise source. Audible corona noise is a function of conductor design and configuration, which could be changed but would likely trigger other environmental impacts (e.g., taller towers would impact visual resources). This impact could be potentially significant but would be mitigable to a less-than-significant level (Class II) through the implementation of APM N-3a. The full text of this APM can be found in Attachment 5 (Applicant Proposed Measures).

Impact N-4: Routine inspection and maintenance activities would increase ambient noise levels (Class II)

Inspection and maintenance noise would be intermittent over the life of the line. Helicopter and ground-level inspection and maintenance, including insulator washing, access road repair, and emergency response, would cause occasional noise. During this activity, light-duty helicopters would generate noise levels of under 80 dBA at 200 feet and crew trucks would cause levels of approximately 75 dBA at 50 feet.

Inspection and maintenance activities are both limited in time and duration. These activities are analogous to construction operations and are, therefore, no generally addressed in local noise ordinances, other than limitations those activities to daylight hours (7:00AM to 7:00PM).

Because portions of the Talega-Escondido upgrades exist in urban areas, this short-term impact could be potentially significant but would be mitigable to a less-than-significant level (Class II) through the implementation of AMPs L-1e and N-1a. The full text of this APM can be found in Attachment 5 (Applicant Proposed Measures). Emergency response operations are except from compliance with local noise standards and because such operations would occur infrequently, emergency response impacts have not be examined herein.

5.11.2 LEAPS - Noise Impacts

The area surrounding the proposed LEAPS Powerhouse site includes single-family receptors to the north and east, single-family and multi-family receptors to the west, and Butterfly Elementary Visual and Performing Arts Magnet School to the west. Although receptors are located at various distances from LEAPS facilities, a limited number of those receptors abut or are located in close proximity to those sites. The nearest sensitive receptor include, but may not be limited to: (1) a single-family residence (16336 Union Avenue, Lake Elsinore); (2) the 12-unit Santa Rosa Mountain Villas (33071-33091 Santa Rosa, Lake Elsinore); (3) the 22-unit Copper Canyon Villas (16341-16347 Grand Avenue, Lake Elsinore); and (4) Butterfield Elementary

Visual and Performing Arts Magnet School and the Ortega Trails Youth Center (16275 Grand Avenue, Lake Elsinore). The closest residential receptor to the proposed LEAPS Powerhouse site is approximately 900 feet away. The elementary school is located approximately 2,700 feet from the powerhouse site.

Table 5.11.2-1 (LEAPS – Noise Impacts) summarizes the potential noise impacts of LEAPS.

Table 5.11.2-1. LEAPS – Noise Impacts

Impact	Description	Significance
N-1	Construction noise would substantially disturb sensitive receptors and violate local rules, standards, and/or ordinances.	II, III
N-2	Construction activity would temporarily cause ground-borne vibration.	II
N-3	Permanent noise levels would increase due to corona noise from operation of the transmission lines and noise from other project components.	III
N-4	Routine inspection and maintenance activities would increase ambient noise levels.	III

Source: The Nevada Hydro Company, Inc.

Impact N-1: Construction noise would substantially disturb sensitive receptors and violate local rules, standards, and/or ordinances (Class II for powerhouse; Class III for other)

Construction of the LEAPS Powerhouse and Decker Canyon Reservoir would result in an increase of noise levels from construction activities at sensitive land use receptors including nearby residences and elementary schools. During construction, the highest noise-generating activities are expected to be blasting and earth moving (excavation, grading, and filling). Aside from blasting, the maximum noise level generated during construction is expected to be 98 dBA at 50 feet (FERC, 2007). The Applicant would conduct blasting in a highly controlled manner involving time delays between numerous small micro blasts to fracture rock without injecting material and to minimize noise effects on nearby residents.

Rock drilling, if necessary, would only generate loud noises during early stages of construction and would be expected to be substantially attenuated at greater depths of excavation. Construction of tunnels and electricity generation facilities would all occur underground. Construction would adversely affect residences near the powerhouse and along access routes. Construction access to the powerhouse site will be relocated from existing roadways to a location in the middle of the site (along Grand Avenue), in proximity to the tailrace tunnel and inlet/outlet structures, so as to remove that traffic (to the extent feasible) away from sensitive receptors. This impact would be significant but, because of the substantial distances between construction operations and proximal receptors, could be mitigated to a less-than significant level (Class II) through compliance with FERC/USFS permit requirements and the implementation of APMs L-1a, N-1a, and N-2a. The full text of this APM can be found in Attachment 5 (Applicant Proposed Measures).

Noise attributed to the construction of the proposed upper reservoir would be substantially attenuated before it would reach sensitive receptors. Based on existing traffic volumes traveling along Ortega Highway, including a large percentage of large trucks, mobile source level increase attributed to construction traffic would be less than significant (Class III).

Impact N-2: Construction activity would temporarily cause ground-borne vibration (Class II)

Vibration levels from construction equipment, rock drilling, and blasting would be perceptible at locations adjacent to the work. This impact could be potentially significant because blasting could result in physical damage of vulnerable structures.

Managing blasting and its effects on nearby land uses and structures through a detailed blasting plan will, however, reduce the adverse effects of blasting to the maximum extent feasible. A blasting plan (APM N-2a) would include the blasting methods, surveys of existing structures and other built facilities, and distance calculations to estimate the area of effect of the blasting. With advance notification (APM L-1a) and an established blasting plan (APM N-2a), the impacts from construction-related ground-borne vibration would be adverse but mitigable to a less-than significant level (Class II).

Impact N-3: Permanent noise levels would increase due to corona noise from operation of the transmission lines and noise from other project components (Class III)

The LEAPS Powerhouse would include noise sources associated with major machinery, including pumps, turbines, and transformers. The equipment supporting powerhouse operations would be placed underground and would not affect surface noise levels (FERC, 2007) (Class III).

Impact N-4: Routine inspection and maintenance activities would increase ambient noise levels (Class III)

Routine operation and maintenance of the LEAPS Powerhouse and Decker Canyon Reservoir would introduce new noise sources to the area but it would not constitute a substantial increase in vehicular traffic. An overhead crane and auxiliary equipment at the powerhouse would be new stationary noise sources but would be enclosed in an above-ground structure. Noise from routine maintenance of the powerhouse and upper reservoir would be less than significant (Class III).

5.11.3 Project - Noise Impacts

Noise impacts attributable to the TE/VS Interconnect are presented in Section 5.11.1. Noise impacts associated with LEAPS are presented in Section 5.11.2. The cumulative noise impacts resulting from the implementation of the Project (inclusive of both transmission and generation) would be similar to the combined effects presented in those two preceding sections

5.12 Socioeconomics

Socioeconomic impacts attributable to the TE/VS Interconnect are discussed in Section 5.12.1. Socioeconomic impacts associated with LEAPS are presented in Section 5.12.2. Potential cumulative socioeconomic impacts relating to the Project (inclusive of both transmission and generation) are presented in Section 5.12.3.

5.12.1 TE/VS Interconnect – Socioeconomic Impacts

TE/VS Interconnect

Riverside County measures almost 200 miles from east to west, encompassing more than 7,300 square miles (4,612,740 acres) of land. The 2000 United States Census reported that the population of Riverside County was about 1.5 million individuals, representing approximately 4.6 percent of all State residents (Census Bureau, 2000d). Riverside County is one of the fastest growing counties in California, with most of the growth and associated development occurring in the western portion of the county, an area which includes the City of Lake Elsinore.
Table 5.12.1-1 (TE/VS Interconnect/Talega-Escondido Upgrades – Socioeconomic Impacts) summarizes the potential socioeconomic impacts of the TE/VS Interconnect and Talega-Escondido 230 kV Transmission and Substation Upgrades. Because the resulting impacts would be similar, TE/VS Interconnect and the Talega-Escondido upgrades are jointly examined below.

Table 5.12.1-1
TE/VS Interconnect/Talega-Escondido Upgrades – Socioeconomic Impacts

Impact	Description	Significance
S-1	Project construction and/or transmission line presence would cause a change in revenue for businesses, tribes, or governments	III, IV
S-4	Property tax revenues from project presence would substantially benefit public agencies	IV
S-5	Presence of the project would decrease property values	III

Source: The Nevada Hydro Company, Inc.

Impact S-1: Project construction would cause a change in revenue for businesses (Class III for residents and business; Class IV for economics)

There is a potential for some residential and/or business displacement due to the need to acquire both a sufficient right-of-way for the transmission line and sites for those transmission facilities located on non-federal lands. For any property that needs to be acquired, the Applicant will seek a voluntary sale through professional-level conduct with individual property owners and their agents. A list of all owners located within a 300-foot radius of all facility sites is included in Chapter 7.0 (Other Process Related Data Needs).

Based on visual observations, affected properties are primarily either single-family residences or vacant. A portion of the TE/VS Interconnect will traverse a private recreational facility, identified as the Glen Eden Sun Club (25999 Glen Eden Road, Corona), abutting a newly developed commercial center located within the area of the "Sycamore Creek Specific Plan" (Riverside County, Specific Plan No. 256). At the Lake Substation, construction may have started on a neighborhood commercial center located at the southeast corner of Temescal Canyon Road and Indian Truck Trail. That property may be required for the development of the Lake Substation.

Vacant property can be placed in commercial use and residences can be used for commercial purposes. Although no other commercial uses are now known to the Applicant, because certain TE/VS Interconnect facilities are located on privately-owned lands and because the Applicant does not presently possess site control of those properties, additional development could occur prior to the TE/VS Interconnect is permitted and construction commencing. As a result, there

may exist additional unknown impacts that could manifest subsequent to the submittal of this PEA. Some commercial and/or industrial displacement is, therefore, assumed. Acquisition of business property would typically include the real property, inventory, and good will.

Because the Applicant may only require an easement across and not a fee-simple interest in an entire property, in discussions with individual property owners, in certain instances, existing uses can be retained. All efforts will be made to obtain voluntary purchase agreements for any lands needed, including fair compensation for any interests secured. As a result, impacts to residents and businesses directly affected would be less than significant (Class III).

The Applicant will, in good faith, negotiate and enter into such real property agreements as may be required from the Forest Service and the USMS for the construction of those TE/VS Interconnect facilities occurring in the National Forest and Camp Pendleton, respectively.

Employment of construction personnel would benefit local businesses and the regional economy through increased expenditure of wages for goods and services (Class IV). With the exception of a limited number of skilled workers, because of the existence of an existing diverse labor force in the Riverside County and San Diego County areas, personnel for construction, operation and maintenance would be mostly drawn from local populations, creating new temporary and permanent employment for the area's residents.

With regards to the TE/VS Interconnect, the Applicant estimates that about 28 full-time equivalent work-years would be required to construct the TE/VS Interconnect. With regards to the Talega-Escondido upgrade, the Applicant estimates that about 60 jobs would be created for the nine months required to complete upgrades (equating to an estimated 45 full-time equivalent work-years). Workers required for the construction of the TE/VS Interconnect and Talega-Escondido upgrades would be expected to be filled by the existing labor force in San Diego and Riverside Counties. A limited number of construction personnel may require or may elect to occupy temporary housing during construction operations. Because of the small size of this labor force (compared to the size of the local economy), no substantial in-migration of people and only minimal increased demand for housing, government facilities, or services associated with the projected workforce is anticipated.

Once operational, although only a minimal increase in full-time jobs would be created, any increase in employment opportunities would be considered beneficial (Class IV).

Impact S-4: Property tax revenues from project presence would substantially benefit public agencies (Class IV)

Local property tax revenues are a function of tax rates levied within the affected jurisdictions. Implementation of the TE/VS Interconnect represents increased valuation for the affected properties. The State of California Board of Equalization (BOE) assesses infrastructure facilities annually. Dispersion of property tax revenue is determined based upon the location of the taxable property. Increased property tax revenue attributable to the TE/VS Interconnect passes along to local governments would constitute a beneficial impact to the local economy (Class IV).

With regards to the Talega-Escondido upgrades, because no new land or other rights-of-way would be required development, the property tax implications of these improvements would not appear dramatic when compared to the existing substations, transmission, and subtransmission lines. As a result, it can be concluded that the Talega-Escondido upgrades would have no substantial property tax benefit (Class IV).

Impact S-5: Presence of the project would decrease property values (Class III)

It is assumed that non-residential property values would not be impacted by a property's proximity to transmission facilities. With regards to residential property values, before entering the National Forest, the northern segment of the TE/VS Interconnect could potentially and adversely affect residential property values for a distance of about 2.5 miles in Riverside County where the transmission line cross through privately-owned and residentially-zoned property.

The southern segment of the TE/VS Interconnect could potentially and adversely affect residential property values for a distance of about 10.9 miles in Riverside County where the transmission line would cross privately-owned and residentially-zoned property. Based on the documentation presented in the Sunrise DEIR/DEIS (Section D.14.5.1 of the Sunrise DEIR/DEIS), any changes in property values associated with the TE/VS Interconnect would not constitute a substantial decrease. This impact is less than significant (Class III) and no mitigation is required.

The Talega-Escondido upgrades would occur within an existing right-of-way and no new lands or other rights-of-way would need to be acquired for development. Incremental effects on property values that may result from the changes within the existing right-of-way would be relatively small and would be expected to diminish over time. Based on the documentation presented in the Sunrise DEIR/DEIS (Section D.14.5.1 of the Sunrise DEIR/DEIS), any changes in property values associated with the Talega-Escondido upgrade would not constitute a substantial decrease. This impact is less than significant (Class III) and no mitigation is required.

5.12.2 LEAPS - Socioeconomic Impacts

Table 5.11.2-1 (LEAPS – Socioeconomic Impacts) summarizes the potential population and housing impacts of LEAPS.

Table 5.12.2-1. LEAPS – Socioeconomic Impacts

Impact	Description	Significance
S-1	Project construction and/or transmission line presence would cause a change in revenue for businesses, tribes, or governments	III, IV
S-2	Construction would disrupt the existing utility systems or cause a collocation accident	II
S-3	Project construction and operation would increase the need for public services and facilities	III
S-1CA	Labor force requirements would create a substantial demand for labor or a change in local employment	IV

Source: The Nevada Hydro Company, Inc.

Impact S-1: Project construction would cause a change in revenue for businesses (Class III for impacts on businesses; Class IV for population and housing).

The Applicant will purchase any additional facility sites not already under the Applicant's control (e.g., tailrace tunnel and intake/outlet structure) that may be required for the implementation of LEAPS not previously acquired. In addition, the Applicant will, in good faith, negotiate and enter into such additional real property agreements as may be required from the Forest Service for the construction of those LEAPS-related facilities occurring in the National Forest.

Acquisition of shoreline property to accommodate the development of the tailrace tunnel and inlet/outlet structure will necessitate the acquisition of one or more single-family residents, the displacement of their current occupants, and the demolition of on-site structures and other improvements. Although not required for LEAPS construction or operation, as environmental mitigation, the Applicant proposes to acquire the nearest residential development (Santa Rosa Mountain Villa Apartments) to the LEAPS Powerhouse. Occupants of that 12-unit complex would be displaced and required to find alternative housing. The structures would be retained during construction and used as construction offices and/or temporary housing for employees. Upon completion of construction, the buildings would be refurbished and disposed, thus reducing LEAPS-related impacts on the regional housing inventory. Impacts to the regional housing inventory would be less than significant (Class IV).

Because certain LEAPS facilities are located on privately-owned lands and because the Applicant does not presently possess site control of those properties, additional development could occur prior to the LEAPS being permitted and construction commencing. As a result, there may exist additional unknown impacts that could manifest subsequent to the submittal of this PEA. Some commercial and/or industrial displacement is, therefore, assumed. Acquisition of business property would typically include the real property, inventory, and good will. Because of the limited number of properties directly affected, impacts to residents and businesses directly affected would be less than significant (Class III).

It is assumed that non-residential property values would not be impacted by a property's proximity to LEAPS. No loss of revenues would then be anticipated from other local businesses not directly affected, either as a result of degradation of views, presence of construction equipment and activity, vehicular or pedestrian access restrictions, environmental effects, or health and safety concerns (Class IV).

With the exception of a limited number of skilled workers, because of the existence of an existing diverse labor force in the Riverside County and San Diego County areas, personnel for construction, operation and maintenance would be mostly drawn from local populations, creating new temporary and permanent employment for the area's residents. A limited number of construction personnel may require or may elect to occupy temporary housing during construction operations. Because of the size of the existing labor force relative, no substantial in-migration of people and only minimal increased demand for housing, government facilities, or services associated with the projected workforce is anticipated.

Impact S-1CA: Labor force requirements would create a substantial demand for labor or a change in local employment (Class IV)

Employment associated with LEAPS is expected to equal about 2,460 work years or about 550 full-time equivalent jobs per year over the 4.5-year construction period. The Applicant estimates that construction requirements by year are: (1) 385 full-time equivalent jobs in the first year (15.7 percent of the total construction-period employment); (2) 535 full-time equivalent jobs in the second year (21.7 percent); (3) 515 full-time equivalent jobs in third year (20.9 percent); (4) 585 full-time equivalent jobs in the forth year (23.8 percent); and (5) 440 full-time equivalent jobs in fifth five (17.9 percent). This represents an average of 546 full-time equivalent jobs per year for 4.5 years. Roughly 55 percent of the jobs would be for skilled trades, 30 percent for general labor, and 15 percent for supervisory and support staff (EVMWD, 2004). Estimate payroll for the construction workers is $126.1 million (2004 dollars) over the 4.5-year construction period, ranging from a low of $18.6 million (first year) to a high of $31.2 million (forth year) (FERC, 2007).

Although the effect would be small in relative terms because of the overall size of the economy, LEAPS-related construction employment and payroll would have a positive short-term effect on the local economy. The 553 full-time equivalent jobs on an average annual basis equal about one-tenth of one percent of Riverside County's 602,856 total employment in 2002. The effect of the projected payroll of $127.5 million would be comparable to those associated with the projected employment (Class IV).

Impact S-1CA: Labor force requirements would create a substantial demand for labor or a change in local employment (Class IV)

About 20 employees would be needed to manage, operate, and maintain LEAPS facilities once operational. The total staff is projected to include two management personnel, seven operating staff, and 11 maintenance personnel. Additional contractors and independent labor would be hired to fulfill specific functions, such as qualified monitors to conduct water quality monitoring and groundskeepers, arborists, and horticulturalists. Locally available independent firms, consultants, and contractors would be employed to perform these and other functions. Because of the small size of the operational work force compared to the size of the local economy, there would be no substantial in-migration of people and little or no increased demand for housing, government facilities, or services. The estimated payroll for the 20 regular project employees would be about $1.0 million (2004 dollars) (FERC, 2007) (Class IV).

5.12.3 Project – Socioeconomic Impacts

Population and housing Impacts associated with the TE/VS Interconnect are presented in Section 5.12.1. Population and housing impacts from LEAPS are presented in Section 5.12.2. The cumulative population and housing impacts resulting from the implementation of the Project (inclusive of both transmission and generation) would be similar to the combined effects presented in those two preceding sections.

5.13 Public Services and Utilities

Impacts on public services and utilities attributable to the TE/VS Interconnect are discussed in Section 5.13.1. Impacts on public services and utilities associated with LEAPS are presented in

Section 5.13.2. Potential cumulative impacts on public services and utilities relating to the Project (inclusive of both transmission and generation) are presented in Section 5.13.3.

5.13.1 TE/VS Interconnect – Public Services and Utilities Impacts

As required under Section 4216-4216.9 of the California Government Code (CGC), in order to avoid potential conflicts and hazards, the Applicant is required to notify Underground Service Alert (also known as USA or Dig Alert) at least two days prior to any ground disturbance activities in order to verify specific locations of existing underground utilities within 1,000 feet of the area of such disturbance.
Table 5.13.1-1 (TE/VS Interconnect/Talega-Escondido Upgrades – Public Service and Utilties Impacts) summarizes the potential public service and utilities impacts of the TE/VS Interconnect and Talega-Escondido 230 kV Transmission and Substation Upgrades. Because the resulting impacts would be similar, the TE/VS Interconnect and the Talega-Escondido upgrades are jointly examined below.

Table 5.13.1-1
TE/VS Interconnect/Talega-Escondido Upgrades – Public Services and Utilities Impacts

Impact	Description	Significance
S-2	Construction would disrupt the existing utility systems or cause a collocation accident	II
S-3	Project construction and operation would increase the need for public services and facilities	III

Source: The Nevada Hydro Company, Inc.

Although the development of the TE/VS Interconnect and Talega-Escondido upgrades would reduce the chance of accidental electrical disruptions, during construction activities conducted adjacent to existing utilities, some temporary outages would potentially be necessary. Any such disruption could be potentially significant but would be mitigable to a less-than-significant level (Class II) through early coordination with the affected utilities, compliance with notification requirements, and implementation of APMs S-2a and S-2b.

Impact S-2: Construction would disrupt the existing utility systems or cause a collocation accident (Class II.)

Construction adjacent to existing utilities could mean that some temporary outages would potentially be necessary. Any such outages could be potentially significant but would be mitigable to a less-than-significant level (Class II) through early coordination with the affected utilities, compliance with notification requirements, and implementation of APMs S-2a and S-2b.

Impact S-3: Project construction and operation would increase the need for public services and facilities (Class III).

Water use during construction is a short-term use and the Applicant would purchase the water needed from the EVMWD or other providers for dust control and other activities. Because water supplies (including both potable and reclaimed water) are readily available, impacts to water services and facilities would be less than significant (Class III) and no mitigation is required. APM S-3b is, however, recommended so that reclaimed water can be utilized, when available, in lieu of increased demands on potable water resources. The full text of this APM can be found in Attachment 5 (Applicant Proposed Measures).

Transmission facility construction and upgrades would generate waste largely in the form of soil, construction debris, utility line cable, and scrap metal/wood from the replacement of existing poles. In Riverside County, there are seven permitted and active solid waste landfills that could accept these inert wastes (Badlands Sanitary Landfill, Lamb Canyon Sanitary Landfill, Oasis Sanitary Landfill, Desert Center Landfill, Blythe Sanitary Landfill, Mecca Landfill, and El Sobrante) Landfill. In addition, there are seven additional landfills in San Diego County that could accept these wastes (Ramona Landfill, Borrego Springs Landfill, Otay Landfill, West Miramar Sanitary Landfill, Sycamore Sanitary Landfill, San Onofre Landfill, and Las Pulgas Landfill) (CIWMB, 2007).

Due to the number and capacity of available landfills, sufficient capacity exists for the disposal of wastes generated through the construction and operation of TE/VS Interconnect and Talega-Escondido upgrades. Impacts to areawide solid waste facilities would be less than significant (Class III) and no mitigation is required. APM S-3a is, however, recommended in order to reduce construction-term impacts on in-area solid waste facilities. The full text of this APM can be found in Attachment 5 (Applicant Proposed Measures).

5.13.2 LEAPS – Public Services and Utilities Impacts

Construction for utility purposes in developed areas, especially underground construction such as that associated with the proposed powerhouse, tailrace, and underground transmission lines, can disrupt existing stormwater drainage systems or put those systems at risk. A County-maintained storm drain facility is located at the LEAPS Powerhouse site. Construction activities could, therefore, potentially and adversely affect one or more Riverside County Flood Control District facilities. The Applicant proposes additional consultation with Riverside County Flood Control District and will formulate detailed plans to ensure that LEAPS does not adversely affect existing storm drain facilities. Pre-construction consultation with Riverside County Flood Control District would address both existing and proposed Flood Control District facilities (FERC, 2007).

Table 5.13.2-1 (LEAPS – Public Services and Utilities Impacts) summarizes the potential public service impacts of LEAPS.

Table 5.13.2-1. LEAPS – Public Services and Utilities Impacts

Impact	Description	Significance
S-2	Construction would disrupt the existing utility systems or cause a collocation accident	II
S-3	Project construction and operation would increase the need for public services and facilities	III

Source: The Nevada Hydro Company, Inc.

Impact S-2: Construction would disrupt the existing utility systems or cause a collocation accident (Class II)

Construction of LEAPS would necessitate substantial ground disturbance. Subsurface excavations could potentially damage one or more of existing utilities located in the general area of that excavation. Unplanned utility disruptions during construction could result in a potentially significant impact but would be mitigable to a less-than-significant level (Class II) through the implementation of APMs S-2a and S-2b. The full text of these APMs can be found in Attachment 5 (Applicant Proposed Measures).

Impact S-3: Project construction and operation would increase the need for public services and facilities (Class III)

About 5,500 acre-feet of water would be needed for the initial filling of the proposed Decker Canyon Reservoir. Fill water for the reservoir would be obtained from Lake Elsinore. The Applicant is in negotiations with the EVMWD and other water purveyors to secure a long-term commitment for the use of reclaimed water as source and make-up water for LEAPS operations. The EVMWD has indicated that sufficient reclaimed water supplies are available or can be secured to fulfill the facility's operational needs, including construction term water (dust palliation) and environmental mitigation. Impacts to water services and facilities would be less than significant (Class III) and no mitigation is required.

As proposed, other that the off-site disposal of deleterious soils materials (organics and large boulders), grading activities will be balanced between the various LEAPS sites. Materials including low-permeability clay will, however, be imported (Alberhill) to allow for the creation of the proposed double-liner system for the upper reservoir.

As described above, sufficient landfill capacity is available in Riverside and San Diego Counties to accommodate the disposal of any inert wastes generated by LEAPS construction. Impacts to solid waste facilities would be less than significant (Class III) and no mitigation is required.

5.13.3 Project – Public Services and Utilities Impacts

Public services and utilities impacts from the TE/VS Interconnect are presented in Section 5.13.1. Public service and utilities impacts from LEAPS are presented in Section 5.13.2. The cumulative public services and utilities impacts resulting from the implementation of the Project (inclusive of both transmission and generation) would be similar to the combined effects presented in those two preceding sections.

5.14 Wilderness and Recreation

Recreational impacts attributable to the TE/VS Interconnect are discussed in Section 5.14.1. Recreational impacts associated with LEAPS are presented in Section 5.14.2. Potential cumulative recreational impacts relating to the Project (inclusive of both transmission and generation) are presented in Section 5.14.3.

5.14.1 TE/VS Interconnect – Wilderness and Recreation Impacts

TE/VS Interconnect

A substantial portion of the TE/VS Interconnect is located in the CNF. The line crosses within 300 feet of the San Mateo Canyon Wilderness. The line also would be located in the vicinity of a number of improved recreational facilities, including the Morgan and Tenaja Trailheads, the Horsethief Trail, and the El Cariso and Wildomar Campgrounds. In addition, two hang glider launch sites ("E" and "Edwards"), operated by the Elsinore Hang Gliding Association under an existing special use authorization, are located in the vicinity of the proposed underground portion of the line. The line also passes the Wildomar Off-Highway Vehicle (OHV) area, located along Wildomar

Road, south of Elsinore Peak. There are currently about 54 miles of designated OHV routes within the CNF. The Forest Service seeks to restrict off-road vehicle use to designated trails.

The management of recreation uses in the National Forest is based on the "Recreation Opportunity Spectrum" (ROS) framework, as incorporated into the "Cleveland National Forest Land Management Plan." The ROS is a framework for defining classes of outdoor recreation environments, activities, and experience opportunities in the National Forest. The opportunities are arranged along a continuum or spectrum divided into classes that define recreation opportunities in various areas of the forest based on the characteristics of those areas. The following five ROS classes occur within the northern portion of CNF in the vicinity of the TE/VS Interconnect.

- **Primitive** (P). Very high probability of solitude and closeness to nature, challenge and risk; essentially unmodified natural environment; minimal evidence of others; few restrictions evident; non-motorized access and travel on trails or cross county; no vegetation alterations; at least 5,000 acres in size; at least 3 miles from the nearest road or trail with motorized use.

- **Semi-Primitive Non-Motorized** (SPNM). High probability of solitude, closeness to nature, challenge, and risk; natural appearing environment; some evidence of other users; subtle restrictions and controls are evident; non-motorized access and travel on trails; vegetative alterations occur but are widely dispersed and not too evident; at least 2,500 acres in size; at least 0.5 miles from all roads, railroads, or trails with motorized use.

- **Semi-Primitive Motorized** (SPM). Moderate probability of solitude, and closeness to nature; high degree of challenge and risk using motorized equipment; predominantly natural appearing environment; few users but evidence on trails; minimum or subtle on-site controls; vegetative alterations occur but are few; at least 2,500 acres in size; at least 0.5 miles from all roads, railroads, or trail with motorized use, but may contain roads that are usually closed.

- **Road Natural** (RN). Some probability of solitude; little challenge and risk; mostly natural appearing environment; moderate concentration of users at developed and dispersed campsites; some obvious site restrictions and user controls are present; access is motorized; vegetative alterations completed to maintain desired visual characteristics; no size restrictions.

- **Rural** (R). Areas are characterized by substantially modified natural environment. Resource modification and utilization practices are to enhance specific recreation activities and to maintain vegetative cover and soil. Sights and sounds of humans are readily evident, and the interaction between users is often moderate to high. Facilities for intensified motorized use and parking are available (USDA Forest Service, 1982).

The above classifications are based on those National Forest conditions evident at the time the current "Cleveland National Forest Land Management Plan" was adopted. The introduction of the TE/VS Interconnect would logically alter the appear of certain areas and may, therefore, necessitate a reclassification of some NFS lands.

Table 5.14.1-1 (TE/VS Interconnect/Talega-Escondido Upgrades – Wilderness and Recreation Impacts) summarizes the potential wilderness and recreation impacts of the TE/VS Interconnect and Talega-Escondido 230-kV Transmission and Substation Upgrades. Because the resulting impacts would be similar, both the TE/VS Interconnect and the Talega-Escondido upgrades are jointly examined below.

Table 5.14.1-1. TE/VS Interconnect/Talega-Escondido Upgrades – Wilderness and Recreation

Impact	Description	Significance
WR-1	Construction activities would temporarily reduce access and visitation to recreation or wilderness areas	IV
WR-2	Presence of a transmission line or substation would permanently change the character of a recreation area, diminishing its recreational value	I
WR-3	Presence of a transmission line would permanently preclude recreational activities	III, IV

Source: The Nevada Hydro Company, Inc.

Impact WR-1: Construction activities would temporarily reduce access and visitation to wilderness or recreation areas (Class I).

No recreational opportunities now exist in the areas of the proposed Lake Switchyard and Santa Rosa Substation. The area adjacent to the Case Springs Substation is located in Camp Pendleton, not accessible for public use, and not designated for recreational purposes. There are no known recreational facilities located in the immediate vicinity of the Talega-Escondido upgrades. As such, the following discussion is limited to that portion of the proposed transmission line located within the National Forest.

Transmission line construction could affect developed and undeveloped recreational facilities through vegetation clearing, excavation for underground transmission lines, construction of access and spur roads, and the transport and placement of towers. Multiple active construction areas will be temporarily closed to public use at any one time. Construction will introduce heavy equipment and other traffic and helicopter over-flights will increase ambient noise levels in work areas and diminish the recreational experiences of proximal National Forest users.

Construction conducted near the Morgan Trailhead, Tenaja Trailhead, Horsethief Trail and the El Cariso Campground and Wildomar Campground and OHV areas could limit, reduce, or restrict public access to and the use of those areas. Construction activities would cause both direct (reduced access) and secondary effects (periodic disturbances) on nearby visitors during the first two years of construction.

Construction of the underground portion of the transmission line would affect the Morgan Trailhead and parking area as the underground transmission route passes through the trailhead. Closure of the parking lot or trailhead are expected to last for approximately one year (FERC, 2007). Access to the Tenaja Trailhead would not be limited because construction activities would take place at least 700-feet away from the trailhead; however, visitors would experience the visual and audible effects of construction at this wilderness entrance. Hikers on Horsethief Trail would be disturbed by construction activities as the transmission line would pass over the trail. Campers at the El Cariso Campground would be affected by construction activities, as the transmission line would pass over that recreation area. Visitors to the Wildomar Campground and OHV area would be unlikely to be significantly affected by construction activities due to the

distance of the corridor from this recreation area (0.39 miles) and the high-level of noise produced by OHV recreation.

No portion of the TE/VS Interconnect will directly encroach into the 39,540-acre San Mateo Canyon Wilderness. All construction activities will outside wilderness boundaries and, therefore, should only be perceptible to those visitors whose wilderness experiences are limited to the northern and easterly edges of that area. Visitors traveling further into the wilderness or gaining access from alternative entry points would have little awareness that active construction operations were occurring outside wilderness boundaries.

Visitors to the San Mateo Canyon Wilderness in the immediate vicinity of the transmission line near MP 20 to MP 22 would be affected by construction noise and, based on the viewer's vantage point, would be able to observe construction operations. However, with the exception of periodic helicopter over-flights, construction neither be visible nor apparent to most wilderness users due to intervening topography and separation distances.

Although short-term in duration, these temporary effects on wilderness and recreation areas are likely significant impacts (Class I). No feasible measures have been identified to mitigate construction-related impacts on wilderness and recreational experiences.

Impact WR-2: Presence of the transmission line would change the character of a recreation or wilderness area, diminishing its recreational value (Class I).

No recreational opportunities now exist in the areas of the proposed Lake Switchyard and Santa Rosa Substation. The area adjacent to the Case Springs Substation is located in Camp Pendleton, not accessible for public use, and not designated for recreational purposes. There are no known recreational facilities located in the immediate vicinity of the Talega-Escondido upgrades. As such, the following discussion is limited to that portion of the proposed transmission line located within the National Forest.

Visitors using the Tenaja and Morgan Trail would be able to see the transmission line, which would pass overhead at the Tenaja Trailhead parking lot and the Morgan Trailhead parking area, respectively. The introduction of overhead transmission lines would permanently alter the character of the recreational experience when beginning hikes into the wilderness from those access points. The resulting visual intrusion would subside or be eliminated as hikers proceed along those trails and the lines and towers disappear from view. In addition, users of Horsethief Trail would see the transmission line as it passes overhead, permanently altering the character of recreational experience along a segment of that trail. Users of the El Cariso Campground would be affected by the presence of the line, which would pass through this recreation area. The Wildomar OHV area and Campground would not be permanently affected by the presence of the transmission line due to the line's distance (0.39 miles) from the recreation area.

The TE/VS Interconnect would cause a permanent noise increase due to the corona effect. At the edge of the transmission right-of-way, this corona noise would likely be between 50 and 55 dBA CNEL during rain or fog conditions. Levels of 40 dBA or less would occur at most sensitive located at distances of 1,000 feet or more from the TE/VS Interconnect (FERC, 2007). Increased noise associated with vegetation management along the transmission right-of-way may also

cause secondary effects in the form of periodic disturbances to nearby visitors during the facility's operation. These effects would be of short duration and occur infrequently.

In addition, the transmission line would cross about eight miles of ROS-designated Semi-Primitive Non-Motorized (SPNM) lands, over 12 miles of Semi-Primitive Motorized (SPM) lands, seven miles of Road Natural (RN) lands, and about a half mile of Primitive (P) lands.

Those effects described above would most likely be acceptable for those NFS lands designated as Rural (R) and Road Natural (RN); however, these activities would not appear consistent with Primitive (P), Semi-Primitive Non-Motorized (SPNM), and Semi-Primitive Motorized (SPM) settings, as those setting are now established. These effects would likely be significant (Class I).

Impact WR-3: Presence of a transmission line would permanently preclude recreational activities (Class III and IV)

Construction of the transmission line would include placing a portion of the underground segment near two hang glider launch sites. At its closest, the transmission line would daylight about 1,700 feet from the "E" launch site and at about 7,800 feet from the "Edwards" launch site.

Given the locations of the launch sites and typical flight paths, this daylighting location should preserve hang gliding launches from the "Edwards" (the southern of the two USFS-permitted sites). Given the closer proximity to the "E" launch site, the presence of the transmission line could reduce the number and frequency of hang glider launchings from this site based on unfavorable meteorological conditions or necessitate an increased skill level of those launching. It is the Applicant's understanding that the "Edwards" launch site is the preferred location for launching and that the "E" site is used substantially less frequently.

The design of the TE/VS Interconnect has undergone substantial revision since initially submitted. The proposed undergrounding of a segment of the overhead transmission line was included as an accommodation to the hang gliders. The EHGA has been an active participate in earlier environmental proceedings in which the line's configuration was addressed. As such, the current transmission line design is as a result of that involvement and is presented by the Applicant as mitigation for potential impacts to those recreationalist. Because the current development plan allows for the continuing operation of both uses and since both uses constitute eligible uses of NFS lands, the impact is less than significant (Class III).

Based on the absence of structural massing and the lack of interference with wind patterns (based on the porous nature of towers), the construction and operation of the TE/VS Interconnect would not adversely affect house thermals in areas near the transmission line (Class IV).

Talega-Escondido 230-kV Transmission and Substation Upgrades

Upgrades to the Talega-Escondido transmission line would occur within an existing utility right-of-way and construction activities would be minimal. That right-of-way passes south of the boundary of the San Mateo Canyon Wilderness. Because it is in an existing right-of-way and would upgrade existing transmission facilities, there would be no or only minimal impacts to wilderness and recreation.

Impact WR-2 (Presence of the transmission line would change the character of a recreation or wilderness area, diminishing its recreational value) would not occur due to the lack of recreation areas in the immediate vicinity of the transmission line and because the long-term presence of the new conductor on existing structures adjacent to the San Mateo Canyon Wilderness would not change the character of the wilderness area above existing conditions. Impact WR-3 (Presence of a transmission line would permanently preclude recreational activities) would not occur due to the lack of recreation areas in the immediate vicinity of the transmission line. Impact WR-4 (Presence of a transmission line in a designated wilderness or wilderness study area would require reclassification of the affected land) would not occur because the Talega-Escondido transmission line does not traverse designated wilderness.

Impact WR-1: Construction activities would temporarily reduce access and visitation to wilderness or recreation areas (Class I)

Installing an additional conductor on the existing structures in the Talega-Escondido right-of-way would involve the use of heavy equipment and the use of helicopters. The noise created by these activities could temporarily impinge upon the solitude of recreational experiences in the San Mateo Canyon Wilderness. These effects would last approximately one month and diminish as construction activities move away from the National Forest. Based on the absence of any observable physical change and the limited nature of construction operations, the resulting impact would be less than significant (Class IV) and no mitigation is required.

5.14.2 LEAPS – Wilderness and Recreation Impacts

Within the City of Lake Elsinore, low-density residential and limited recreation-based development existing along the lakeshore. The urban setting includes recreation facilities for boating, day and overnight use, fishing access at parks, and recreational vehicle (RV) and tent campgrounds. The most important condition affecting recreation use at Lake Elsinore is the water level. Between 1992 and 1999, the surface elevation of Lake Elsinore fluctuated 40 feet, between 1229 and 1259-feet above msl. At lake levels below 1240-feet above msl, water quality declines substantially, impacting recreational use. At low water levels, this shallow lake's water temperature climbs, contributing to hyper-eutrophic conditions characterized by a cycle of excessive algal growth, low DO, and fish kills.

Historically, Lake Elsinore was stocked with a variety of native and non-native fish. As early as the 1890s, northern largemouth bass, green sunfish, and common carp were stocked in the lake. Through the years, often following fish kills, species of bass, bullheads, sunfish, crappies, and shad also were stocked in the lake in an effort to create a recreational fishery. The common carp, one of the first fish species planted in Lake Elsinore, is prevalent in the lake. Carp tend to be abundant in eutrophic lakes and reservoirs with silty bottoms and submerged aquatic vegetation. They are tolerant of high turbidity, high temperatures, and low DO concentrations and typically do not go below 100 feet (Moyle, 2002). The common carp is now considered a nuisance species. Following surveys in 2003, the City of Lake Elsinore implemented a carp removal program, and an estimated 291,000 carp were removed from the lake (EIP Associates, 2005).

Estimated visitor use at Lake Elsinore in 2000 was approximately 41,250 recreation visitor-days from local residents, and 177,300 visitor-days from out-of-area visitors. Trips from both groups

were primarily boating-related, and only an estimated 5 to 20 percent of the use was associated with angling. Nearby, on public lands managed by the Cleveland National Forest, recreational use during 2001 was estimated at between 500,000 and 1 million visits, including an estimated 30,000 wilderness visits.

Table 5.14.2-1 (LEAPS – Wilderness and Recreation Impacts) summarizes the potential wilderness and recreation impacts of LEAPS.

Table 5.14.2-1. LEAPS - Wilderness and Recreation

Impact	Description	Significance
WR-1	Construction activities would temporarily reduce access and visitation to recreation or wilderness areas.	III
WR-2	Presence of a transmission line or substation would permanently change the character of a recreation area, diminishing its recreational value.	III, IV

Source: The Nevada Hydro Company, Inc.

Impact WR-1: Construction activities would temporarily reduce access and visitation to wilderness or recreation areas (Class III)

Construction activities would have temporary effects on water-based recreation activities at Lake Elsinore. At Lake Elsinore, construction activity would occur within the lake (which would serve as the lower reservoir). A cofferdam would be constructed in the lake to allow construction of the tailrace, intake/outlet structure, and other infrastructure necessary for facility operations. In-lake construction would take place over a period of about three years. Public boating access would be restricted in the vicinity of the cofferdam for public safety reasons. The boatable area lost to the navigational restriction at the inlet/outlet structure would be less than five acres. Although this impact would be adverse, based on its limited scale, it is less than significant (Class III).

No developed recreational facilities are located near construction activities that would take place at Lake Elsinore. Most of the developed recreational facilities are located on the east side of the lake, and construction activities would occur in the vicinity of the southwest portion of the shoreline. Although there would be a general increase in vehicular traffic on local roads, most construction activities would not directly affect developed recreational facilities at Lake Elsinore.

Hang gliders currently launch from various points along South Main Divide Road in the vicinity of Decker Canyon. Increased traffic on South Main Divide Road associated with construction activity at the upper reservoir may temporarily disturb the visitation of some users but impacts would be less than significant (Class III).

Since the site is privately owned, no developed or authorized recreational facilities are located in the vicinity of the proposed LEAPS Powerhouse. Construction activities occurring on privately-owned lands would, therefore, not affect recreation resources or opportunities.

During construction, it would be necessary to temporarily close an area greater than the footprint of the Decker Canyon Reservoir and its associated construction staging area for public safety reasons, causing a temporary direct loss of approximately 150 acres of NFS lands. Subject to FERC and Forest Service authorization, current development plans call for the conversion of the Decker Canyon Reservoir staging area to a day-use area, to be improved by the Applicant and

the facilities dedicated to the Forest Service. Because neither Decker Canyon nor its staging area are presently used for active recreational purposes (do to the lack of any improved trails to those sites), in recognition of the compensation proposed by the Applicant, this impact would be less than significant (Class III).

The Decker Canyon Reservoir site is located northwest of the Morgan Trail and would require no temporary or permanent re-routing of Morgan Trail. Increased traffic on South Main Divide Road and noise associated with construction of the Decker Canyon Reservoir would be apparent to visitors using the Morgan Trail. Construction traffic and noise could be limited to the reservoir's third year of construction. In recognition of the compensation proposed by the Applicant, this impact would be less than significant (Class III).

Impact WR-2: Presence of a transmission line or substation would permanently change the character of a recreation area, diminishing its recreational value (Class III for NFS and Lake Elsinore; Class IV for other project facilities).

Because of safety considerations related to fluctuation of water depths resulting from generation and pumped storage operations, no water-related recreational activities would be provided at the proposed Decker Canyon Reservoir. As required by the Forest Service, the reservoir would be fenced and public access prohibited. Although no developed recreation facilities are planned in the immediate vicinity of the Decker Canyon Reservoir site, working in cooperation with FERC and the Forest Service, the associated construction staging area will be converted to a day-use area. Development of that facility will increase recreational uses and opportunities now available in the Decker Canyon area.

The direct effect on dispersed recreation at the Decker Canyon Reservoir site would include the loss of public access to approximately 100 acres of National Forest land that would be necessary once the reservoir was operational. This impact would be offset through the development of the proposed day-use area and compliance with FERC/USFS permit requirements (Class III).

Since the LEAPS Powerhouse site is currently privately owned, no public recreational uses are authorized thereon. Once the site is developed for LEAPS-related uses, no recreational opportunities will be lost or diminished. However, the Applicant proposes to create a neighborhood park at the site of powerhouse's construction staging area. The development of that facility would expand existing recreational opportunities in the Lakeland Village area and would constitute a beneficial impact (Class IV).

Potential adverse effects on recreational fish populations from LEAPS operation includes fish mortality in Lake Elsinore from entrainment (passing aquatic organisms through pump intake valves and turbines) and impingement (trapping aquatic organisms on intake screens or trashracks). Attraction flows and/or suction caused by the intakes could be too strong for some Lake Elsinore fish to escape, particularly juvenile fish with low swimming speeds, resulting in death or injury as they are pumped through the turbines to the upper reservoir. Fish that are entrained to the upper reservoir may not survive due to direct mortality from passage through the turbines, delayed mortality from exhaustion, suffocation, or other physical injury. Fish that may survive transport through the turbines may not survive in the upper reservoir due to a lack of habitat, a forage base for food, and high reservoir fluctuations. Compliance with FERC intake

standards and screening requirements will reduce fish-related impacts to the maximum extent feasible. Studies conducted by the SARWQCB have concluded that impacts to Lake Elsinore would be less than significant (Class III).

LEAPS operations require assurance of the long-term available of water in Lake Elsinore. Through a long-term purchase agreement with the EVMWD and/or other water purveyors, the Applicant will commit to the purchase of sufficient water resources for the initial filing of the upper reservoir, for make-up water resulting from evaporative losses, and for construction and environmental mitigation, thus allowing the water levels in Lake Elsinore to be maintained at a minimum water surface elevation of 1240 feet above msl or above. Studies conducted by LESJWA have demonstrated that the stabilization of lake levels would have the greatest potential beneficial impacts to fish ecology. In addition, stabilized lake levels would improve boating opportunities and the availability of beaches for swimmers and anglers.

Daily cycling of water between Lake Elsinore and the upper reservoir during the proposed hydropower operations is expected to slightly improve water quality by increasing the level of DO in the water column (FERC, 2007). LEAPS long-term contribution to the improvement of water quality in Lake Elsinore would offset any adverse effects associated with the facility's construction and operation. Compliance with FERC design standards, FERC/USFS permit requirements, and the conditions of the Section 401 water quality certification issued by the State Water Resources Control Board (SWRCB) would ensure that impacts would be reduced to a less than significant level (Class III).

5.14.3 Project – Wilderness and Recreation Impacts

Recreation impacts from the TE/VS Interconnect are presented in section 5.14.1. Recreation impacts from LEAPS are presented in Section 5.14.2. Recreation impacts from the Project would be similar to those presented in those two preceding sections.

5.15 Transportation and Traffic

Impacts on transportation and traffic attributable to the TE/VS Interconnect are discussed in Section 5.15.1. Impacts on transportation and traffic associated with LEAPS are presented in Section 5.15.2. Potential cumulative transportation and traffic impacts relating to the Project (inclusive of both transmission and generation) are presented in Section 5.15.3.

5.15.1 TE/VS Interconnect – Transportation and Traffic Impacts

TE/VS Interconnect

Within the National Forest, existing access to the TE/VS Interconnect is provided via improved and unimproved Forest Service roads, Ortega Highway (SR-74), North Main Divide Trail (8S04), South Main Divide Road (6S07), Wildomar Road (7S04), and an unnamed roadway extend south and west from Willow Springs to Camp Pendleton (8S01). Within Camp Pendleton, access is provided from a network of USMC-operated roadways. On non-federal lands, access is provided by public roadways administered by Riverside, Orange, and San Diego Counties and by the City of Lake Elsinore. Construction of the transmission line would require

the development of new temporary or permanent access roads on NFS lands. Because of the remote nature of portions of the transmission route, access will be provided only by the use of helicopters.

Table 5.15.1-1 (TE/VS Interconnect/Talega-Escondido Upgrades – Transportation and Traffic Impacts) summarizes the potential transportation and traffic impacts of the TE/VS Interconnect and Talega-Escondido 230-kV Transmission and Substation Upgrades. The TE/VS Interconnect and the Talega-Escondido upgrades are separately examined below.

Table 5.15.1-1. TE/VS Interconnect/Talega-Escondido Upgrades – Transportation and Traffic

Impact	Description	Significance
T-1	Construction would cause temporary road and lane closures that would temporarily disrupt traffic flow	II, IV
T-2	Construction would temporarily disrupt the operation of emergency service providers	II
T-4	Construction would temporarily disrupt pedestrian and/or bicycle movement and safety	II
T-5	Construction vehicles and equipment would potentially cause physical damage to roads in the project area	II
T-6	Construction activities would cause a temporary disruption to rail traffic or operations.	II
T-7	Construction would result in the short-term elimination of parking spaces	II
T-9	Construction would generate additional traffic on the regional and local roadways	III
T-11	Construction of the transmission lines would penetrate airport influence area	II, III

Source: The Nevada Hydro Company, Inc.

Impact T-3 (Construction would temporarily disrupt bus transit services) and Impact T-8 (Construction would conflict with planned transportation projects) would not occur because there are no known bus transit routes or stops, rail operations, or transportation projects along the TE/VS Interconnect alignment.

Impact T-1: Construction would cause temporary road and lane closures that would temporarily disrupt traffic flow (Class II for all others; Class IV for State Highways).

The TE/VS Interconnect will cross the I-15 Freeway and State Route 74 (Ortega Highway) and will require encroachment permits issued by the California Department of Transportation (Caltrans). Compliance with applicable permit conditions will ensure that planned road crossing do not impact travel along those roadways (Class IV).

Construction activities would occur primarily in remote areas of the CNF via new temporary access roads and by helicopter, when necessary. The Applicant will prepare and implement **t**raffic management and control plans (APM T-9a) to address both construction traffic and access to and from the construction sites. Plans would identify signs, striping, barricades, flagmen, roadway modifications, and other safety measures. At all times, traffic access along Ortega Highway (SR-74), South Main Divide Road (6S07), Wildomar Road (7S04), and an unnamed roadway extend south and west from Willow Springs to Camp Pendleton (8S01) would be maintained. If limited distance single-lane traffic is required (lane closure), appropriate traffic control would be implemented.

Temporary lane closures and associated safety consequences, increased traffic levels and constrained circulation, could be a potentially significant impact but would be mitigable to a less-than-significant level (Class II) through the implementation of APM T-1a, T-9a, and T-9c. The full text of these APMs can be found in Attachment 5 (Applicant Proposed Measures).

Impact T-2: Construction would temporarily disrupt the operation of emergency service providers (Class II).

Transmission line construction activities could potentially interfere with emergency response by ambulance, fire, paramedic, and police vehicles. Additionally, there is a possibility that emergency services would be needed at a location where access is temporarily blocked or impeded by the active construction zone. Temporary disruptions of the operation of emergency service providers would be a potentially significant impact but would be mitigable to a less-than-significant level (Class II) through implementation of APM T-2b. The full text of this APM can be found in Attachment 5 (Applicant Proposed Measures).

Impact T-4: Construction would temporarily disrupt pedestrian and/or bicycle movement and safety (Class II).

Bicycle and pedestrian circulation could be significantly affected by transmission line construction activities within the National Forest if pedestrians and bicyclists were unable to pass through the construction zone or if established pedestrian and bicycle routes were to be blocked. Impacts to bicycle and pedestrian circulation would most likely occur on South Main Divide Road due to the construction of an underground transmission segment. Additional impacts to pedestrians and bicyclists would occur at the Morgan Trailhead, the Tenaja Trailhead, and Horsethief Trail, and at the El Cariso Campground and Wildomar Campground and OHV areas due to the presence of presence of construction activities in those areas. Impacts to pedestrian and bicycle circulation could be potentially significant but would be mitigable to a less-than-significant level (Class II) through the implementation of APM T-4a. The full text of this APM can be found in Attachment 5 (Applicant Proposed Measures).

Impact T-5: Construction vehicles and equipment would potentially cause physical damage to roads in the project area (Class II).

The proposed construction of an underground transmission line segment paralleling South Main Divide Road could result in damage to that roadway. In addition, damage to roadways could occur by heavy equipment and other construction vehicles (line trucks, crew trucks, and concrete trucks) that would repeatedly enter and leave roadways within and along the transmission alignment. This impact could be potentially significant but would be mitigable to a less-than-significant level (Class II) through the implementation of APM T-5a. The full text of this APM can be found in Attachment 5 (Applicant Proposed Measures).

Impact T-7: Construction would result in the short-term elimination of parking spaces (Class II).

Transmission line construction could result in short-term elimination of parking spaces in the area of the Morgan Trailhead, South Main Divide Road, and Tenaja Trailhead. This impact is potentially significant but would be mitigable to a less-than-significant level (Class II) through the implementation of APM T-7a. The full text of this APM can be found in Attachment 5 (Applicant Proposed Measures).

Impact T-9: Construction would generate additional traffic on the regional and local roadways (Class III).

Construction of the TE/VS Interconnect would generate additional traffic on the regional and local roadways. Access to the Lake Substation would be provided from the I-15 Freeway and along Indian Truck Trail and Temescal Canyon Road. Access to the Santa Rosa Substation would be provided from the I-15 Freeway, Riverside Drive, Grand Avenue, and Ortega Highway (SR-74). Access to the Case Springs Substation would be provided, in part, from the I-5 Freeway and through roadways located in Camp Pendleton. Each of these roadways is designed to and routinely carries large volumes of daily traffic. The introduction of TE/VS Interconnect construction-term and operational traffic along any of those roadways would not result in a significant impact (Class III).

Ortega Highway, which links Riverside County to Orange County, currently carries large volumes of traffic, particularly during peak periods. Ortega Highway (SR74) would provide access to North Main Divide Trail and South Main Divide Trail (and other tributary roadways) providing access to those segments of the 500-kV transmission line located in the National Forest as well as providing a linkage to Wildomar Road and an unnamed roadway extend south and west from Willow Springs to Camp Pendleton for access to the Case Springs Substation.

The construction and operation of the TE/VS Interconnect is not anticipated to generate traffic volumes sufficient to produce a change in the level of service along these roadways. The TE/VS Interconnect's contribution to traffic volumes would be less than significant (Class III). APM T-9c is, however, recommended to ensure that traffic volumes remain at acceptable levels.

Impact T-11: Construction of the transmission lines would penetrate airport influence area (Class II for Camp Pendleton; Class III for others).

Overhead transmission lines within 1,000 feet of airports or known flight paths can impact the safety and operations of air navigation through collision, radar interference, or similar direct and indirect effects. Construction of the transmission lines would be located within two miles of the Skylark Airport and could have potentially adverse but less-than-significant effects (Class III) on airport operations. The transmission lines would be within approximately 3,000 feet of a private air strip (Sky Ranch) located near the southeastern corner of the National Forest.

The southern segment of the TE/VS Interconnect also extends into Camp Pendleton. In Camp Pendleton, to the south of the proposed Case Springs Substation, is the "Whiskey/Zulu Impact Area" ("Central Impact Area"). North of that impact area and south of the National Forest are designated "Mortar Firing Areas," "Artillery Firing Areas," and "Live Fire and Maneuver." Helicopters use the door gunner ranges located adjacent to Case Springs, which involve firing machine guns into the Whiskey Impact Area. To the west of the proposed substation is a designated "Drop Zone." As such, it is evident that military over-flight operations routinely occur within the area of the proposed Case Springs Substation. Installation of new 500-kV and 230-kV steel-lattice towers in that area could potentially impact existing military operations and flight patterns.

The Applicant will work in close cooperation with the USMC to reduce potential impacts from the TE/VS Interconnect to a less-than-significant level (Class III), including demarcation of the transmission lines and towers and will compliance with all FAA (FAA Form 7460-1) and USMC requirements. Interference with military training and operations could be potentially significant but would be mitigable to a less-than-significant level (Class II) through USMC-imposed permit conditions and the implementation of APM L-1h. Since the USMC would not allow any use that would substantially interfere with its primary mission and deny authorization for any use that would be adverse to military operations or activities, impacts to Camp Pendleton would remain at a less-than-significant level (Class II).

Talega-Escondido 230-kV Transmission and Substation Upgrades

Access to the existing right-of-way for the Talega-Escondido upgrades is presently available from a network of regional roadway, including the I-15 Freeway and State Route 78 (SR-78). Local roadways in general area of that right-of-way include Pala Road, Couser Canyon Road, Lilac Road, Old Castle Road, East Mission Road, and Centre City Parkway. The Talega-Escondido line crosses the San Diego Northern Railway (SDNR) railroad corridor adjacent to Mission Road, east of I-15 and west of Nordahl Road.

Impact T-3 (Construction would temporarily disrupt bus transit services), Impact T-8 (Construction would conflict with planned transportation projects), and Impact T-10 (Underground construction could restrict access to properties and businesses) would not occur because there are no bus transit routes or stops along the route and there are no underground construction activities planned.

Impact T-1: Construction would cause temporary road and lane closures that would temporarily disrupt traffic flow (Class III for all others; Class IV for State Highways).

The 230-kV transmission line crosses a number of roadways, including, but not limited to, the I-15 Freeway and SR-78, and construction activities would require encroachment permits issued by Caltrans and the City of Escondido. Compliance with applicable permit conditions will ensure that planned road crossing do not impact travel along those roadways (Class IV).

Temporary road and lane closures would occur to roadways over a period of 12 weeks during installation of the second circuit on the Talega-Escondido 230-kV transmission line. The two main roadways that would be impacted are the I-15 Freeway (crossed between Country Club Lane and State Route 78) and State Route 78 (crossed west of I-15 and east of Nordahl Road). It is anticipated that each road crossing will delay traffic for no more than 15 minutes in a normal construction sequence.
Temporary lane closures and associated safety consequences, increased traffic levels and constrained circulation, could be a potentially significant impact but would be mitigable to a less-than-significant level (Class II) through the implementation of APM T-1a. The full text of this APM can be found in Attachment 5 (Applicant Proposed Measures).

Impact T-2: Construction would temporarily disrupt the operation of emergency service providers (Class II).

Construction activities could potentially interfere with emergency response by ambulance, fire, paramedic, and police vehicles. Temporary disruptions of the operation of emergency service providers would be a potentially significant impact but would be mitigable to a less-than-significant level (Class II) through implementation of APM T-2b. The full text of this APM can be found in Attachment 5 (Applicant Proposed Measures).

Impact T-4: Construction would temporarily disrupt pedestrian and/or bicycle movement and safety (Class II).

Pedestrian and bicycle circulation could be affected by transmission line construction activities if pedestrians and bicyclists were unable to pass through the construction zone or if established pedestrian and bicycle routes were to be blocked. This impact could be potentially significant but would be mitigable to a less-than-significant level (Class II) through the implementation of APM T-4a. The full text of this APM can be found in Attachment 5 (Applicant Proposed Measures).

Impact T-5: Construction vehicles and equipment would potentially cause physical damage to roads in the project area (Class II).

Transmission line construction could damage roadways along the transmission route through the use of heavy equipment and other construction vehicles and equipment entering and leaving road-ways. This impact could be potentially significant but would be mitigable to a less-than-significant level (Class II) through the implementation of APM T-5a. The full text of this APM can be found in Attachment 5 (Applicant Proposed Measures).

Impact T-6: Construction activities would cause a temporary disruption to rail traffic or operations (Class II).

The installation of the second Talega-Escondido 230-kV transmission line (Talega-Escondido No. 2) and the rebuilding of the 69-kV subtransmission line could interfere with freight train operations on the San Diego Northern Railroad tracks. Both lines would cross the SDNR railway in the City of Escondido adjacent to Mission Road, east of the I-15 Freeway and west of Nordahl Road (Dudek, 2002). The potential disruption of rail operations could be considered potentially significant but would be mitigable to a less-than-significant level (Class II) through the implementation of APM T-6b.

Access to driveways and entrances to agricultural lands could be temporarily blocked by installation of the second 230-kV transmission line and the rebuilding of the 69-kV subtransmission line, thereby impeding access and parking to local residences and commercial uses. This impact could be potentially significant but would be mitigable to a less-than-significant level (Class II) through the implementation of APM T-7a. The full text of this APM can be found in Attachment 5 (Applicant Proposed Measures).

Impact T-9: Construction would generate additional traffic on the regional and local roadways (Class III).

Installation of the 230-kV and 69-kV transmission and subtransmission lines and modifications to the Talega and Escondido Substations would generate additional traffic on the regional and

local roadways serving the area. Construction worker commute trips, equipment deliveries, and hauling materials used in construction would increase the existing traffic volume along affected roadways. The construction and operation of the Talega-Escondido upgrades is not anticipated to generate traffic volumes sufficient to produce a change in the level of service along these roadways. The Talega-Escondido upgrades' contribution to traffic volumes would be less than significant (Class III). APM T-9c is, however, recommended to ensure that traffic volumes remain at acceptable levels.

5.15.2 LEAPS – Transportation and Traffic Impacts

The Lake Elsinore area is accessible from the I-15 Freeway from the north and south and from State Route 74 (Ortega Highway) from the east and west. Orange County has designated Ortega Highway as primary arterial highway and the State has designated Ortega Highway as a State Legal Advisory Route, which limits the size and length of trucks allowed to use the route (Kingpin to Rear Axle not to exceed 30 feet). The proposed Decker Canyon Reservoir site would be accessed via South Main Divide Road, a Riverside County-maintained, paved, two-lane road with access off of Ortega Highway. The intersection of South Main Divide Road and Ortega Highway is stop-sign controlled.

The proposed LEAPS Powerhouse site would be primarily accessed from Grand Avenue, which generally runs north-south along the western edge of Lake Elsinore through Lakeland Village. Grand Avenue is divided by a two-way left turning lane. Ortega Highway intersects Grand Avenue less than one mile north from the proposed powerhouse at a stop light. The posted speed limit just north of this intersection is 40 miles per hour (mph). Grand Avenue connects with roadways that provide access to and from the I-15 Freeway and Lake Elsinore.

Under existing conditions, the street and highway segments that would be affected by LEAPS are currently all operating at an acceptable level of service (LOS) during both morning and evening peak hours. Under the existing conditions plus ambient growth scenario (assessed by applying a growth rate of 2 percent per year compounded to existing traffic volumes over the 7-year period), the five street segments analyzed are expected to continue to maintain their acceptable LOS. With continued growth, the Ortega Highway/Grand Avenue intersection is projected to worsens to LOS "E," indicating that the intersection would require additional improvement (FERC, 2007).

Table 5.15.2-1 (LEAPS – Transportation and Traffic Impacts) summarizes the potential transportation and traffic impacts of LEAPS.

Table 5.15.2-1. Impacts Identified – Transportation and Traffic

Impact	Description	Significance
T-1	Construction would cause temporary road and lane closures that would temporarily disrupt traffic flow.	II
T-2	Construction would temporarily disrupt the operation of emergency service providers.	II
T-4	Construction would temporarily disrupt pedestrian and/or bicycle movement and safety.	II
T-5	Construction vehicles and equipment would potentially cause physical damage to roads in the project area.	II
T-7	Construction would result in the short-term elimination of parking spaces.	II
T-9	Construction would generate additional traffic on the regional and local roadways.	II, IV

Source: The Nevada Hydro Company, Inc.

Impact T-1: Construction would cause temporary road and lane closures that would temporarily disrupt traffic flow (Class II)

LEAPS construction would require the use of heavy equipment and movement of large amounts of earth; this would potentially cause temporary road and lane closures that could affect traffic flow. This potentially significant impact would be mitigable to a less-than-significant level (Class II) through compliance with FERC/USFS permit requirements and the implementation of APMs T-1a, T-9a, and T-9c. The full text of these APMs can be found in Attachment 5 (Applicant Proposed Measures).

Impact T-2: Construction would temporarily disrupt the operation of emergency service providers (Class II)

Construction activities could potentially interfere with emergency response by ambulance, fire, paramedic, and police vehicles. Potential roadway segments that would be most impacted would be two-lane roadways, which provide one lane of travel per direction, such as Ortega Highway and South Main Divide Road. Additionally, there is a possibility that emergency services would be needed at a location where access is temporarily blocked by the construction zone. Temporary disruptions of the operations of emergency service providers would be a potentially significant impact but would be mitigable to a less-than-significant level (Class II) through compliance with FERC/USFS permit requirements and the implementation of APM T-2b. The full text of these APMs can be found in Attachment 5 (Applicant Proposed Measures).

Impact T-4: Construction would temporarily disrupt pedestrian and/or bicycle movement and safety (Class II)

Bicycle and pedestrian circulation could be significantly affected by reservoir, powerhouse, and associated construction activities if pedestrians and bicyclists were unable to pass through the construction zone or if established pedestrian and bicycle routes were to be blocked. Significant impacts to bicycle circulation could occur on South Main Divide Road (due to construction staging areas being located directly adjacent to the road) and in the vicinity of the Morgan Trailhead, the Tenaja Trailhead, and Horsethief Trail (due to the use of heavy equipment in these locations). These potentially significant impacts could be reduced to a less-than-significant level (Class II) through compliance with FERC/USFS permit requirements and the implementation of APMs T-4a, T-7a, T-9a, and T-9b. The full text of these APMs can be found in Attachment 5 (Applicant Proposed Measures).

Impact T-5: Construction vehicles and equipment would potentially cause physical damage to roads in the project area (Class II)

Although grading quantities in the areas of the proposed upper reservoir have been designed to be balanced, there could potentially be a significant number of trucks hauling earth between the proposed powerhouse to the upper reservoir site and to other off-site locations. Based on the potentially large number of heavy truck trips generated by the proposed actions, the effects on pavement could be substantial, particularly along Grand Avenue and South Main Divide Road. Potential effects could include physical damage to roadways associate with breaks and cracks in the pavement and potholes. Damage to roadways is considered a potentially significant impact

but would be mitigable to a less-than-significant level (Class II) through compliance with FERC/USFS permit requirements and the implementation of APM T-5a. The full text of this APM can be found in Attachment 5 (Applicant Proposed Measures).

Impact T-7: Construction would result in the short-term elimination of parking spaces (Class II)

Construction activities conducted in the area of the LEAPS Powerhouse and Decker Canyon Reservoir, including that associated with parking by construction workers and vehicle staking along adjoining roadways, could result in short-term elimination of parking spaces. This impact is potentially significant but would be mitigable to a less-than-significant level (Class II) through compliance with FERC/USFS permit requirements and the implementation of APM T-7a. The full text of this APM can be found in Attachment 5 (Applicant Proposed Measures).

Impact T-9: Construction would generate additional traffic on the regional and local roadways (Class II for construction; Class IV for operation).

During construction, a wide range of vehicles, including heavy trucks used to transport materials and equipment between the powerhouse and the upper reservoir sites, would use South Main Divide Road, Ortega Highway, Grand Avenue, and other auxiliary roadways.

Grading activities are projected to internally balance among facility sites, such that large quantities of surplus spoil material would not necessitate off-site transport or disposal. As proposed, materials used in the development of the upper reservoir would be obtained from on-site earthwork, including spoil materials excavated from the upper portions of the penstock tunnel. Materials excavated in the construction of the powerhouse, as well as spoil materials obtained from the lower portion of the penstock tunnel would be retained as engineered and compacted fill along that portion of the staging area fronting along Grand Avenue. By maximizing the retention of spoils material, the moving of spoils material by truck between the powerhouse and the upper reservoir would be reduced to the maximum extend feasible.

Assuming that, in order to achieve a cut-and-fill balance, excavated material from the LEAPS Powerhouse was transported to the Decker Canyon Reservoir. It is estimated that 73,750 truck loads (one-way) of earth material would need to be transported from the area of the powerhouse to the reservoir site. Assuming 288 truckloads per day, hauling activities would continue for approximately 256 days. Construction trucks would travel along Grand Avenue to Ortega Highway (0.9 miles), travel along Ortega Highway to South Main Divide Road (5.1 miles), and travel along South Main Divide Road to the Decker Canyon Reservoir (1.7 miles).

Use of an impervious clay core is proposed as part of a double-liner system for the upper reservoir. This material can be obtained from active clay mines in Alberhill, located about 6.4 miles to the northeast and accessible via Grand Avenue and/or the I-15 Freeway. Using the same 288 daily one-way trips, a total of 21,500 one-way hauling trips would be required to import 150,000 cubic yards of clay. Hauling activities would continue for about 256 days.

Ortega Highway is a steep, winding, two-lane highway and the introduction of a large number of loaded trucks on that highway would be expected to substantially reduce the flow of traffic.

Effects from construction would last throughout the construction phase for an approximately 4.5 years. Additional traffic impacts could manifest from the transport of large machinery, equipment and materials to the LEAPS sites, employee traffic, the parking of vehicles along near-by roadways, and the queuing of trucks waiting for pickup or delivery. Traffic along Grand Avenue could be affected if the special handling of lakebed materials is needed.

Construction-related impacts associated with LEAPS would be potentially significant but would be mitigable to a less-than-significant level (Class II) through compliance with FERC/USFS permit requirements and through the implementation of APMs T-7a, T-9a, T-9b, and T-9c. The full text of these APMs can be found in Attachment 5 (Applicant Proposed Measures).

Operation and maintenance activities would require only minimal personnel and use of vehicles. Since LEAPS operation would not measurable increase traffic along local roadways operational impacts would be less than significant (Class IV).

5.15.3 Project - Transportation and Traffic Impacts

Transportation and traffic impacts from the TE/VS Interconnect are presented in Section 5.15.1. Impacts on transportation and traffic from LEAPS are presented in Section 5.15.2. The cumulative traffic and transportation impacts resulting from the implementation of the Project (inclusive of both transmission and generation) would be similar to the combined effects presented in those two preceding sections.

5.16 Fuels and Fire

Fire and fuel impacts attributable to the TE/VS Interconnect are discussed in Section 5.16.1. Impacts relating to fire and fuels associated with LEAPS are presented in Section 5.16.2. Potential cumulative fire and fuel impacts relating to the Project (inclusive of both transmission and generation) are presented in Section 5.16.3.

5.16.1 TE/VS Interconnect – Fuels and Fire Management Impacts

TE/VS Interconnect

A fireshed approach (as further defined in Section D.15.4.3 in the Sunrise DEIR/DEIS) to analysis is taken in the following analysis. Firesheds are regional landscapes that are delineated based on fire history, fire regime, vegetation, topography, and potential wildfire behavior. The TE/VS Interconnect traverses both the Lake Elsinore and Margarita Fire Sheds.

The Lake Elsinore Fireshed would encompass approximately 17.8 miles of overhead and 2.1 miles of underground transmission line. The fireshed includes private lands to the north of the I-15 Freeway and Temescal Wash and extends south of Lake Elsinore. The fireshed area encompasses 42,766 acres of National Forest with Santiago Peak in the northwest and a portion of the San Mateo Canyon Wilderness in the south. The western fireshed boundary includes the National Audubon Society Starr Ranch Sanctuary and part of the Trabuco Highlands residential area. The Margarita Fireshed includes approximately 14.5 miles of overhead transmission line. The fireshed contains extensive wildlands surrounded by expanding residential developments. The

San Mateo Canyon Wilderness composes a large portion of the fireshed area. Private lands border the National Forest to the east and are interspersed throughout these public wildlands. The southern boundary of the fireshed extends into the wildlands of Camp Pendleton.

These two firesheds are Interface Wildland Urban Interface (WUI) firesheds, with high-density development adjacent to and within wildlands with dense, chaparral fuels. Due to the small parcel size (and high population density) in Interface WUI firesheds, wildfires have an extremely high potential to have devastating effects on adjacent developments. These two firesheds are extremely high-risk firesheds based on wildfire history, fuels present, and assets at risk.

The Burn Probability Model for the Lake Elsinore and Margarita Firesheds indicates that along the length of the transmission line, a total of 30 percent of the border zone area has a high to very high probability of fire escapes and wildfire recurrence. The Fire Behavior Trend Model indicates that a random fire ignition during normal weather conditions within the right-of-way would burn towards the northeast within the border zone and up to a mile further through communities in areas of dense vegetation, putting 719 homes and 19,074 acres at risk during two burn periods. The potential area burned would be seven times greater during extreme fire weather conditions, putting at least 812 homes and 147,644 acres at risk.

Table 5.16.1-1 (TE/VS Interconnect/Talega-Escondido Upgrades – Fuels and Fire Management Impacts) summarizes the potential fire and fuel impacts of the TE/VS Interconnect and Talega-Escondido 230-kV Transmission and Substation Upgrades. Because the resulting impacts would be similar, the TE/VS Interconnect and the Talega-Escondido upgrades are jointly examined below.

Table 5.16.1-1.
TE/VS Interconnect/Talega-Escondido Upgrades – Fuels and Fire Management Impacts

Impact	Description	Significance
F-1	Construction and/or maintenance activities would significantly increase the probability of a wildfire.	I
F-2	Presence of the overhead transmission line would significantly increase the probability of a wildfire.	III
F-3	Presence of the overhead transmission line would reduce the effectiveness of firefighting.	I
F-4	Project activities would introduce non-native plants which would contribute to an increased ignition potential and rate of fire spread.	II

Source: The Nevada Hydro Company, Inc.

Impact F.1: Construction and/or maintenance activities would significantly increase the probability of wildfire (Class I).

Construction activities would include, but would not be limited to, use of heavy equipment for vegetation removal and grading, the construction of transmission towers, and the installation of conductors. Additional heavy equipment, vehicles, and tools would be used for the construction of staging areas and new access roads. The use of construction equipment and personnel introduces the potential for a variety of wildfire ignition sources to surrounding vegetation fuels or combustible materials associated with construction activities.

Construction-related ignitions within the Lake Elsinore and Margarita Firesheds have the potential to escape initial attack containment and become catastrophic fires. The areas with

heavy fire fuels, steep topography, and exposure to Santa Ana winds would have a higher burn probability and a higher potential for an ignition to escape.

Transmission line maintenance activities would include the periodic use of vehicles and presence of personnel for line inspections, and could also include the use of heavy equipment for conductor repairs or replacement. These activities would be far less intensive than construction activities; however, they would recur periodically over the facility's life, supplying an ongoing source of ignitions.

The risk of a construction- or maintenance-related ignition in these firesheds is extremely high. Even a very small increase in wildfire ignitions during normal and extreme weather can have enormously damaging consequences in these firesheds. The impact of construction and maintenance activities on the potential for a wildfire to have damaging consequences to the community, firefighter health and safety, and natural resources is potentially significant (Class I). This risk of ignition during normal and extreme weather and the risk of damage to structures can be reduced through the implementation of APMs F-1a, F-1c and F-1d. The full text of these APMs can be found in Attachment 5 (Applicant Proposed Measures).

Impact F-2: Presence of the overhead transmission line would significantly increase the probability of wildfire (Class I).

The presence of the overhead transmission line would create an ongoing source of potential wildfire ignitions over the facility's life. Line faults can be caused by such unpredictable events as conductor contact by floating debris, gun shots, and helicopter collisions. This impact is potentially significant (Class I) because certain ignition sources are unavoidable. Due to the potential for unavoidable ignitions, the presence of transmission facilities could increase the likelihood of a catastrophic wildfire (Class I). The risk of ignitions and the risk of damage can be reduced through implementation of APM F-2a. The full text of this APM can be found in Attachment 5 (Applicant Proposed Measures).

Impact F-3: Presence of the overhead line would reduce the effectiveness of firefighting (Class I).

Aerial and ground-based firefighting efforts would be compromised by the introduction of an overhead transmission line due to the introduction of various hazards, including increasing the risk of transmission line contact by aircraft or water buckets, creating indefensible landscapes, and obstructing historical fire containment boundaries.

Within the TE/VS Interconnect alignment, a potential conflict area is located between MPs 2-4. The conflict area is located in a high fire risk area with heavy fuels and homes at risk. The nearby roads and moderate topography indicate that the conflicts exist in defensible landscapes where firefighting resources would be able to access and suppress a fire if there were no obstacles present. However, effective wildfire containment in these areas could be obstructed by the presence of the overhead transmission line.

The outcome of not fighting a wildfire in an otherwise defensible landscape under favorable weather conditions is that it is able to build in size and intensity unchecked by firefighters who are forced to wait until the fire passes through the area. Delays in containment allow for rapid fire perimeter

growth. With the increase in the fire perimeter comes the potential for wind-blown embers to ignite spot fires ahead of the fire front, which further complicates fire suppression activities.

The creation of wildfire containment conflict areas is considered a potentially significant impact (Class I). This impact is partially mitigable by creating fuelbreaks in the very high conflict areas to reduce wildfire intensity and rate of spread through these critical areas, which serves to increase the chance of success in containment efforts. New firebreaks within the CNF have not been authorized by the Forest Service. As a result, this impact remains significant and unmitigated.

Impact F-4: Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread (Class II).

TE/VS Interconnect activities create the potential for the introduction and spread of non-native, invasive plants. Non-native plants are often spread by human and vehicle vectors in areas of large-scale soil disturbance and importation. These actions along with the opening of the vegetation canopy through the clearing of trees and shrubs involved with the construction and maintenance of transmission facilities will contribute to the introduction and proliferation of non-native, invasive plants.

Certain invasive plants can contribute to changes in wildfire frequency, timing and spread (Cal-IPC, 2007). In addition, non-native grasslands have a "spotting" effect during a wildfire, where embers from these grasslands are blown ahead of the fire line, contributing to an increased rate of fire spread. Invasive annual grasses also influence fire spread by creating a fine fuel continuum between patchy, perennial shrubs allowing wildfires to expand further into otherwise sparsely vegetated wildlands (USGS, 2007).

The introduction and spread of specific invasive plants within the TE/VS Interconnect right-of-way could adversely influence fire behavior by increasing the fuel load, fire frequency and fire spread. The introduction of non-native plants with an increased ignition potential and rate of wildfire spread is a potentially significant impact but would be mitigable to a less-than-significant level through the implementation of APM B-3a. The full text of this APM can be found in Attachment 5 (Applicant Proposed Measures).

5.16.2 LEAPS – Fuels and Fire Management Impacts

Certain LEAPS facilities are located in the National Forest, with the Lake Elsinore Fireshed. The predominant identified cause of ignitions in this fireshed is equipment use (19 percent), reflecting the high level of residential development in the area. According to the 50-year wildfire history, an average of 22 percent or 21,873 acres burned per decade in the Lake Elsinore Fireshed, with the 1980 Indian Fire burning the largest area (26,367 acres). The Santa Ana winds create severe to extreme fire weather in this fireshed from early fall through spring.

Table 5.16.2-1 (LEAPS – Fire and Fuel Impacts) summarizes the potential fire and fuel impacts of LEAPS.

Table 5.16.2-1. LEAPS – Fuels and Fire Management Impacts

Impact	Description	Significance
F-1	Construction and/or maintenance activities would significantly increase the probability of a wildfire.	I
F-4	Project activities would introduce non-native plants which would contribute to an increased ignition potential and rate of fire spread.	II

Source: The Nevada Hydro Company, Inc.

Impact F-1: Construction and/or maintenance activities would significantly increase the probability of wildfire (Class I).

LEAPS construction activities would include, but not be limited to, the use of heavy equipment for pre-construction vegetation removal, site grading, and excavation. Additional heavy equipment, vehicles, and tools would be used for the construction of staging areas and access roads. The use of construction equipment and personnel introduces the potential for a variety of wildfire ignition sources to surrounding vegetation fuels or combustible materials associated with construction. For the construction of the Decker Canyon Reservoir, drilling and blasting may be required. The equipment and dynamite used are also potential ignition sources. Construction-related ignitions at LEAPS facilities in the Lake Elsinore Fireshed have the potential to escape initial attack containment and become catastrophic fires. The areas with heavy fire fuels, steep topography, and exposure to Santa Ana winds would have a higher burn probability and a higher potential for an ignition to escape.

Construction activities in the Lake Elsinore Fireshed could ignite a wildfire and result in impacts to communities and natural resources. Adjacent to LEAPS facilities are residential are surrounded by fuel-laden wildlands. Due to the high population density in the Interface WUI along Lake Elsinore, wildfires have an extremely high potential to have devastating effects on adjacent developments, placing more assets at risk.

Facility maintenance activities would include the periodic use of vehicles and presence of personnel for inspections and could also include the use of heavy equipment for repairs. These activities would be far less intensive than construction activities; however, they would recur periodically over the facility's life, supplying an ongoing source of ignitions.

The LEAPS Powerhouse, aboveground structures, and all other associated structures must have defensible space cleared of all flammable vegetation in accordance with Section 4291 (Reduction of Fire Hazards around Buildings) of the Public Resources Code. However, the high-risk construction activities pose a significant risk of wildfire ignition in this extremely high fire risk environment. This is a potentially significant impact than likely cannot be reduced to a less-than-significant level (Class I). This impact is partially mitigable through compliance with FERC/USFS permit requirements and the implementation of APMs F-1c and F-1d. The full text of this APM can be found in Attachment 5 (Applicant Proposed Measures).

Impact F-4: Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread (Class IV).

The construction and maintenance activities associated with LEAPS create the potential for the introduction and spread of non-native, invasive plants. Non-native plants are often spread by human and vehicle vectors in areas of large-scale soil disturbance and importation. These actions

along with the opening of the vegetation canopy through the clearing of trees and shrubs involved with the construction and maintenance will contribute to the introduction and proliferation of non-native, invasive plants. Certain invasive plants can contribute to changes in wildfire frequency, timing and spread (Cal-IPC, 2007). In addition, non-native grasslands have a "spotting" effect during a wildfire, where embers from these grasslands are blown ahead of the fire line, contributing to an increased rate of fire spread. Invasive annual grasses also influence fire spread by creating a fine fuel continuum between patchy, perennial shrubs allowing wildfires to expand further into otherwise sparsely vegetated wildlands (USGS, 2007). The introduction and spread of specific invasive plants will adversely influence fire behavior by increasing the fuel load, fire frequency, and fire spread.

The introduction of non-native plants with an increased ignition potential and rate of wildfire spread is a potentially significant impact but would be mitigable to a less-than-significant level (Class II) through compliance with FERC/USFS permit requirements and the implementation of APM B-3a. The full text of this APM can be found in Attachment 5 (Applicant Proposed Measures).

5.16.3 Project – Fuels and Fire Management Impacts

Fire and fuel impacts associated with the TE/VS Interconnect are presented in Section 5.16.1. Fire and fuel impacts from LEAPS are presented in Section 5.16.2. The cumulative fire and fuel impacts resulting from the implementation of the Project (inclusive of both transmission and generation) would be similar to the combined effects presented in those two preceding sections.

5.17 Cumulative Analysis

An analysis of cumulative impacts from the Project requires an analysis of other projects proximate in space and time which themselves would have impacts on the Project and its vicinity. A description of such related projects is presented in Attachment 6. The following cumulative impacts have been identified based on a comparative analysis of the Project and the related projects listed in Attachment 6.

5.17.1 Geographic Scope

The geographic area potentially impacted by a proposed action likely varies with the nature of the proposed action, the severity of the environmental effect, the resource considered, and the environment affected. Similarly, in the context of cumulative environmental effects, when the effects of the proposed action are considered in combination with those of other past, present, and reasonably foreseeable future projects, the geographic extent of the potentially affected environment may also vary. The general geographic area potentially impacted by the environmental effects of the Project can be used to define the boundaries of the area considered in the assessment of potential cumulative impacts.

For the purpose of this PEA, presented in Table 5.17.1-1 (Generalized Geographic Scope of Cumulative Impacts) is the general geographic area associated with the different resources addressed herein. Although each of the related projects will continue to produce impacts attributable to those projects, the geographic area of those impacts may be so removed from the

proposed projects as not to produce a potentially significant cumulative environmental effect. With regard to each of the resources examined in this PEA, the potential inventory of related projects is based on the corresponding geographic area defining the possibility of materially contributing to a significant cumulative impact.

Table 5.17.1-1. Generalized Geographic Scope of Cumulative Impacts

Resource	Geographic Area
Visual Resources	Local
Agricultural Resources	Regional
Air Quality	Regional (air basin) and local
Biological Resources	Regional (ecoregion) and local
Cultural Resources	Local
Geology, Soils, and Seismicity	Local
Public Health and Safety	Local
Water Resources	Regional (watershed) and local
Land Use and Planning	Regional and local
Mineral Resources	Regional
Noise	Local
Socioeconomics	Regional and local
Public Services and Utilities	Local
Wilderness and Recreation	Local
Transportation and Traffic	Regional and local

Source: The Nevada Hydro Company, Inc.

5.17.2 Cumulative Impacts

Visual Resources

As development occurs, the character of the area experiencing that development also changes. Open space areas and areas exhibiting a rural character become urbanized and suburbanized. The diminution in the regional inventory of available vacant and natural lands constitutes the continuation of historic development patterns and not a substantial departure from those trends.

County and local governmental land-use entities formulate long-range planning documents with the intent of directing development and redevelopment activities to those areas most conducive to growth, based on a variety of planning considerations. Separate formal planning and environmental review processes exist when a development proposal seeks to modify those adopted long-range plans. No development is authorized to occur in the absence of compliance with adopted agency plans and policies. Compliance with and conformity to adopted plans and policies helps to mitigate the potential cumulative impacts produced by the visual changes to existing landscapes associated with future development and redevelopment activities. As a result, while the further intensification of the region may constitute an adverse impact, the incremental and inevitable changes resulting from those activities would not be deemed a significant, cumulative impact on the region's existing visual resources (Class III).

Agricultural Resources (Cumulatively Significant)

Continued urbanization of the southern California region will result in the continuing conversion of Prime Farmland, Unique Farmland, and Farmland of Statewide Importance to urban uses. As reported, California has 100 million acres of land, split almost evenly between public and private ownership. About one-half of the private land is used for agriculture (27 million acres) and about one-third of the public land is in grazing allotments (16 million acres). About 43 million acres of the State's lands are in agriculture, compared to about 5.5 million acres in urban use. On average, between 1988 and 1998, 49,700 acres of farmland in California was converted annually to non-farm use. In comparison, the National Resources Conservation Service which reports that, between 1992 and 1997, the State's "developed acres" increased at a rate of about 112,000 acres per year.

It is projected that the "best cropland is more likely to be converted to urban uses." Between 1988 and 1998, although representing only about 18 percent of the State's total agricultural land, prime cropland accounted for about 30 percent of farmland acres that were converted. Although representing only 25 percent of the State's agricultural land base, other cropland constituted 36 percent of conversions. In contrast, grazing acreage accounted for 34 percent of converted acres but constituted 57 percent of the agricultural land base. While grazing land is generally more remote, prime farmlands are more generally more suitability for development and proximity to existing development.

It is, therefore, evident that areawide development is resulting and will continue to result in the conversion of designated Farmland, as shown on the FMMP maps, to non-agricultural use. It is noted that: "Farmland conversion is a serious issue in California. The evidence shows that its effects are more long-term than immediate, more visible in particular localities than Statewide, and involve more than direct agriculture-to-urban change. In the future, more land may be taken out of production because of limited water supply and for habitat restoration than because of urban expansion." Additional Statewide policies and local land-use planning efforts are needed to prevent the loss of additional Farmlands. Since those efforts cannot be readily implemented at the project level, there likely does not exist any feasible mitigation measures that would reduce cumulative impacts upon agricultural resources to a less-than-significant level (Class I).

Air Quality (Cumulatively Significant)

The SCAB is classified by the USEPA as an extreme non-attainment area for ozone (1-hour), severe non-attainment area for ozone (8-hour), serious non-attainment area for CO and PM_{10}, and a non-attainment area for $PM_{2.5}$. The SCAB is classified by the State as non-attainment for ozone (1-hour), extreme non-attainment for ozone (8-hour), and non-attainment for $PM_{2.5}$ and PM_{10}. Similarly, the SDAB is classified by the EPA and non-attainment for ozone (8-hour) and classified by the State as non-attainment for ozone (1-hour and 8-hour), and for $PM_{2.5}$ and PM_{10}.

Construction and operation of other related projects would further degrade the air quality of the SCAB and SDAB. As a result of the generation of emissions associated with the use of construction equipment and fugitive dust associated with ground-disturbing activities, air quality would be locally degraded during construction activities. The greatest cumulative impact on air quality would, however, be the result of the incremental addition of mobile source pollutants

from increased traffic from residential, commercial, and industrial development associated not only with other related projects but also from anticipated areawide development. Areawide mitigation will primarily come from the implementation of traffic demand management (TDM), transportation system management (TSM) and other regional air quality strategies.

Based on the non-attainment status of the SCAB and SDAB and the absence of feasible mitigation measures that can be implemented at the project level to substantially reduce mobile source emissions, cumulative air quality impacts likely constitute a significant unmitigable environmental effect (Class I).

Biological Resources (Cumulatively Significant)

As indicated in SCAG's "Regional Comprehensive Plan and Guide": "Much of Southern California's biological diversity has been lost during the past several decades. Future development necessitated by the predicted growth in the region will place demands on the remaining resources." SCAG further notes: "Southern California ecosystems, mostly those on the lower elevations and gentle slopes of urbanizing areas, are shrinking, becoming fragmented, and not being managed to the point that many are in danger of serious dysfunction and hundreds of plant and animal species have become candidates for listing under the Endangered Species Acts. The potential for more species to be listed will continue to increase as more lands get converted to urban development. Non-native plants and animals are invading many sensitive habitats and are displacing native species."

This incremental reduction contributes to the progressive fragmentation of habitat areas and decline in species diversity throughout southern California. Existing undeveloped properties containing native habitat areas, therefore, take on increased importance relative to their role in sustaining viable plant and wildlife communities and providing wildlife corridors for those remaining animal species indigenous to the southern California area. From a long-term, regional or subregional context, the continuing urbanization will adversely and significantly impact the area's existing biological resources.

Project implementation, in combination with other reasonably foreseeable future projects, will contribute incrementally to the continuing reduction in relatively natural, undisturbed open space areas found throughout southern California. Since each related project is subject to independent environmental review, to the extent those related projects are determined by the corresponding permit entity to produce adverse impacts on existing biological resources, there exists a reasonable expectation that related project-specific mitigation measures would be imposed by that entity to reduce those biological resource effects to the maximum extent feasible. Notwithstanding those efforts, the long-term, areawide loss of biological resources attributable to future development will produce a significant cumulative impact on those resources that are affected and result in added stress to those resources that remain.

Although deemed to be significant, there exist no feasible mitigation measures that can be implemented to effectively address this cumulative impact other than through the imposition of additional regional growth management and/or resource conservation policies (Class I).

Cultural and Paleontological Resources

All related project activities remain subject to site-specific environmental review and must fully conform to and comply with all applicable local, State, and federal requirements. Compliance with those requirements will ensure that all related project-specific and cumulative impacts upon prehistoric and historic resources are mitigated to a less-than-significance level (Class III).

Geology, Soils, and Seismicity

Geotechnical impacts are generally site specific and project specific in nature. Project implementation would, therefore, not result in any significant cumulative geotechnical impacts affecting or potentially affecting other off-site areas. Similarly, implementation of other related projects would neither result in any further project-related geotechnical impacts nor increase the severity of any identified impacts.

Adequate control measures have been formulated by State and local governmental entities to ensure that all public and private structures are constructed and maintained in recognition of site-specific, area-specific, and regional geologic, geotechnical, seismic, and soils conditions. Compliance with applicable UBC standards and associated permit-agency requirements will mitigate potential cumulative impacts to below a level of significance (Class III).

Public Health and Safety

Hazards and hazardous material impacts are generally localized (site-specific) to the area of each identified hazard and/or material. Compliance with regulatory requirements will ensure that known and project-related hazards are avoided or reduced to the maximum extent feasible, that workers and the public operate in a relatively safe environment, and hazardous materials are properly handling and storage during the construction and operation of the Project and other related projects. As such, cumulative hazard and hazardous materials impacts would be less than significant (Class III).

Hydrology and Water Quality

Adequate design and development control measures, including design specifications and associated BMPs, have been formulated by and are implemented by the Counties of Riverside and San Diego to ensure that all public and private drainage facilities and structures are constructed and maintained in recognition of applicable project-related and cumulative hydrologic conditions and drainage flows. Other related projects within affected watersheds will be required to provide an appropriate site-specific response to any storm water impacts attributable to those activities.

Additionally, all related projects are subject to compliance with the narrative and quantitative water quality objectives, antidegradation, and beneficial use provisions specified in the SARWQCB Basin Plan and SDRWQCB Basin Plan. The Project and other related projects are further subject to the "General Permit for Stormwater Discharges Associated with Construction Activities" and to other applicable NPDES permits, including the waste discharge requirements for urban runoff specified therein.

Compliance with Riverside County Flood Control and Water Conservation District and County of San Diego Department of Public Works standards, ordinance, specification, and requirements will reduce potential cumulative drainage impacts to a less-than-significant level (Class III).

Land Use and Planning

As indicated in SCAG's "Regional Comprehensive Plan and Guide" and SANDAG's "Regional Comprehensive Plan: Establishing a Baseline for Monitoring Performance," the southern California region will continuing to undergo rapid urbanization in response to regional growth. The Project, in combination with other related projects, is characteristic of the development activities predicted and addressed therein.

In order for development to proceed, each respective permitting entity will need to affirmatively determine that the proposed action before them complies with existing statutory and regulatory requirements, as well as with agency plans, policies, standards, and guidelines. Where deviations exist, applicants can request that agency plans be modified to accommodate individual development requests and/or development requests can be modified to better respond to existing agency plans. Development cannot proceed in the absence of a conformity determination. As a result, although these activities will transform their respective sites, these activities will not result in any cumulative land use impacts (Class III).

Mineral Resources

Construction and construction products involves the use of and reasonable access to mineral resources. Project implementation, in combination with other related projects, will, therefore, impose additional demands on mineral resources, including construction aggregate. Under CEQA, agencies are required to mitigate the significant impacts of their discretionary actions. To the extent that areas subject to development review contain know mineral resources, each related project's impacts upon those resources would need to be considered by the permitting agency.

Both SANDAG's "Final Program Environmental Impact Report for the Regional Comprehensive Plan for the San Diego Region, SCH No. 2004011141" and the County of Riverside's "Final Program Environmental Impact Report, Riverside County General Plan Update, EIR No. 441, State Clearinghouse No. 2002051143" have concluded that projected development anticipated throughout San Diego and Riverside Counties will not result in a significant environmental effect upon mineral resources. Cumulative impacts upon mineral resources attributable to those related projects identified herein would, therefore, not be significant (Class III).

Noise

Noise is generally defined as loud, unpleasant, unexpected, or undesired sound that disrupts or interferes with normal human activities. Although exposure to high noise levels over an extended period has been demonstrated to cause hearing loss, the principal human response to environmental noise is annoyance. The response of individuals to similar noise events is diverse and influenced by the type of noise, the perceived importance of the noise, and its appropriateness in the setting, the time of day, the type of activity during which the noise occurs, and the sensitivity of the individual.

During the Project's construction, construction noise will be audible beyond the facilities' boundaries at along local streets used to transports materials and equipment. Noise impacts are generally localized, limited to the area near the source, and decrease as the distance between source and receptor increases. This phenomenon is known as "spreading loss" or "atmospheric attenuation." Because of the logarithmic nature of the decibel (dB) unit, sound levels cannot be added or subtracted directly. The combined effect of several equipment types operating simulataneously is not represented by the sum of the individual noise levels but is calculated based on the logarithmic sale of decibels. If a sound's intensity is doubled, such as associated with a doubling of traffic volumes along a street segment, the sound level increases by only 3 dB, regardless of the initial sound level.

Related projects will contribute to the noise environment in proximity to those projects and along those roadways impacted by construction and operational traffic. Only those related projects located in close proximity to the Project, however, have the potential to cumulatively contribute to noise attributable to the Project. Because most of the related projects are not located near the Project, the combined effects of the Project and other related projects would not be anticipated to be cumulatively significant (Class III).

Socioeconomics

As described in Section 5.18 (Growth-Inducing Impacts), the Project is not, in and of itself, growth inducing. For the same reasons as associated with the Project, other related energy facilities would not result in a significant growth-inducing impact. Additionally, neither the related projects nor other areawide development would be anticipated to displace a substantial number of people and/or existing housing units, necessitate the construction or replacement housing.

A number of nearby development projects have been identified, including the "Alberhill Ranch Specific Plan," "Alberhill Ranch Country Club Specific Plan," "East Lake Specific Plan," "La Laguna Estates Specific Plan," "Sycamore Creek Specific Plan," and Tract Map Nos. 22626. Each of those projects is subject to local approval. The approving land-use entity must made an affirmative finding that each related project is consistent with the local agency's general plan. Local general plans are used by regional planning entities as the bases upon growth projections are derived. Although a substantial number of new housing units will be added to the area's housing inventory and a substantial number of new residents will be added to the general area, that increase would not be expected to exceed areawide growth projections. As such, cumulative socioeconomic impacts would not be significant (Class III).

Wilderness and Recreation

The Project will produce a short-term impact upon existing recreational resources (e.g., temporary boating and hang gliding restrictions). Upon completion of construction, as stipulated, new recreational facilities will be provided within NFS lands and within the County of Riverside and/or City of Lake Elsinore. Operationally, LEAPS will have a substantial beneficial impact with regards to local recreational opportunities. Although the TE/VS Interconnect does not have a recreational component, as a result of the undergrounding of a section of the transmission lines, it will not have a substantial adverse recreational impact.

In accordance with Quimby Act requirements, other development projects in close proximity to the Project is required to dedicate real property for recreational purposes and/or convey in-lieu fees. Compliance with those requirements ensures or provides a mechanism for local entities to expand local recreational opportunities in a manner and in locations consistent with agency standards. Since available recreational facilities will be provided in response to locally identified need, cumulative impacts upon recreational facilities will be less than significant (Class III).

Transportation and Traffic

Traffic impacts associated with the Project will primarily be limited to the construction period. During construction, additional traffic, including heavy trucks, will be added to both streets in reasonable proximity to each facility site and to the regional arterial highway system. Construction impacts are short-term in duration and cease upon commencement of operations.

Where authorized, temporary and/or permanent access roads will be constructed within the CNF to provide access to certain tower sites. Helicopters will be utilized for both construction and maintenance activities in remote areas inaccessible to vehicles. Some material and equipment will be transported to the general area on trains, including the use of the Camp Pendleton railspur. Once operational, only minimal employee and maintenance-related traffic will be associated with the Project.

Other energy-related projects will generate construction traffic in vicinity of each project but would not be anticipated to produce substantive operational traffic. Each of the non-energy projects are subject to compliance with local agency traffic standards, specifying a minimally acceptable level of service (LOS). When LOS conditions deteriorate to below acceptable standards, the permitting land-use entity requires such street improvements (or in-lieu fees) as may be required to return affected intersections and street segments to acceptable levels. As such, cumulative traffic impacts would be less than significant (Class III).

Public Services and Utilities

Although not required for the construction or operation of the LEAPS, the Applicant has included a number of potable water system upgrades to improve water supplies, services, and emergency storage capacity. The Projects are not dependent upon those water improvements.

Waters required for the operation of LEAPS will be primarily obtained from Island wells and from tertiary treated effluent produced by the EVMWD and/or by other water districts operating in the general area. The availability of sufficient existing non-potable water resources, as may be required for the Project's operation, has been suitably documented. In addition, non-potable water resources will increase over time as the region continues to develop.

As indicated in their respective urban water management plans, each of the area's water purveyors (e.g., MWD, WMWD, EVMWD, EMWD) identify sufficient water availability to accommodate each agency's long-range water supply needs. Other related projects undertaken within the jurisdiction of those agencies will need to independently demonstrate the sufficiency of water supplies and adequacy of delivery systems. Individual development projects cannot be

approved unless water services can be suitably demonstrated. As such, cumulative utility and service system impacts would be less than significant (Class III).

Fire and Fuel Management

Wildfire hazards exist in those urban-interface areas located throughout the general area. Continued regional growth and changing climatic conditions suggest that those hazards will increase in the future as more people elect to reside in proximity to "very high hazard severity zones" and recreation in areas susceptible to wildland fires conditions. As indicated in the "California Fire Plan": "Risk of wildfire to life, property, natural resources, and firefighter safety is increasing. Population will grow and more people will live and use wildland areas, especially in the Central Sierra and in the southern California Counties of Riverside, San Bernardino, and San Diego. Topography and climate support ecosystems where large wildfires can be expected. Drought and fuel moisture conditions will be unpredictable but almost always dangerous in the fire season. More structures will be constructed in areas that are very susceptible to wildfires."

As indicated by the Forest Service, "88 percent of the vegetation on the Cleveland National Forest is chaparral. Chaparral areas are dynamic plant communities characterized by relatively frequent wildfires. Many plant communities found in chaparral are dependent on fire to maintain their productivity and diversity." As such, wildfires in the CNF are both likely to be inevitable and their occurrence serves an important biological function.

Issuance of a special use permit (SUP) by the Forest Service for the proposed use is subject to a determination that the "proposed use will not pose a serious or substantial risk to public health or safety" (36 CFR Part 251[e][iii]). If the Forest Service is unable to make that determination, requisite permits and approvals from the Forest Service will not be granted and the Project will not be constructed.

If effectively mitigated at the project level, other related projects would also not be expected to produce or substantively contribute to the potential for wildfire occurrence. Permit review and enforcement by local fire agencies will ensure compliance with applicable Fire Code and related standards formulated for fire safety. In addition, local, State, and federal agencies have the ability and responsibility to increase annual budgetary allocations in response to identified needs. As such, if the need for additional public services is identified, mechanisms are in place to effectively respond to those needs. Cumulative impacts on public services and utilities would, therefore, be less than significant (Class III).

5.18. Growth-Inducing Impacts

The documented need for new transmission and new generation already exists within the general area and is neither created nor further exacerbated by the Project. The need exists, independent of the Project, based on reasonably foreseeable population growth, economic expansion, and increasing per capita energy consumption. If the need for those facilities were not to exist, in the absence of an established and energy-hungry marketplace, the Project could not be feasibly financed and, thus would not be developed. If the Project was not to be developed, none of the impacts attributable to its construction, operation, and maintenance would materialize.

A substantial portion of the County's economy is driven by construction activities and by the construction trades. As a result, a substantial construction labor pool now exists within the general area. In addition, a large portion of the County's historic growth is attributable to the in-migration of individuals and families who already reside within the larger SCAG region but elect to relocate to Riverside County (and the Inland Empire) based on such factors as comparable housing costs and historic growth in the area's employment opportunities. Based on Statewide averages, an estimated six percent of those new residents are already in the construction industry. In Riverside County, an estimated 12 percent of the County's labor force is in the construction industry. Construction unions are active throughout Riverside and San Diego Counties and provide employment and training opportunities within each of the requisite area of specialization.

During the construction period, it can, therefore, be concluded that no significant number of workers would need to in-migrate to the area merely as a result of the Project. The existing areawide work force is generally sufficient to accommodate the Project's construction-related needs. A limited number of specialty construction contractors (e.g., earth boring machine operators and support personnel) may, however, relocate to the general area from elsewhere. A substantial portion of any in-migration would be associated with workers already within the SCAG region.

Once operational, overall projects-related employment demands will diminish substantially. Of the majority of the twenty individuals required to operate and maintain the Project, with the exception of management personnel the associated experience and skill level required for the Project's ongoing operations is readily available for the area's existing and projected labor force.

The precise number of individuals in-migrating to the area cannot be reasonably predicted but would be expected to be so small, particularly in the context of existing domestic and international in-migration into the County, as not to produce a significant localized impact.

Job growth in the Inland Empire has not kept pace with housing. Because of the relatively lower cost of housing and high single-family housing production, there has been a worsening of traffic congestion and longer commutes to jobs in Orange and Los Angeles Counties for residents of the Inland Empire. This has contributed to a jobs/housing imbalance. Projects that promote the attainment of the regional jobs-housing balance would conform to regional plans and serve to promote the attainment of regional goals.

The CEC notes: "In general, power plants do not, in and of themselves, induce growth in the area where they are built. This is because the electricity generated by a power plant is usually sold and dispersed into a broad regional market consisting of numerous states and parts of Canada and Mexico. Thus, the additional generation usually has no effect on local electricity supply." As such, the potential growth-inducing impact are "too speculative for evaluation because it is impossible to predict exactly where the electricity will go." (CEC, 2000).