ATTACHMENT 1

CPUC CEQA Findings of Fact

Regarding the Final Environmental Impact Report for the
Tehachapi Renewable Transmission Project
State Clearinghouse #2007081156

I. Project Background

The California Public Utilities Commission (CPUC) is approving a Certificate of Public Convenience and Necessity[1] (CPCN) for the Tehachapi Renewable Transmission Project (TRTP) proposed by Southern California Edison (SCE). Specifically, the CPUC is approving the CPCN for the alternative identified in the Final Environmental Impact Report (EIR) as the "Environmentally Superior Alternative." This alternative is a combination of "SCE's Proposed Project" (Alternative 2), with minor re-routes and variations in construction methods imposed as part of the "West Lancaster Alternative" (Alternative 3), "Maximum Helicopter Construction in the ANF Alternative" (Alternative 6), and the "66-kV Subtransmission Alternative" (Alternative 7). The CPUC has selected this route because it is the least environmentally damaging alignment.

I.1 Project Description

On June 29, 2007, Southern California Edison (SCE) filed with the United States Department of Agriculture (USDA) Forest Service an application for a Special Use authorization, seeking permission for construction, operation, and maintenance of the Project on National Forest System (NFS) lands in the Angeles National Forest (ANF). Also on June 29, 2007, SCE submitted Application No. A.07-06-031 to the CPUC for a Certificate of Public Convenience and Necessity (CPCN). With the CPCN application, SCE also submitted its Proponent's Environmental Assessment (PEA) for the proposed Project (Alternative 2).

SCE is authorized to construct a series of new and upgraded electric transmission lines and substations to deliver electricity from Kern County, California, to the greater Los Angeles Basin. Collectively, the transmission line and system modifications are known as the Tehachapi Renewable Transmission Project (TRTP or Project). The entire Project will involve new and upgraded transmission infrastructure along approximately 173 miles from the Tehachapi Wind Resources Area (TWRA) in southern Kern County south through Los Angeles County and the Angeles National Forest (ANF) and east to the existing Mira Loma Substation in Ontario, San Bernardino County, California.

Below is an overview of the alternatives considered as part of the Final EIR. Pursuant to CEQA (Section 15126.6(a)) a reasonable range of alternatives to SCE's Proposed Project (Alternative 2) were examined and were selected based on the following criteria: (1) the alternative's potential to meet most of the Project objectives/purpose and need, (2) the feasibility of the alternative, (3) the alternative's ability to avoid or lessen adverse effects of SCE's Proposed Project, and (4) the alternative's ability to meet California Independent System Operator (CAISO), Western Electricity Coordinating Council (WECC), and North American Electric Reliability Corporation (NERC) reliability planning criteria. As required under CEQA Section 15126.6(e) a No Project/Action alternative was also considered. The alternatives considered include the following:

[1] The CPUC is charged with regulating privately owned utility infrastructure. As set forth in the California Public Utilities Code, no investor-owned utility may construct or expand a transmission line or generating facility without obtaining a CPCN from the CPUC (PUC Sections 1001 to 1013; 1091 to 1102).

Alternative 1: No Project/Action Alternative. Under the No Project/Action Alternative, the Project would not be implemented. As such, none of the associated Project activities would occur and the environmental impacts associated specifically with the Project would not occur. However, in the absence of the Project, SCE still would continue to operate and maintain the existing transmission structures, access, and spur roads for operations and maintenance purposes under a variety of agreements (landowners) and permits (Forest Service and USACE). SCE would also be required to interconnect and integrate power generation facilities into its electric system, as required under Sections 210 and 212 of the Federal Power Act (16 U.S.C. § 824 [i] and [k]) and Sections 3.2 and 5.7 of the CAISO's Tariff. Various scenarios related to electricity generation and transmission reasonably expected to occur in the foreseeable future are identified in Chapter 2 (Description of Alternatives) of the Final EIR.

Alternative 2: SCE's Proposed Project. SCE's Proposed Project would involve construction, operation, and maintenance of new/ upgraded transmission infrastructure along approximately 173 miles of existing and new/expanded ROW from the TWRA in southern Kern County south through Los Angeles County and the ANF and east to the existing Mira Loma Substation in Ontario, San Bernardino County, California. The major components of this alternative include seven segments of new/upgraded transmission line (Segments 4, 5, 6, 7, 8A/B/C, 10, and 11) and new/ upgraded substations (Segment 9). SCE's Proposed Project would traverse approximately 42 miles of NFS lands in the ANF and approximately 6.4 miles of lands that are owned by the USACE.

Alternative 3: West Lancaster Alternative. This alternative would re-route the new 500-kV transmission line in Segment 4, which SCE originally proposed along 110th Street West, 0.5 miles farther west along 115th Street West. This alternative represents a refinement of SCE's Proposed Project that would place the transmission line along an undeveloped area instead of through development thereby minimizing disturbance to current residences or access to properties located along the paved 110th Street West. As such, land use impacts and visual impacts would be reduced.

Alternative 4: Chino Hills Alternatives. Five variations to the Chino Hills State Park alternatives considered by SCE in its PEA (RA Eliminated 6, Options 1 and 2) were considered as part of the Final EIR. Each of these routing options would avoid proximity of the transmission line to existing residences of the City of Chino Hills, would eliminate construction of approximately 16 miles of 500-kV structures along Segment 8A between S8A MP 19.2 and 35.2 (Mira Loma Substation). Upgrades along Segment 8B would still occur under Alternative 4, same as the proposed Project (Alternative 2).

- **Route A** would place a new double-circuit 500-kV transmission line in Segment 8A through Chino Hills State Park (CHSP) parallel to an existing double-circuit 220-kV transmission line. This alternative route would require construction of a new 500-kV switching station in CHSP, which would allow the new 500-kV transmission line to connect to existing 500-kV transmission lines located in this area that provide connections to the Mira Loma Substation.
- **Route B** represents a refinement to Route A, in which a new double-circuit 500-kV transmission line in Segment 8A would be routed completely through CHSP parallel to an existing double-circuit 220-kV transmission line. This alternative route would require construction of a new 500-kV switching station, which would be located east of and outside of the CHSP, and would allow the new double-circuit 500-kV transmission line to connect to existing 500-kV transmission lines located in this area that provide connections to the Mira Loma Substation.
- **Route C** represents a refinement to Route A, in which a new double-circuit 500-kV transmission line in Segment 8A would be placed parallel to an existing double-circuit 220-kV transmission line up to CHSP. At this point, this alternative route would turn east for approximately 2.4 miles, remaining just north of the CHSP boundary, to a new 500-kV switching station. A portion of the existing single-

circuit 500-kV transmission lines within CHSP would be re-routed to tie into the new switching station, which would allow the new double-circuit 500-kV transmission line to connect to these existing 500-kV transmission lines to allow power flow to continue on to the Mira Loma Substation. In addition, a portion of the existing 220-kV transmission line within CHSP would be re-routed outside of CHSP, paralleling the new 500-kV transmission line from just west of the CHSP boundary to the new switching station, and would then re-enter CHSP paralleling the re-routed 500-kV transmission lines to reconnect with the existing 220-kV transmission line.

- **Route C Modified** is similar to the original Route C option discussed above, with the exceptions that (1) the new gas-insulated switching station would be located on Aerojet property approximately 2,500 feet northwest of the location proposed for the original Alternative 4C, (2) transmission line configurations and access roads would be altered to account for relocation of the switching station, and (3) re-routing of the existing single-circuit 500-kV towers in CHSP to the new switching station would occur utilizing double-circuit 500-kV towers. As with the original Route C, this proposed Route 4C Modified would also diverge from the Project Segment 8A at Mile 19.2, as well as re-route the existing 500-kV and 220-kV transmission lines from within CHSP, through a new switching station located north of CHSP.
- **Route D** represents a refinement to Route A, in which a new double-circuit 500-kV transmission line in Segment 8A would be placed parallel to an existing double-circuit 220-kV transmission line up to CHSP. At this point, the alternative route would turn east and proceed to follow the northern boundary of CHSP for approximately 4.2 miles, then just east of Bane Canyon the alignment would turn southeast and cut across CHSP for approximately 1.3 miles to a new 500-kV switching station located immediately east of the boundary of CHSP (same location as Alternative 4, Route B). This switching station would allow the new double-circuit 500-kV transmission line to connect to existing 500-kV transmission lines located in this area to provide connections to the Mira Loma Substation.

Alternative 5: Partial Underground Alternative. This alternative would utilize Gas-Insulated Line (GIL) technology to place the proposed overhead lines underground along Segment 8A through the City of Chino Hills for approximately 3.5 miles to reduce significant visual impacts and address other community concerns.

Alternative 6: Maximum Helicopter Construction in the ANF Alternative. This alternative would utilize helicopter construction within the ANF to the maximum extent feasible. This alternative was requested by the Forest Service to reduce ground disturbance within the ANF by minimizing new road construction through the use of helicopter construction. Helicopter staging/support areas have been identified in the vicinity of Segments 6 and 11 to provide for helicopter construction activities within the ANF. A total of 148 new 500-kV towers would be constructed by helicopter under this alternative: 92 along Segment 6 and 56 along Segment 11.

Alternative 7: 66-kV Subtransmission Alternative. This alternative is comprised of four 66-kV subtransmission line elements, including the following: (1) Undergrounding the existing 66-kV subtransmission line on Segment 7 through the River Commons at the Duck Farm Project (Duck Farm Project) between MP 8.9 and MP 9.9 of Segment 7, in the planned Duck Farm Project area as requested by the Board of Supervisors County of Los Angeles to minimize the Project's effects to passive recreation opportunities in the planned Duck Farm Project area; (2) Re-routing and undergrounding the existing 66-kV subtransmission line around the Whittier Narrows Recreation area along Segment 7 (S7 MP 11.4 to 12.025) to provide habitat enhancement for least Bell's vireos as identified by SCE; (3) Re-routing the existing 66-kV subtransmission line through the Whittier Narrows Recreation Area in Segment 7 (S7 MP 12.0 to 13.6) immediately north of the existing 220-kV ROW to reduce the number of structures required (20-foot expanded ROW required); (4) Re-routing the existing 66-kV subtransmission line around the Whittier

Narrows Recreation Area along Segment 8A between the San Gabriel Junction at MP 2.2 and S8A MP 3.8 (2 routing options are provided in this area) to provide habitat enhancement for least Bell's vireos as identified by SCE. As with the Project, Alternative 7 would traverse 42 miles of NFS lands in the ANF; however, this alternative would also traverse roughly 7.9 miles of lands that are owned by the USACE, which is approximately 1.5 miles more USACE lands than the Project or other Project alternatives.

The Project: Alternatives 2, 3, 6, and 7

The Findings of Fact included herein pertain to the significant effects of the project that the CPUC is approving in its CPCN. As discussed above, the approved Project is a combination of certain alternatives evaluated in the Final EIR, which collectively form the environmentally superior alternative. This combination will henceforth be referred to as "the Project" and includes elements of the following:

- Alternative 2 (SCE's Proposed Project);
- Alternative 3 (West Lancaster);
- Alternative 6 (Maximum Helicopter Construction in the ANF); and
- Alternative 7 (66-kV Subtransmission) within Segment 7 (Duck Farm 66-kV Underground, Whittier Narrows 66-kV Underground Re-Route, and Whittier Narrows 66-kV Overhead Re-Route) and within Segment 8 between S8A MP 2.2 to 3.8 (Whittier Narrows 66-kV Overhead Re-Route – Option 1).

A summary of the components, by segment, for the Project as adopted are provided in the table below. A more detailed description of the segments follows the table.

Summary of Project (Combination of Alternatives 2, 3, 6, and 7) Components
Overall Project Construction
• Proposed construction duration of 59 months (estimated to begin in December 2009 and end in October 2014); however, within Segments 6 and 11, where the need for substantial helicopter construction is required, a longer construction schedule may result due to the limited availability of specialized helicopters and personnel. The schedule for helicopter construction will be finalized as part of final engineering. • Transmission facility construction generally scheduled for Monday through Friday, 7:00 a.m. to 5:00 p.m.; however, if extended hours are necessary, such as 24-hour construction, a variance will be acquired • Substation construction generally scheduled for Monday through Friday, 7:00 a.m. to 5:00 p.m.; however, if extended hours are necessary a variance will be acquired • Workforce ranging in size from 10 to 300 persons, with daily average workforce of approximately 75 persons
Segment 10: New Whirlwind – Windhub 500-kV Transmission Line (T/L)
• Initiates at the approved Windhub Substation (not part of Project) and ends at the new Whirlwind Substation • Construct new approximately 16.8-mile single-circuit Whirlwind – Windhub 500-kV T/L • All proposed permanent infrastructure to be located within new 330-foot-wide ROW (approx. 16.8 miles) • Erect approximately 96 new single-circuit 500-kV lattice steel towers (LSTs) (90-200 feet tall) • Will require approximately 16 new wire setup sites for pulling/tensioner/splicing of conductor wire
Segment 4: Whirlwind 500/220 kV T/L Elements

• Initiates at the proposed Cottonwind Substation (not part of Project) and ends at the existing Antelope Substation
• Construct two new parallel 4.0-mile single-circuit 220-kV T/Ls (Cottonwind – Whirlwind 220-kV No. 1 & No. 2)
• Construct new approximately 16.0-mile single-circuit Vincent – Whirlwind 500-kV T/L (0.4 mile greater than Alt 2)
• All proposed permanent infrastructure to be located within new 200-foot-wide ROW (approx. 20.0 miles total)
• Erect approximately 164 new transmission structures (one less structure compared to Alt 2), including:
  ▪ 88 single-circuit 220-kV LSTs (73-138 feet tall)
  ▪ 76 single-circuit 500-kV LSTs (113-188 feet tall)
• Will require approximately 28 wire setup sites for pulling/tensioner/splicing of conductor wire

Segment 5: Antelope – Vincent No. 2 500-kV T/L

Summary of Project (Combination of Alternatives 2, 3, 6, and 7) Components

- Initiates at the existing Antelope Substation and ends at the existing Vincent Substation
- Remove the existing Antelope – Vincent 220-kV T/L and the existing Antelope – Mesa 220-kV T/L
- Construct new approximately 17.4-mile single-circuit Antelope – Vincent No. 2 500-kV T/L
- Most of the proposed permanent infrastructure (with the exception of side board width requirements of the new cutovers) to be located within existing ROW (approx. 17.4 miles)
- Erect approximately 67 new single-circuit 500-kV LSTs (90-193 feet tall)
- Will require approximately 37 wire setup sites for pulling/tensioner/splicing of conductor wire

Segment 11: New Mesa – Vincent (via Gould) 500/220-kV T/L

- Initiates at the existing Vincent Substation and ends at the existing Mesa Substation
- Remove approximately 4 miles of the existing Pardee – Vincent No. 1 220-kV T/L
- Remove approximately 15 miles of the existing Eagle Rock – Pardee 220-kV T/L
- Construct new approximately 18.7-mile 500-kV single-circuit T/L between Vincent and Gould Substations (initially energized at 220 kV)
- Re-route portions of two existing 220-kV lines into Vincent Substation using currently idle towers.
- String approximately 17.5 miles (approximately 3.3 miles are located on National Forest System [NFS] lands) of new 220-kV conductor on the vacant side of the existing double-circuit structures of the Eagle Rock-Mesa 220-kV T/L (10 existing structures are located on NFS lands)
- Most of the proposed infrastructure will be located within existing ROW; however, the ROW may need to be expanded by up to approximately 250 feet to the west along the approximately 16 miles north of Gould Substation to maintain safe clearances from the edge of the ROW due to wire swing of the new 500-kV T/L under wind loading conditions
- Erect approximately 76 total new transmission structures (59 LSTs on NFS lands), including:
  - 2 single-circuit 220-kV poles (120 feet tall)
  - 7 single-circuit 220-kV LSTs (120-160 feet tall)
  - 67 single-circuit 500-kV LSTs (100-198 feet tall), of which 17 are configured as delta towers (10 on NFS lands)
- Construction of between 16 and 56 structures by helicopter (all on NFS lands), supported by 10 helicopter staging areas (6 on NFS lands)
- Will require approximately 36 wire setup sites for pulling/tensioner/splicing of conductor wire (11 on NFS lands)
- The majority of this segment will be located on NFS lands including: S11 MP 1.5-3.5, 3.75-18.5, 19.25-20.3, 20.8-21.3, 21.8-22.6, 23.05-24.15, and 24.35-24.55 (in-holdings or other non-NFS lands are located between the mileposts listed)

Segment 6: Section of New Replacement Rio Hondo – Vincent No. 2 500-kV T/L (initially energized at 220 kV) and Section of New Mira Loma – Vincent 500-kV T/L

- Initiates at the existing Vincent Substation and ends at the southern boundary of the ANF
- Remove approximately 5 miles of the existing Rio Hondo – Vincent No. 2 220-kV T/L between Vincent Substation and the "crossover" span (S6 MP 5.0)
- Construct new approximately 5-mile single-circuit Mira Loma – Vincent 500-kV T/L from the Vincent Substation to the "crossover" span (S6 MP 5.0)
- Remove approximately 26.9 miles of the existing Antelope – Mesa 220 kV T/L from Vincent Substation to the southern boundary of the ANF
- Construct new approximately 26.9-mile single-circuit Rio Hondo – Vincent No. 2 500-kV T/L (initially energized at 220 kV)
- Eliminate the existing crossing of the Rio Hondo – Vincent No. 2 220-kV T/L over the Antelope – Mesa 220-kV T/L
- All proposed permanent infrastructure to be located within existing ROW (approx. 27 miles)
- Erect approximately 138 total new transmission structures (105 on NFS lands – 99 LSTs and 6 tubular steel poles [TSPs]), including:
  - 2 single-circuit 220-kV LSTs (90-120 feet tall)
  - 26 single-circuit 500-kV TSPs (75-200 feet tall)
  - 106 single-circuit 500-kV LSTs (85-193 feet tall)
  - 4 three-pole dead-end 500-kV structures (75-80 feet tall) [all off NFS lands]
- Construction of between 17 and 92 structures by helicopter (all on NFS lands), supported by 12 helicopter staging areas (11 on NFS lands)
- Will require approximately 19 wire setup sites for pulling/tensioner/splicing of conductor wire (16 on NFS lands – In addition, 5 alternate sites have been identified on NFS lands)
- The majority of this segment will be located on NFS lands including: S6 MP 1.45-1.7, 2.75-5.3, 5.65-6.7, 6.7-6.95, 7.05-24.8 (in-holdings or other non-NFS lands are located between the mileposts listed)

Segment 7: Section of New Replacement Rio Hondo – Vincent No. 2 500-kV T/L (initially energized at 220 kV) and

Summary of Project (Combination of Alternatives 2, 3, 6, and 7) Components

Section of New Mira Loma – Vincent 500-kV T/L

- Initiates at the southern boundary of the ANF and ends at the existing Mesa Substation
- Remove approximately 15.8 miles of the existing Antelope – Mesa 220-kV T/L between the southern boundary of the ANF and the Mesa Substation
- Construct new approximately 15.8-mile 500-kV double-circuit T/L to include the Rio Hondo – Vincent No. 2 500-kV T/L (initially energized at 220 kV) and the new Mira Loma – Vincent 500-kV T/L
- Connect the new Rio Hondo – Vincent No. 2 500-kV T/L (initially energized at 220 kV) into the Rio Hondo Substation
- Relocate several existing 66-kV subtransmission lines between the existing Rio Hondo Substation and the existing Mesa Substation. With incorporation of Alternative 7, this segment includes two short segments of 66-kV underground and a segment of re-routed overhead 66-kV lines, as follows:
  - (1) an approximately 6,000-foot underground segment of 66-kV subtransmission line from S7 MP 8.9 to 9.9 through the Duck Farm Project; and
  - (2) an approximately 3,300-foot re-route of 66-kV subtransmission line, which will be placed underground, beginning at approx. S7 MP 11.4 and proceed north along Peck Road, then west along Durfee Road, rejoining the 220-kV ROW (Project ROW) at approx. S7 MP 12.025.
  - (3) relocation of the existing Rio Hondo – Amador – Jose – Mesa 66-kV subtransmission line to the north side of the existing 220-kV ROW beginning at Durfee Avenue (~S7 MP 12.0) through Legg Lake Park and the Whittier Narrows Recreation Area to just east of San Gabriel Boulevard (~S7 MP 13.6).
- All proposed permanent 500-kV infrastructure to be located within existing ROW (approx. 15.8 miles); New and expanded ROW required for 66-kV re-routes.
- Erect approximately 85 new transmission structures, including:
  - 1 double-circuit 220-kV LST (185 feet tall)
  - 2 double-circuit 500-kV TSPs (195-200 feet tall)
  - 3 single-circuit 500-kV LSTs (113-175 feet tall)
  - 79 double-circuit 500-kV LSTs (147-262 feet tall)
- Erect approximately 128 new double-circuit 66-kV Light Weight Steel Poles (LWSPs) and TSPs (22 fewer than Alt 2)
- Will require approximately 16 wire setup sites for pulling/tensioner/splicing of conductor wire

Segment 8: Section of New Mira Loma – Vincent 500-kV T/L

- Initiates near the existing Mesa Substation and ends at the existing Mira Loma Substation
- Remove various 220-kV T/L structures between the existing Mesa Substation and the existing Mira Loma Substation
- Construct approximately 33 miles of new double-circuit 500-kV T/L to include approximately 33 miles of the new Mira Loma – Vincent 500-kV T/L (Segments 8A/8C)
- Construct approximately 7 miles of new double-circuit 220-kV T/L from the Chino Substation to the Mira Loma Substation (Segment 8B)
- Relocate several existing 66-kV subtransmission lines in the area of the Mesa and Chino Substations. With incorporation of Alternative 7, this segment includes re-routing a short segment of 66-kV overhead out of the Whittier Narrows Recreation Area. Option 1 begins near the San Gabriel Junction (S8A MP 2.2) and continues southeast along San Gabriel Boulevard and then Siphon Road to rejoin the 220-kV ROW (proposed Project ROW) at approx. S8A MP 3.8.
- Most of the proposed infrastructure will be located within existing ROW, except for the following:
  - San Gabriel River Crossing [Option 1] (66-kV) new ROW (existing: none; future: 0.2-mile or 1,600-foot, 60-foot-wide)
  - Rose Hills Memorial Park ROW relocation (existing: 1.1-mile, 150 -foot-wide; future: 1.4-mile, 240-foot-wide)
  - Hacienda Heights ROW expansion (existing: 2.15-mile, 150 to 230-foot-wide; future: 250 to 330-foot-wide)
  - Fullerton Road new ROW (existing: none; future: 0.4-mile, 100-foot-wide)
  - Ontario (near Mira Loma Substation) ROW expansion (existing: 0.45-mile, 175-foot-wide; future: 325-foot-wide)
- Erect approximately 226 new transmission structures, including:
  - 2 single-circuit 220-kV LSTs (65-75 feet tall)
  - 57 double-circuit 220-kV LSTs (113-180 feet tall)
  - 3 single-circuit 500-kV LSTs (128-149 feet tall)
  - 92 double-circuit 500-kV LSTs (147-255 feet tall)
  - 2 single-circuit 220-kV TSPs (85-95 feet tall)
  - 11 double-circuit 220-kV TSPs (75-115 feet tall)
  - 5 three-pole dead-end 220-kV structures (75-110 feet tall)
  - 4 single-circuit 500-kV TSPs (120-170 feet tall)
  - 50 double-circuit 500-kV TSPs (150-195 feet tall)
- Erect approximately 45 new double-circuit 66-kV subtransmission LWSPs (10 fewer than Alt 2)

Summary of Project (Combination of Alternatives 2, 3, 6, and 7) Components
• Will require approximately 33 wire setup sites for pulling/tensioner/splicing of conductor wire
Segment 9: Substation Facilities
• Construct new Whirlwind Substation; activity will require acquisition of a new approximately 106-acre substation property • Expand and upgrade existing Antelope and Vincent Substations to accommodate new 500-kV and 220-kV equipment; activity will require acquisition of additional substation property – approximately 20 acres for Antelope upgrade and approximately 0.68 acre for Vincent upgrade; Vincent expansion will disturb approximately 20 acres • Upgrade existing Mesa and Gould Substations to accommodate new 220-kV equipment • Upgrade existing Mira Loma Substation to accommodate new 500-kV equipment

The Project will include the construction of new and upgraded transmission infrastructure along approximately 173 miles of new and existing rights-of-way (ROW) from the TWRA in southern Kern County south through Los Angeles County and the Angeles National Forest (ANF) and east to the existing Mira Loma Substation in Ontario, San Bernardino County, California. The major components of the Project have been separated into eight distinct segments. Under separate application to the CPUC, SCE previously requested approval for Segments 1, 2, and 3 of the Antelope Transmission Project. Consequently, the description of major components for the TRTP begins with Segment 4 and continues to Segment 11. Segments 4 through 8, as well as Segments 10 and 11 of the TRTP are transmission facilities, while Segment 9 addresses the addition and upgrade of substation facilities. The segments begin numerically (not geographically) with Segment 4 (S4) and continue through Segment 11 (S11); however the discussion below has been presented geographically, beginning with the northernmost point located in the TWRA (Segment 10) and ending at the southern/easternmost point in Ontario (Segment 8). Mileages along each segment are denoted first by the segment number (Sx, where x is between 4 and 11), followed by MP (for milepost) and then the mileage.

Segment 10: Whirlwind – Windhub 500-kV T/L (S10 MP 0.0 to 16.8)

Segment 10 includes a new approximately 16.8-mile-long single-circuit 500-kV T/L that will enable the interconnection of potential wind generation from the Windhub Substation to the proposed new Whirlwind Substation (see Final EIR Figures 2.2-1b through 2.2-1e). The new 500-kV T/L will be built in a new 330-foot-wide ROW to be acquired by SCE. This segment is identical to SCE's Proposed Project (Alternative 2).

Segment 4: Cottonwind – Whirlwind 220-kV T/Ls (S4 MP 0.0 to 4.0) and Vincent – Whirlwind 500-kV T/L (S4 MP 4.0 to 20.0)

Segment 4 consists of two new transmission line subsegments, each requiring a new 200-foot wide ROW to be acquired by SCE. The northern portion of Segment 4 (S4 MP 0.0 to 4.0) will include approximately 4 miles of two new parallel 220-kV T/Ls between the Cottonwind Substation[2] and the proposed new Whirlwind Substation (i.e., Cottonwind – Whirlwind 220-kV T/Ls) (see Final EIR Figures 2.2-1d through 2.2-1e).

The southern portion of Segment 4 will connect the Whirlwind Substation (S4 MP. 4.0) to SCE's existing Vincent Substation (S4 MP 20.0) near Acton by installing a new, approximately 16.0-mile, 500-kV single-circuit T/L that will connect to the northern end of the previously approved Antelope – Vincent 500-kV T/L (Segment 2) completing the circuit to Vincent Substation (i.e., Vincent – Whirlwind 500-kV T/L) (see Final EIR Figures 2.2-1e through 2.2-1g). Within this southern portion of Segment 4, Alternative 3 (West Lancaster Alternative) will be implemented, which will re-route the new 500-kV T/L along 115th Street West rather than 110th Street West, as shown in Final EIR Figure 2.3-1. The Project will deviate from SCE's

[2] The Cottonwind Substation is currently undergoing environmental review by the County of Kern in conjunction with a proposed wind farm development.

Proposed Project (Alternative 2) beginning at approximately S4 MP 14.9, where the new 500-kV T/L will instead turn south down 115th Street West for approximately 2.9 miles and turn east for approximately 0.5 mile, rejoining SCE's proposed route at S4 MP 17.9 (now S4 MP 18.3). This 3.4-mile re-route increase the overall distance of Segment 4 by approximately 0.4 mile (15.6 miles vs. 16.0 miles); however, the number of overall structures decreases by one due to greater spacing between structures compared to SCE's Proposed Project.

To match the overall system requirements, the existing Midway – Vincent No. 3 500-kV T/L, which the new Vincent – Whirlwind 500-kV T/L will parallel, will be cut and routed (or terminated) into the Whirlwind Substation (north end) and the Antelope Substation (south end). To minimize the number of physical 500-kV crossings, the Midway – Vincent No. 3 500-kV T/L will be cutover to the previously approved Antelope – Windhub 500-kV T/L (Segment 3A).

Segment 5: Antelope – Vincent No. 2 500-kV T/L (S5 MP 0.0 to 17.4)

Segment 5 consists of the construction of approximately 17.4 miles of new single-circuit 500-kV T/L structures between SCE's existing Antelope Substation and Vincent Substations, located in Lancaster and near Acton, respectively (see Final EIR Figures 2.2-1g through 2.2-1j). This new 500-kV T/L will be built next to a similar existing 500-kV T/L and will replace two 220-kV T/Ls that will be removed as part of the Project. Construction will mostly occur within existing ROW. This segment is identical to SCE's Proposed Project (Alternative 2).

Segment 11: Mesa – Vincent No. 2 (via Gould) 500/220-kV T/L

Segment 11 will replace approximately 19 miles of existing single-circuit 220-kV T/L structures from Vincent Substation, located near Acton, to Gould Substation in La Cañada Flintridge with a new approximately 18.7-mile single-circuit 500-kV T/L (Mesa – Vincent No. 2 500-kV T/L from S11 MP 0.0 to 18.7), initially energized to 220 kV (see Final EIR Figures 2.2-1j through 2.2-1n). The Project alignment along this portion of Segment 11 is identical to SCE's Proposed Project (Alternative 2); however, the amount of ground-based construction and helicopter construction will be altered as a result of implementing Alternative 6 (Maximum Helicopter Construction in the ANF). The amount of towers removed/constructed by helicopter will increase from SCE's original proposal of 16 towers with implementation of Alternative 6, which calls for 56 towers in Segment 11 to be constructed by helicopter. However, the final number of towers to be removed/constructed by helicopter in the ANF along Segment 11 will ultimately be determined by the Forest Service in their Record of Decision (ROD) and will fall within the approved range of 16 to 56 towers.

To accommodate the helicopter construction activities along the portion of Segment 11 in the ANF, and as a result of the combination of Alternatives 2/6, the following helicopter staging/support areas will be approved as part of the Project for utilization during construction, as shown in Final EIR Figures 2.2-83 and 2.6-1:

(1) SCE#0: Adjacent to Beartrap Canyon, south of Aliso Canyon Road, and approximately 0.45 mile east of S11 MP 3.9 (off NFS lands – private in-holding);

(2) SCE#1: Along north side of Mt. Gleason Road, approximately 0.3 mile east of S11 MP 7.6;

(3) SCE#2: Along and south of Forest Road 3N27, immediately west of S11 MP 9.3 near Structure #36;

(4) SCE#3: Along and north of Forest Road 3N27, west of S11 MP 10.75;

(5) SCE#3B/Alt 6 Site #8: Terraced area near Big Tujunga Dam, approximately 0.15 mile west-southwest of Big Tujunga Canyon Road and S11 MP 14.5;

(6) SCE#4: Adjacent to and west of Mt Lukens Road (Forest Road 2N76.3), Angeles Crest Station, and S11 MP 18.0 (off NFS lands);

(7) SCE#5: Along Forest Road 2N69 just north of Gould Substation and west of S11 MP 18.6 (off NFS lands);

(8) Alt 6 Site #2: South of Aliso Canyon Road and east of an existing SCE access road, east of S11 MP 3.75 (off NFS lands – located on a private in-holding within the ANF);

(9) Alt 6 Site #4: Along south side of a non-Forest system road, near where road ends; approximately 0.15 mile north of Mt. Gleason Road, approximately 1.7 miles west of S11 MP 7.8; and

(10) Site #10: Adjacent to the north of Angeles Forest Highway, approximately 0.25 north of intersection with Big Tujunga Canyon Road, 0.8 mile east of S11 MP 13.25.

As part of the implementation of Alternative 6, foundations for towers within the ANF will generally be installed using micropile methods, as described in Final EIR Section 2.2.12.5 (Tower and Pole Construction), to the maximum extent feasible, as determined by SCE in consultation with the Forest Service. Furthermore, a portable drill rig will be utilized for installation of micropile foundations rather than a tracked excavator, as it lacks the necessary precision. For those structures installed utilizing conventional footing construction, the construction method will be identical to that proposed for SCE Proposed Project (Alternative 2), as described in Final EIR Section 2.2.12.5.

As part of Segment 11, a second approximately 17.5-mile 220-kV T/L circuit will be installed on the currently empty side of the existing double-circuit towers, which currently hold only the Eagle Rock-Mesa 220-kV T/L, between the Gould Substation property in La Cañada Flintridge (S11 MP 18.7) and the Mesa Substation (S11 MP 36.2) in Monterey Park (see Final EIR Figures 2.2-1n through 2.2-1p and 2.2-1v). This portion of Segment 11 is identical to SCE's Proposed Project (Alternative 2).

Segment 11 will generally be within existing ROW, except for some areas north of Gould Substation (see Final EIR Figures 2.2-1k through 2.2-1n). In this area, the ROW width is currently irregular; therefore, SCE may need to expand the ROW up to approximately 250 feet to the west of the existing corridor to allow for a continuous width of 360 feet to provide the required clearances to accommodate the "swing" of the proposed 500-kV T/L under wind loading conditions. Overall, the majority of this segment will be located on NFS lands within the ANF (approximately 20.4 miles) including: S11 MP 1.5-3.5, 3.75-18.5, 19.25-20.3, 20.8-21.3, 21.8-22.6, 23.05-24.15, and 24.35-24.55 (in-holdings or other non-Forest properties are located between the mileposts listed).

Segment 6: Section of New Replacement Rio Hondo – Vincent No. 2 500-kV T/L and Section of New Mira Loma – Vincent 500-kV T/L

Segment 6 will consist of the construction of a total of approximately 32 miles of single-circuit 500-kV T/L structures in existing ROW from the Vincent Substation located near Acton to the southern boundary of the ANF (see Final EIR Figures 2.2-1j through 2.2-1k and 2.2-1q through 2.2-1t). Approximately 27 miles of the existing Antelope – Mesa 220-kV T/L structures will be rebuilt with 500-kV single-circuit structures from the Vincent Substation to the southern boundary of the ANF and be initially energized at 220 kV. In addition, approximately 5 miles of the existing Rio Hondo – Vincent No. 2 220-kV T/L structures will be rebuilt with 500-kV single-circuit structures from the Vincent Substation to the existing "crossover" span (S6 MP 4.8). The existing crossing or "crossover" of the Rio Hondo – Vincent No. 2 220-kV T/L over the

Antelope – Mesa 220-kV T/L will be eliminated. The completion of Segment 6 will result in two roughly parallel circuits constructed to 500-kV standards in the existing ROW from the Vincent Substation (S6 MP 0.0) to the southern boundary of the ANF (S6 MP 26.9). The easterly circuit will be the new Rio Hondo – Vincent No. 2 500-kV T/L initially energized at 220 kV (requires 26.9 miles of new 500-kV T/L). The westerly circuit will become a section of the new Mira Loma – Vincent 500-kV T/L (requires only approximately 5 miles of new 500-kV T/L, as the existing structures south of the "crossover span" to the southern boundary of the ANF are currently constructed to 500-kV standards with 500-kV structures). The majority of this segment (approximately 21.85 miles) will be located on NFS lands within the ANF including: S6 MP 1.45-1.7, 2.75-5.3, 5.65-6.7, 6.7-6.95, 7.05-24.8 (in-holdings or other non-Forest properties are located between the mileposts listed).

The Project alignment along Segment 6 is identical to SCE's Proposed Project (Alternative 2); however, the amount of ground-based construction and helicopter construction will be altered as a result of implementing Alternative 6 (Maximum Helicopter Construction in the ANF). The amount of towers removed/constructed by helicopter will increase from SCE's original proposal of 17 towers with implementation of Alternative 6, which calls for 92 towers in Segment 6 to be constructed by helicopter. However, the final number of towers to be removed/constructed by helicopter in the ANF along Segment 6 will ultimately be determined by the Forest Service in their Record of Decision (ROD) and will fall within the approved range of 17 to 92 towers.

To accommodate the helicopter construction activities along the portion of Segment 6 in the ANF, and as a result of the combination of Alternatives 2/6, the following helicopter staging/support areas will be approved as part of the Project for utilization during construction, as shown in Final EIR Figures 2.2-83 and 2.6-1:

(1) SCE#6: West of Shortcut Station adjacent to Upper Big Tujunga Canyon Road (Forest Road 3N19), approximately 0.35 mile west of S6 MP 16.5;

(2) SCE#6B/Alt 6 Site #7: Accessed via Barley Flats Road, approximately 1.8 miles west of S6 MP 16.75;

(3) SCE#7/Alt 6 Site #9: Adjacent to Rincon-Redbox Road in the Newcomb Pass area, approximately 0.36 mile west of junction with Shortcut-Edison Trail, just west of S6 MP 19.5;

(4) SCE#8/Alt 6 Site #11: West of Van Tassel Motorway in Monrovia, west of S6 MP 26;

(5) SCE#9: Fish Canyon Rifle Range, 1.2 miles east of S7 MP 0.6 accessed via Fish Canyon Road in Azusa (off NFS lands);

(6) SCE#10: Southwest of Cogswell Reservoir, accessed via Highway 39, San Gabriel Canyon Road;

(7) Alt 6 Site #1: West of Angeles Forest Highway at the intersection with Mount Emma Road, east of S6 MP 3.0;

(8) Alt 6 Site #3: South of Aliso Canyon Road and east of Price Ranch Road, in between Segments 6 and 11;

(9) Alt 6 Site #5: Near Forest Road 4N18, adjacent and west of S6 MP 9.75;

(10) Alt 6 Site #6: Adjacent and west of Upper Big Tujunga Canyon Road, approximately 0.25 to 0.30 mile west of S6 MP 14.0;

(11) Alt 6 Site #12: A large roadside turnout area adjacent to Angeles Forest Highway north of Mill Creek Summit Station, east of S6 MP 6.6; and

(12) Alt 6 Site #13: An existing helicopter landing area southeast of Mill Creek Summit Station, east of S6 MP 7.5.

As part of the implementation of Alternative 6, foundations for towers within the ANF will generally be installed using micropile methods, as described in Final EIR Section 2.2.12.5 (Tower and Pole Construction), to the maximum extent feasible, as determined by SCE in consultation with the Forest Service. Furthermore, a portable drill rig will be utilized for installation of micropile foundations rather than a tracked excavator, as it lacks the necessary precision. For those structures installed utilizing conventional footing construction, the construction method will be identical to that proposed for SCE Proposed Project (Alternative 2), as described in Final EIR Section 2.2.12.5.

Segment 7: Section of New Replacement Rio Hondo – Vincent No. 2 500-kV T/L and Section of New Mira Loma – Vincent 500-kV T/L

Segment 7 is a continuation of Segment 6 (see discussion above), where the existing Rio Hondo – Vincent No. 2 220-kV T/L on existing 500-kV structures (in the Rio Hondo – Vincent alignment) will be renamed the new Mira Loma – Vincent 500-kV T/L, and the existing Antelope – Mesa 220-kV T/L structures (in the Antelope – Mesa alignment) will be replaced by the new Rio Hondo – Vincent No. 2 500-kV T/L (initially energized to 220 kV) structures.

Segment 7 will consist of approximately 15.8 miles of single- and double-circuit 500-kV structures in the existing ROW from the southern boundary of the ANF, near the City of Duarte, south to SCE's existing Rio Hondo Substation in the City of Irwindale, and then continuing southwest across the San Gabriel Valley to SCE's existing Mesa Substation in the Monterey Park/Montebello area (see Final EIR Figures 2.2-1t through 2.2-1v). Federal lands (USACE) crossed by Segment 7 include approximately 1.7 miles in the Santa Fe Dam area (see Final EIR Figure 2.2-1u) and approximately 2.5 miles in the Whittier Narrows Recreation Area (see Final EIR Figure 2.2-1v).

Segment 7 will result in two parallel T/L circuits between the southern boundary of the ANF and the existing Rio Hondo Substation, primarily on double-circuit structures, which replaces the existing Antelope – Mesa 220-kV T/L structures (in the Antelope – Mesa alignment), where the east circuit will be the final section of the new Rio Hondo – Vincent No. 2 500-kV T/L and the west circuit will be a section of the new Mira Loma – Vincent 500-kV T/L. The new Rio Hondo – Vincent No. 2 500-kV T/L (initially energized to 220-kV) will connect into the existing Rio Hondo Substation; however, the new Mira Loma – Vincent 500-kV T/L will not and instead will continue on towards the Mesa Substation.

From the Rio Hondo Substation (S7 MP 5.1) to the San Gabriel Junction (S7 MP 13.7), the existing Antelope – Mesa 220-kV structures will be replaced with double-circuit structures, where the new Mira Loma – Vincent 500-kV T/L will be located on these new double-circuit structures. The double-circuit structures will be strung with 500-kV conductor (2B-2156 kcmil ACSR) and will be utilized in a split-phase configuration[3]. At this point (San Gabriel Junction), the new Mira Loma – Vincent 500-kV T/L will leave the Antelope – Mesa 220-kV T/L alignment and crossover to the existing Chino – Mesa 220-kV T/L alignment. This crossover point is the beginning of the Segment 8 (Subsegment 8A) section of the new Mira Loma – Vincent 500-kV T/L (refer to Segment 8 description below). For the final portion of Segment 7, from the San Gabriel Junction (S7 MP 13.7) to just east of the Mesa Substation (S7 MP 15.8), the existing

[3] Split-Phasing (Split-Phase Circuit) – Use of double-circuit construction to carry the load of a single circuit in order to phase the circuit for electric field cancellation. In other words, the load of a circuit which is normally carried on one A, one B, and one C phase is carried by 2A, 2B, and 2C phases. These phases are then arranged A-B-C from top to bottom on one side of the double-circuit tower and C-B-A top to bottom (or equivalent) on the other side in order to achieve field cancellation. Split-phasing has been utilized in Segments 7 and 8 of the Project as a measure to reduce EMF.

Antelope – Mesa 220-kV single-circuit LSTs will be removed and replaced with new double-circuit 500-kV LSTs, located approximately adjacent to the existing structures.

The 500-kV T/L upgrades, as described above, within Segment 7 are identical to SCE's Proposed Project (Alternative 2).

To accommodate the 500-kV construction along Segment 7, various lower-voltage subtransmission lines between the Rio Hondo Substation and Mesa Substation will be relocated mostly within the existing ROW. For the approved Project, these subtransmission relocations are a combination of Alternative 2 (SCE's Proposed Project) and Alternative 7 (66-kV Subtransmission). The relocation of the Rio Hondo-Bradbury 66-kV line, Rio Hondo-Amador, Rio Hondo-Anita No. 2, Rio Hondo-Amador-Jose-Mesa, Mesa-Rush No. 2, Mesa-Anita-Eaton, Mesa-Narrows, and Mesa-Ravendale-Rush 66-kV lines will be identical to SCE's Proposed Project (Alternative 2), as described in Final EIR Section 2.2.8.1, with the following exceptions resulting from the implementation of Alternative 7.

Duck Farm 66-kV Underground

This element of the Project will consist of undergrounding the Rio Hondo-Amador-Jose-Mesa 66-kV subtransmission line along Segment 7 through the River Commons or Duck Farm Project, as shown in Final EIR Figure 2.7-1. Beginning at the north side of Valley Boulevard (Structure 43) located at approximately S7 MP 8.9, the 66-kV subtransmission line will be placed underground along the west edge of the ROW for a distance of approximately 6,000 feet to just south of Structure 48 (S7 MP 9.9), at which point the 66-kV subtransmission line will transition aboveground and continue overhead to Peck Road, as proposed under Alternative 2 (SCE's Proposed Project).

Whittier Narrows 66-kV Underground Re-Route

This element of the Project consists of re-routing and undergrounding the Jose-Mesa 66-kV subtransmission line around the Whittier Narrows Recreation area in Segment 7, as shown in Final EIR Figure 2.7-2. Beginning at Peck Road (S7 MP 11.4) the 66-kV subtransmission line, which under SCE's Proposed Project (Alternative 2) will be re-located to the western edge of the ROW, will leave the existing ROW at Peck Road and be placed underground. The new underground 66-kV subtransmission line will proceed approximately 300 feet north along Peck Road, then turn west and continue on Durfee Road for approximately 3,000 feet before rejoining SCE's proposed alignment (Alternative 2) at S7 MP 12.025 (just north of Structure 58).

Whittier Narrows 66-kV Overhead Re-Route

This element of the Project consists of relocating the existing Rio Hondo – Amador – Jose – Mesa 66-kV subtransmission line to the north side of the existing 220-kV ROW beginning at Durfee Avenue (~S7 MP 12.0) through Legg Lake Park and the Whittier Narrows Recreation Area to just east of San Gabriel Boulevard (~S7 MP 13.6). A 50-foot expansion of the existing ROW is require between approximately S7 MP 12.7 (Legg Lake) and S7 MP 13.6 (just east of San Gabriel Boulevard). The expanded ROW will provide the additional clearance for conductor sway required by the new double-circuit 500-kV structures thereby allowing taller 66-kV LWSPs to be installed in a one-for-one configuration with the new 500-kV structures. As such, fewer, but taller, 66-kV structures will be required along this portion of the Segment 7 alignment compared to SCE's Proposed Project (Alternative 2).

Segment 8: Section of New Mira Loma – Vincent 500-kV T/L

Segment 8 is divided into three subsegments (8A, 8B and 8C) and consists of approximately 33 miles of single-circuit and double-circuit 500-kV T/L structures beginning at the San Gabriel Junction (S8A MP 2.2)

and ending at the Mira Loma Substation in Ontario (see Final EIR Figures 2.2-1v through 2.2-1y). Existing ROW will be used for the majority of Segment 8, except where approximately three miles of new ROW outside Mira Loma Substation will be required. Also as part of Segment 8, various subtransmission and distribution lines near Mesa Substation and Chino Substation will be relocated.

As a general overview, Subsegments 8A, 8B, and 8C will consist of the following:

Subsegment 8A

Rebuild the existing Chino – Mesa 220-kV T/L (not currently energized) on 500-kV double-circuit structures beginning approximately 0.5 mile west of the Chino Substation (S8A MP 28.0) to a point just east of the Mesa Substation (See subtransmission line discussion below for the portion of the route between Chino Substation and 0.5 mile west of Chino Substation). From the Chino Substation at S8A MP 28.4 to a point approximately 0.75 mile west of the Mira Loma Substation at S8A MP 34.0, the existing Chino – Mira Loma No. 2 220-kV T/L and Chino – Mira Loma No. 3 220-kV T/L structures will be removed and replaced with 500-kV double-circuit structures. The new double-circuit will be energized as the Mira Loma – Vincent 500-kV T/L in a split-phased configuration. From this point (S8A MP 34.0), 500-kV single-circuit structures will be built parallel to the existing Chino – Mira Loma No. 1 220-kV T/L structures and the existing Lugo – Serrano 500-kV T/L structures into the Mira Loma Substation at S8A MP 35.2. The 500-kV upgrades as part of this subsegment are identical to SCE's Proposed Project (Alternative 2).

The following subtransmission lines will be rearranged to accommodate the proposed 500-kV circuit:

- Under SCE's Proposed Project, existing 66-kV LSTs will be removed and replaced with LWSPs beginning at the San Gabriel Junction (S8A MP 2.2) and continuing for approximately 2.1 miles (S8A MP 4.3) along the south side of the existing ROW; however, between the San Gabriel Junction (S8A MP 2.2) and the east side of the San Gabriel River (S8A MP 3.8) the 66-kV lines will instead be re-routed with implementation of Alternative 7, as described below under "Whittier Narrows 66-kV Overhead Re-Route, Option 1".
- Beginning 0.5 miles west of Chino Substation (S8A MP 28.0), three spans of the existing Chino – Soquel 66-kV T/L (currently placed on 220-kV structures) will be rebuilt on 500-kV double-circuit structures to the Chino Substation.
- Multiple 66-kV lines in the vicinity of the Chino Substation beginning approximately 500 feet west of Central Avenue (S8A MP 27.7) to Magnolia Avenue (S8A MP 28.7) will be placed underground to make room for the new 500-kV double-circuit structures.

As noted above, with the inclusion of Alternative 7 as part of the approved Project, the following additional 66-kV re-route will be implemented as part of the Project.

- **Whittier Narrows 66-kV Overhead Re-Route, Option 1.** This element of the Project consists of relocating two 66-kV circuits (Mesa-Narrows 66-kV and Walnut-Hillgen-Industry-Mesa-Reno 66-kV), approximately 1.63 miles of overhead 66-kV lines (x2 lines), and vacating the southern end of the existing Project ROW from San Gabriel Boulevard (just west of the San Gabriel Junction, S8A MP 2.2) to the east side of the San Gabriel River (S8A MP 3.8). The existing 66-kV subtransmission lines currently split at the San Gabriel Junction (S8A MP 2.2) with one line proceeding along the existing 220-kV ROW and the other line proceeding southwest along San Gabriel Boulevard. As such, between the San Gabriel Junction and Lincoln Avenue existing infrastructure will be utilized. As shown in Final EIR Figure 2.7-2, these 66-kV circuits will be relocated beginning at the intersection of San Gabriel Boulevard and Lincoln Avenue and proceed southeast approximately 1,880 feet along San Gabriel Boulevard until Rosemead Boulevard, at which point the street name changes to Durfee Avenue. At this point, the 66-kV lines will continue for approximately 700 feet

southeast across Durfee Avenue utilizing new LWSPs and then continue approximately 2,100 feet southeast along Siphon Road to the San Gabriel River replacing the existing idle 66-kV structures with new TSPs. New ROW, approximately 1,600-feet long and 60-feet wide, will be required to cross from the existing 66-kV ROW on the west side of the San Gabriel River to the existing 220-kV ROW located on the east side of the San Gabriel River (near Structure 9), thereby allowing the new 66-kV lines to tie back into the 66-kV lines within the Project ROW (S8A MP 3.8) completing the circuit. In Segment 8A, the two 66-kV lines will transition within the existing ROW to underground for approximately 200 feet across the width of the ROW from the south side and then rise up on the north side of the ROW to join the existing lines.

Subsegment 8B

Rebuild the Chino – Mira Loma No. 1 220-kV T/L structures from the Chino Substation (S8B MP 0.0) to the Mira Loma Substation (S8B MP 6.8) with 220-kV double-circuit structures to accommodate the Chino – Mira Loma No. 1 220-kV and Chino – Mira Loma No. 2 220-kV T/Ls. This segment is identical to SCE's Proposed Project (Alternative 2).

Subsegment 8C

The new Chino – Mira Loma No. 3 220-kV T/L will occupy the south circuit on the new double-circuit 500-kV LSTs (installed as described in Subsegment 8A) from the Chino Substation (S8C MP 0.0) to approximately 0.8 miles west of the Mira Loma Substation (S8C MP 6.4). The northern circuit will be the new Mira Loma – Vincent 500-kV T/L as described above for Subsegment 8A. The new Chino – Mira Loma No. 3 220-kV T/L will utilize existing 220-kV double-circuit towers to connect into Mira Loma Substation. This segment is identical to SCE's Proposed Project (Alternative 2).

Segment 8 (Overall)

The completed Segment 8 from Chino Substation to just east of the Mesa Substation will result in 500-kV double-circuit structures, primarily on existing ROW, with conductors operated in a split-phased configuration to accommodate the new Mira Loma – Vincent 500-kV T/L. From the Chino Substation to the Mira Loma Substation, there will be approximately 5 miles of 500-kV double-circuit structures, and approximately 1.2 miles of 500-kV single-circuit structures, primarily on existing ROW. On the double-circuit section, the north circuit will be the new Mira Loma – Vincent 500-kV T/L (8A) and the south circuit will be the new Chino – Mira Loma No. 3 220-kV T/L (8C). The single-circuit section will accommodate the new Mira Loma – Vincent 500-kV T/L. In addition, between the Chino Substation and the Mira Loma Substation there will be approximately 7 miles of 220-kV double-circuit structures, primarily on existing ROW, accommodating the new Chino – Mira Loma No. 1 220-kV and Chino – Mira Loma No. 2 220-kV T/Ls (8C).

To reduce conductor swing that may occur between the existing 220-kV T/Ls and the new Mira Loma – Vincent 500-kV T/L, additional 220-kV structures will be added. These additional structures will reduce the span length between structures, which will reduce the conductor slack and thereby limit the range of motion for a given span. The new 220-kV structures will be added in various areas throughout Segment 8, including near S8A MP 2.2 (San Gabriel Junction), 4.2 (San Gabriel River Freeway crossing), 8.2 (near existing structure No. 30), 13.5 (Fullerton Road/Pathfinder Road), and 19.2 (turn tower). These inset towers are identical to those proposed as part of SCE's Proposed Project (Alternative 2).

Segment 9: Substation Facilities

Segment 9 includes additions and upgrades of substation facilities. For the Project, all portions of Segment 9 are identical to SCE's Proposed Project (Alternative 2). The Project includes the following: the new

500/220-kV Whirlwind Substation (the only new facility that will be constructed); upgrades to the existing Antelope, Vincent, Mesa, Gould, and Mira Loma Substations in order to accommodate new 500/220-kV equipment; and acquisition of approximately 20.7 acres (combined total) of additional substation property at the Antelope and Vincent Substations.

Whirlwind Substation. Whirlwind Substation will be a new 500/220-kV substation located approximately 4 to 5 miles south of the Cottonwind Substation near the intersection of 170th Street and Holiday Avenue in Kern County (see Final EIR Figure 2.2-75). The site chosen for the new substation encompasses approximately 106 acres, which will be acquired by SCE. Facilities associated with the proposed new substation, such as the substation pad, access road, and retention pond represent a permanent land disturbance of approximately 70 acres (see Final EIR Table 2.2-10 at the end of Chapter 2). In addition to the initial 70 acres, an area of approximately 27 acres (for a total of approximately 97 acres) will be graded within the fence line of the new substation to allow adequate room in the future for additional equipment that may be necessary to facilitate transmission of additional energy generation. No additional facilities or equipment will be installed as part of the Project within this future expansion area.

Antelope Substation. Segment 9 includes an upgrade of the Antelope Substation in order to accommodate new 500-kV transmission equipment (see Final EIR Figure 2.2-1g). The proposed expansion of the substation to accommodate 500 kV infrastructure was licensed and addressed in the Proponent's Environmental Assessment (PEA) submission to support the Antelope Transmission Project, Segment 1. The exceptions to the licensing were the installation of a 200 MVAR Static VAR Compensator (SVC) and two 500-kV, 150 MVAR each, shunt capacitor banks. The installation of the new equipment will be in an area of approximately 18 acres. Approximately 20 acres of additional land will be acquired by SCE; the additional land at the substation site will accommodate the additional new construction at the Antelope Substation (see Final EIR Figure 2.2-76).

Relocation of the Sagebrush Subtransmission Line. As part of the expansion of the Antelope Substation, the existing Sagebrush subtransmission line will be re-routed around the 500-kV expansion area (The Sagebrush line currently bisects this area). Beginning just south of West Avenue J, the Sagebrush line will be re-routed southeast for approximately 1,500 feet, paralleling the east side of the 500-kV expansion area, before turning southwest for approximately 1,500 feet, paralleling the south side of the 500-kV expansion area, to rejoin the existing alignment.

Vincent Substation. In order to accommodate the proposed transmission connections, Segment 9 requires an upgrade of the existing 500/220-kV Vincent Substation which includes two separate extensions of existing switchyards (see Final EIR Figure 2.2-1j and 2.2-77). At the southwestern corner of the facility, the south 220-kV bus extension requires an addition to the existing limits of the graded pad. To match the existing site grade, a retaining wall will be constructed and back-filled. The 500-kV switchyard will be extended to the west by approximately 1,100 feet, where extensive new grading will be required. The 500-kV substation expansion will be on the existing SCE-fee owned property. The 220-kV switchyard expansion will require approximately 0.68 acre of new property acquisition, and will disturb approximately 20 acres of existing and new substation land.

Gould Substation. The Gould Substation portion of Segment 9 includes upgrade of the existing 220-kV switchyard to accommodate the connection of the new Eagle Rock - Gould 220-kV T/L, as well as the 220-kV connections of the existing transformer banks to double breaker positions. All upgrades at the Gould Substation will take place within the existing fence line (see Final EIR Figure 2.2-1n).

Mesa Substation. The Mesa Substation portion of Segment 9 includes upgrades of the existing 220-kV switchyard with additional equipment to accommodate the connection of the new Mesa – Vincent No. 1

220-kV T/L in Segment 11. All upgrades at the Mesa Substation will take place within the existing fence line (see Final EIR Figure 2.2-1v).

Mira Loma Substation. The Mira Loma Substation portion of Segment 9 includes the construction of a new 500-kV position to terminate the new Mira Loma – Vincent 500-kv T/L, as described under Segment 8. All work will take place within the existing Mira Loma fence line (see Final EIR Figure 2.2-1y).

I.2 Project Objectives

An EIR must contain a clearly written statement of objectives that include the underlying purpose of the project (Section 15124(b) of the CEQA Guidelines).The purpose of the proposed TRTP, as described in the PEA submitted as part of SCE's application to the CPUC and the USDA Forest Service, is to provide the electrical facilities necessary to integrate levels of new wind generation in excess of 700 MW and up to approximately 4,500 MW in the TWRA (SCE, 2007). In addition to the purpose of the Project described above, SCE has identified the following objectives for the Project:

- Construct the project to reliably interconnect new wind generation resources in the TWRA, and enable SCE and other California utilities to comply with California's Renewables Portfolio Standard (RPS) in an expedited manner.
- Comply with all applicable reliability planning criteria required by the North American Electric Reliability Council (NERC), the Western Electricity Coordinating Council (WECC), and the CAISO.
- Construct facilities in an orderly, rational and cost-effective manner to maintain reliable electric service, by minimizing service interruptions, during construction.
- Address the reliability needs of the CAISO controlled grid due to projected load growth in the Antelope Valley.
- Address the South of Lugo transmission constraints, an ongoing source of concern for the Los Angeles Basin.
- Maximize the use of existing T/L right-of-ways in order to minimize effects on previously undisturbed land and resources.
- Minimize environmental impacts, through selection of routes, tower types and locations, while still meeting project objectives.
- Where existing right-of-way is not available, select the shortest feasible route that minimizes environmental impacts.
- Meet project needs in a cost-effective and timely manner.

The CPUC and Forest Service reviewed the Project objectives presented by SCE to determine which of the objectives represented an underlying purpose of the Project and, therefore, could appropriately be used to develop a range of reasonable Project alternatives for analysis in the Draft EIR/EIS. In addition to the purpose of the Project described by SCE to provide electrical facilities needed to integrate new wind generation, the Lead Agencies determined that the Project will also accomplish two other important objectives related to increasing transmission system reliability in the Antelope Valley and resolving transmission constraints south of Lugo Substation, which is located in Hesperia, California. Therefore, the Project's three primary objectives are to:

- Provide the electrical facilities necessary to reliably interconnect and integrate in excess of 700 MW[4] and up to approximately 4,500 MW of new wind generation in the TWRA currently being planned or expected in the future, thereby enabling SCE and other California utilities to comply with the California RPS goals in an expedited manner (i.e., 20 percent renewable energy by year 2010 per California Senate Bill 107).[5]
- Further address the reliability needs of the CAISO-controlled grid due to projected load growth in the Antelope Valley.
- Address the South of Lugo transmission constraints, an ongoing source of concern for the Los Angeles Basin.

Section 1.2.1 of the Final EIR provides background information on the Renewables Portfolio Standard (RPS) requirements, the Tehachapi Wind Resource Area (TWRA), Projected Load Growth and Transmission Constraints, and Executive Order 13212.

II. Environmental Review Process

A joint Draft Environmental Impact Report/Environmental Impact Statement (EIR/EIS) was published in February 2009 by the CPUC and USDA Forest Service in compliance with CEQA and NEPA requirements. A Final EIR on the Project was published in October 2009. The Final EIR has been prepared for the CPUC in accordance with CEQA and the CEQA Guidelines, as amended. As allowed for in CEQA Guidelines §15084(d)(2), the CPUC retained a consultant to assist with the preparation of the environmental documents. The CPUC, acting as State Lead Agency, has directed, reviewed and edited as necessary all material prepared by the consultant, and such material reflects the CPUC's independent judgment. The key milestones associated with the preparation of the Draft EIR/EIS and Final EIR are summarized below. In addition, an extensive public involvement and agency notification effort was conducted to solicit input on the scope and content of the Draft EIR/EIS and to solicit comment on the results of the environmental analysis presented in the Draft EIR/EIS. In general, the preparation of the Draft EIR/EIS and Final EIR included the following key steps and public notification efforts:

Draft EIR/EIS February 2009

- **Notice of Preparation.** A Thirty-nine day scoping process began with the CPUC's issuance of the Notice of Preparation (NOP) of a joint Draft EIR/EIS on August 31, 2007, and the USDA Forest Service's publication of the Notice of Intent (NOI) to prepare a joint Draft EIR/EIS in the Federal Register on September 7, 2007 (FR Vol. 72, No. 173, p. 51404)

  The NOP was filed with the State Clearinghouse on August 31, 2007. The NOP and a separate notice of the nine public scoping meetings was mailed to over 15,000 property owners, regulatory agencies; environmental groups; private organizations; tribal government representatives; and elected officials. Copies of the NOP were available at 23 local libraries and agency offices.

- **Scoping Report.** In November 2007 and February 2008, a comprehensive Scoping Report and Comment Summary Report were issued respectively. The reports summarize issues and concerns

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4 Segments 1, 2 and 3 of the Antelope Transmission Project would provide 700 MW. Segment 1 (SCH No. 2005061161) was previously analyzed and approved by the CPUC and Forest Service. Segments 2 & 3 (SCH No. 2006041160) have been approved by the CPUC.

5 FERC Order No. 2003 requires all public utilities that own, control, or operate facilities for transmitting electric energy in interstate commerce to provide interconnection service to electric generating facilities having a capacity of more than 20 megawatts.

received from the public and various agencies during the scoping period and in January 2008 to discuss the Chino Hills Alternative with concerned area citizens.

- **Draft EIR/EIS.** The CPUC and USDA Forest Service issued the Draft EIR/EIS on February 20, 2009. Copies of the full Draft EIR/EIS and Appendices were sent to 99 interested parties and agencies, and document repositories.
- **Notice of Completion.** The Notice of Completion for the Draft EIR/EIS was filed with the State Clearinghouse on February 13, 2009.
- **Notice of Availability of the Draft EIR/EIS.** A Notice of Availability (NOA) of the Draft EIR/EIS was mailed to approximately 15,400 addresses, including regulatory agencies, tribal governments, community organizations, interest groups, and property owners in the vicinity of the proposed Project and alternative routes in February 2009.
- **Public Meetings.** Three public informational workshops, two public meetings, and one formal Public Participation Hearing were held in March 2009. Over 300 members of the public, including representatives of organizations and government agencies, were documented in attendance at the CPUC Informational Workshops, Public Meetings, and Public Participation Hearing for the Draft EIR/EIS. However, no exact number was possible since Workshop participants were not required to sign in and Attendees of the public meetings and hearing were asked to sign-in or register before entering the meeting but were not required unless they were presenting testimony.

- One **Public Participation Hearing** was held in March 2009 by the Administrative Law Judge.

Final EIR October 2009

The CPUC issued the Final EIR on October 30, 2009. Copies of the full Final EIR were sent to approximately 50 interested parties and agencies, and document repositories. A Notice of Availability (NOA) of the Final EIR with CDs was also mailed to approximately 50 interested parties, agencies, and county and city departments that commented on the Draft EIR/EIS.

Project Resources

A Project e-mail address, telephone hotline, and a Project-specific internet site were available to provide another avenue for public comment and inquiry. All meetings and document publications up through the Draft EIR/EIS were advertised in sixteen local and regional newspapers in two Counties. All print notifications included information on the e-mail address, telephone hotline, and internet site.

III. Environmental Impacts and Findings

Pursuant to Public Resources Code §21081 and CEQA Guidelines §15091, no public agency shall approve or carry out a project for which an EIR has been certified, which identifies one or more significant effects on the environment that will occur if the project is approved or carried out unless the public agency makes one or more of the following findings with respect to each significant impact:

1. Changes or alterations have been required in, or incorporated into, the project, which mitigate or avoid the significant effects on the environment.
2. Those changes or alterations are within the responsibility and jurisdiction of another public agency and have been, or can and should be, adopted by that other agency.

3. Specific economic, legal, social, technological, or other considerations, including considerations for the provision of employment opportunities for highly trained workers, make infeasible the mitigation measures or alternatives identified in the environmental impact report.

The CPUC has made one or more of these specific written findings regarding each significant impact associated with the Project. Those findings are presented below, along with a presentation of facts in support of the findings. Concurrent with the adoption of these findings, the CPUC adopts the Mitigation Monitoring Program as presented in Attachment 2 of the Decision.

The Final EIR evaluation includes a detailed analysis of impacts in 16 environmental disciplines, analyzing the Project and alternatives, including a No Project Alternative. The Final EIR discloses the environmental impacts expected to result from the construction and operation of the Project. Where possible, mitigation measures were identified to avoid or minimize significant environmental effects. In addition, SCE committed in advance to implementing measures to reduce the direct and indirect impacts that will result from Project activities. These measures, referred to as Applicant Proposed Measures (APMs), were identified by SCE in its CPCN Application to the CPUC, and are presented throughout Chapter 3 of the Final EIR, in respective issue area analyses. The analysis in the Final EIR assumes the APMs are part of the Project. The mitigation measures identified in the Final EIR are measures proposed by the Lead Agencies, responsible or trustee agencies or other persons, that were not proposed as part of the Project but will reduce or avoid adverse impacts in compliance with CEQA Guidelines §15126.4(a)(1)(A). Findings on mitigation measures proposed in public comments are provided below in sections V and VI.

No Environmental Effects

The EIS/EIR concludes that the Project will result in no environmental effects under some but not all Significance Criteria in the following environmental resource areas:

- Agricultural Resources
- Air Quality
- Biological Resources
- Cultural Resources
- Environmental Contamination and Hazards
- Hydrology and Water Quality
- Geology, Soils, and Paleontology
- Land Use
- Public Services and Utilities
- Traffic and Transportation
- Wildfire Prevention and Suppression
- Electrical Interference and Hazards

Less-Than-Significant Impacts with No Mitigation Required

The EIS/EIR concludes that some but not all impacts of the Project in the following environmental resource areas will be less than significant without the implementation of mitigation measures:

- Agricultural Resources
- Air Quality
- Biological Resources
- Environmental Contamination and Hazards
- Geology, Soils, and Paleontology
- Hydrology and Water Quality
- Land Use
- Public Services and Utilities
- Traffic and Transportation
- Wilderness and Recreation
- Wildfire Prevention and Suppression
- Electrical Interference and Hazards

Less-Than-Significant Impacts with Implementation of Mitigation Measures

The EIS/EIR concludes that some but not all significant impacts of the Project in the following environmental resource areas will be less than significant after implementation of mitigation measures:

- Agricultural Resources
- Air Quality

- Biological Resources
- Cultural Resources
- Geology and Soils
- Hydrology and Water Quality
- Land Use
- Public Services and Utilities
- Traffic and Transportation
- Visual Resources
- Wilderness and Recreation
- Wildfire Prevention and Suppression
- Electrical Interference and Hazards

Significant and Unavoidable Impacts

The EIS/EIR concludes that some, but not all, impacts of the Project in the following environmental resource areas will remain significant and unavoidable despite imposition of all feasible mitigation:

- Agricultural Resources
- Air Quality
- Biological Resources
- Cultural Resources
- Hydrology and Water Quality
- Land Use
- Noise
- Visual Resources
- Wilderness and Recreation
- Wildfire Prevention and Suppression

The following Sections III.1 (No Environmental Effects), III.2 (Environmental Impacts Found to be Less than Significant), III.3 (Significant Environmental Impacts that Have Been Reduced to a Less than Significant Level), and III.4 (Significant Environmental Impacts that Cannot Be Avoided or Reduced to a Less than Significant Level) provide discussions of the environmental impacts of the Project in detail.

III.1 No Environmental Effects

Section 15128 of the CEQA Guidelines requires an EIR to contain a statement briefly indicating the reasons why the lead agency determined that various possible effects of a project will not occur. The CPUC hereby finds that no environmental effects will result from the Project under the following Significance Criteria, as assessed in the 2009 Final EIS/EIR.

III.1.1 Agricultural Resources

Conflict with Williamson Act contract lands (Criterion AG3)

The Project will cross 0.91 miles of land under Williamson Act contract in Kern County, as part of Segment 4. This will be the only portion of the Project to traverse or run adjacent to Williamson Act contract land. Construction of access and spur roads, T/L towers, and stringing and pulling sites will temporarily convert a total of approximately 12.82 acres of land under Williamson Act contracts to non-agricultural uses. While the stringing and pulling site will be restored following the completion of construction activities, tower footings and foundations and access and spur roads will represent permanent disturbances to lands under Williamson Act contract. Consequently, the 11 T/L towers installed on land under Williamson Act contract will permanently convert a total of 0.033 acres to non-agricultural uses. The acreage of access and spur roads permanently converting land under Williamson Act contracts to non-agricultural uses will be 1.78 acres. As such, operation and maintenance will permanently convert 1.81 acres of land under Williamson Act contracts to non-agricultural uses.

Finding. The CPUC finds that the Project will not conflict with Williamson Act contracts. No impact will occur.

Rationale for Finding. The Project is an electrical infrastructure project licensed by the CPUC and Kern County considers these components to be allowable uses under Williamson Act contracts (Kern County Planning Department, 2007). Consequently, there would be no conflict with Williamson Act contracts.

Reference. Final EIR Section 3.2

III.1.2 Air Quality

Cumulative Impact AQ-6: The Project would not conform to Federal General Conformity Rules

This impact is strictly applicable to single project evaluation. Therefore, cumulative impacts do not apply and no impact would occur.

Finding. The CPUC finds that the Project will not result in a cumulative impact related to Federal General Conformity.

Rationale for Finding. Federal General Conformity evaluations are strictly applicable to single project evaluation; therefore, no cumulative impact would occur.

Reference. Final EIR Section 3.3

Cumulative Impact AQ-8: The Project would not conform to Angeles National Forest air quality strategies

This impact is strictly applicable to single project evaluation. Therefore, cumulative impacts do not apply and no impact would occur.

Finding. The CPUC finds that the Project will not result in a cumulative impact related to conforming with the Angeles National Forest air quality strategies.

Rationale for Finding. Evaluating a project's conformity with the Angeles National Forest air quality strategies is strictly applicable to single project evaluation; therefore, no cumulative impact would occur.

Reference. Final EIR Section 3.3

Cumulative Impact AQ-9: The Project would not conform with applicable Air Quality Management Plans

This impact is strictly applicable to single project evaluation. Therefore, cumulative impacts do not apply and no impact would occur.

Finding. The CPUC finds that the Project will not result in a cumulative impact related to conforming with applicable Air Quality Management Plans.

Rationale for Finding. Evaluating a project's conformity with applicable Air Quality Management Plans is strictly applicable to single project evaluation; therefore, no cumulative impact would occur.

Reference. Final EIR Section 3.3

Cumulative Impact AQ-10: Emissions would contribute to climate change

This impact is already evaluated in a globally cumulative context; therefore, cumulative impacts do not apply and no impact would occur.

Finding. The CPUC finds that the Project will not cumulatively contribute to climate change.

Rationale for Finding. Climate change evaluations are evaluated in a globally cumulative context; therefore, cumulative impacts do not apply and no cumulative impact would occur.

Reference. Final EIR Section 3.3

III.1.3 Biological Resources

Conflict with local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinances (Criterion BIO6)

The following local and regional policy documents were reviewed for consistency with the Project:

- South Coast Resource Management Plan
- Southern California Association of Governments Regional Comprehensive Plan and Guide
- Los Angeles County Draft Preliminary General Plan
- Hacienda Heights Community Plan
- Rowland Heights Community Plan
- Altadena Community Plan
- City of La Cañada Flintridge General Plan
- City of Rosemead Draft General Plan
- City of Duarte Comprehensive General Plan Preliminary Draft
- City of Pasadena Comprehensive General Plan
- City of Baldwin Park 2020 General Plan
- Comprehensive General Plan of the City of San Gabriel, California
- Puente Hills Landfill Native Habitat Preservation Authority Resource Management Plan
- Rio Hondo Watershed Management Plan
- County of San Bernardino 2007 General Plan
- Land Management Plan: Southern California National Forests
- Antelope Valley Areawide General Plan
- Food and Agricultural Code Division 23: California Desert Native Plants Act
- Lancaster General Plan
- Palmdale Municipal Code

Generally, these policies and ordinances support the preservation, enhancement, and restoration of natural habitats. Detailed descriptions of the relevant biological policies and actions within these documents are presented in Section 3.4.3 of the Final EIR.

A total of six SEAs overlap with the Project: Joshua Tree Woodlands, San Andreas Rift Zone, Santa Clara River, San Gabriel Canyon, Rio Hondo Wildlife Sanctuary, and Puente Hills. Mitigation proposed below for special-status and unique resources will apply to SEAs as well to protect those resources.

The Project, as designed, may require the removal of oak trees and compliance with Section 22.56 of the Los Angeles County Zoning Code (Part 16). This ordinance requires a permit for the removal of any native oak tree greater than 8 inches in diameter (25 inches or greater in circumference) at breast height. Removed oak trees must be replaced at a ratio of 2:1 (using 15-gallon oaks of the same species, or greater, as determined by the hearing officer), maintained for two years, and replaced if mortality occurs. In addition, a permit is required for the removal of any vegetation on terrain with an 8 percent slope or greater (County Zoning Code Section 12.28). As described in Mitigation Measure B-1a (below) and consistent with the Los Angeles Zoning Code, all native oak trees shall be avoided where possible. Where avoidance is not possible, SCE shall replace or relocate impacted trees, or pay into the Oak Forest Special Fund.

Furthermore, the Project may result in the loss of Joshua trees and juniper trees in the Northern Region. These species receive protection from the Palmdale Native Desert Vegetation Ordinance. Chapter 14.04 of the City of Palmdale Municipal Code requires a desert vegetation preservation plan with minimum preservation standards for removal of vegetation at sites with Joshua trees and other species included in the California Desert Native Plants Act, California Food and Agriculture Code, Division 23. In compliance with these regulations, SCE shall obtain permits from both Los Angeles and Kern counties for the removal of Joshua trees and other native vegetation. If onsite preservation is not feasible, in lieu fees will fulfill the requirements of these regulations.

Finding. The CPUC finds that the Project will not conflict with local policies or ordinances protecting biological resources. No impact will occur.

Rationale for Finding. Because of the extensive planning involved in Project design, including implementation of APMs BIO-1 through BIO-7, and the mitigation measures described below, the Project is consistent with the local and regional policies and ordinances protecting biological resources including the Los Angeles County Tree Removal requirements, the Palmdale Municipal Code, and the California Desert Native Plants Act. Therefore, no impact will occur.

Reference. Final EIR Section 3.4

Conflict with the provisions of an adopted Habitat Conservation Plan (HCP), Natural Communities Conservation Plan (NCCP), or other approved local, regional, or state HCP (Criterion BIO7)

There are no applicable HCPs, NCCPs, or other approved local, regional, or State HCPs in the Project area. The Northern Region of the Project is included in the proposed West Mojave Plan Habitat Conservation Plan (WMPHCP), which was completed in March of 2006 but has not been formally adopted on non-federal lands.

Finding. The CPUC finds that the Project will not conflict with any applicable HCPs, NCCPs, or other approved local, regional, or State HCPs. No impact will occur.

Rationale for Finding. No applicable HCPs, NCCPs, or other approved local, regional, or State HCPs occur in the Project area.

Reference. Final EIR Section 3.4

III.1.4 Cultural Resources

Substantial adverse change in a resource included in a local register (Criterion CR2)

Background research and local policy screening revealed that no properties currently listed on local registers of historical resources will be affected by the Project.

Finding. The CPUC finds that the Project will not result in a substantial adverse change in a cultural resource included in a local register.

Rationale for Finding. Background research and local policy screening revealed that no properties listed on local registers of historical resources will be affected by the Project, and as such no substantial adverse change in a resource included in a local register will occur.

Reference. Final EIR Section 3.5

III.1.5 Environmental Contamination and Hazards

Result in mobilization of contaminants currently existing in the soil, creating potential pathways of exposure to humans or other sensitive receptors (Criterion ECH2)

The Project does not traverse areas of intensive agricultural use where pesticides and herbicides will be applied regularly. Consequently, there is no potential to expose construction workers to residual pesticides and herbicides in the soil and no impact will occur.

Finding. The CPUC finds that the Project will not expose construction workers to residual pesticides and herbicides in the soil. No impact will occur.

Rationale for Finding. The Project does not traverse areas of intensive agricultural use where pesticides and herbicides will be applied regularly. Consequently, there is no potential to expose construction workers to residual pesticides and herbicides in the soil.

Reference. Final EIR Section 3.6

III.1.6 Geology, Soils, and Paleontology

Unique geologic features (Criterion GEO1)

No unique geologic features or geologic features of unusual scientific value for study or interpretation will be disturbed or otherwise adversely affected by the Project. No impact will occur.

Finding. The CPUC finds that the Project will not impact unique geologic features. No impact will occur.

Rationale for Finding. Given that no unique geologic features or geologic features of unusual scientific value for study or interpretation will be disturbed or otherwise adversely affected by the Project, no impact would occur.

Reference. Final EIR Section 3.7

Known mineral resources (Criterion GEO2)

Although known sand and gravel resources, limestone and dolomite, and stone quarries are located within the general Project area, only Segment 7 is located within or adjacent to areas of active production of these resources. The Segment 7 alignment traverses adjacent to and across several active gravel quarries in the Irwindale area; the Irwindale Pit consists of three adjacent pits (commonly known as Irwindale Pits #1, #2, and #3), owned by the United Rock Products Corp. The Project ROW crosses a portion of the easternmost pit; however the towers for the existing transmission line are located outside of the existing quarry boundaries and it is assumed that any new towers would be at similar tower spacing.

Finding. The CPUC finds that the Project will not impact mineral resources. No impact will occur.

Rationale for Finding. Given the distance of these known mineral resources sites from the Project ROW and the ability of mining-related equipment and vehicles to cross the ROW if necessary, construction and operation of the TRTP transmission line is not expected to interfere with future access to any metallic or non-metallic mineral resources. Therefore, no impact would occur.

Reference. Final EIR Section 3.7

Cumulative Impact G-1: Project activities could interfere with access to known energy resources

Interfering with access to known energy resources could occur if Project-related construction interfered with operation of the oil field that the Project traverses. This impact is less than significant (Class II) for the

Project, as discussed in Section III.3.6, below. The potential for this impact to combine with similar effects of other projects would only occur if other projects were implemented in the same area at the same time as the Project. However, construction of the Project will preclude other projects from being implemented concurrently in the same location. Furthermore, Mitigation Measure G-1 (Coordination with oil field operations) will be implemented to prevent Project-related interference with oil field operations. Therefore, Project impacts will not have the potential to combine with similar effects from other projects and will not be cumulative in nature.

Finding. The CPUC finds that the Project will not combine with other past, present, or reasonably foreseeable projects to cumulatively interfere with access to known energy resources. No impact will occur.

Rationale for Finding. Given the Project-related interference with oil field operations will be less than significant with implementation of Mitigation Measure G-1 and construction of the Project will preclude other projects from being implemented concurrently in the same location, Project impacts will not have the potential to combine with similar effects from other projects and will not be cumulative in nature. No impact will occur.

Reference. Final EIR Section 3.7

Cumulative Impact G-2: Erosion could be triggered or accelerated due to construction activities

While Impact G-2 could occur during construction-related excavation and grading in areas underlain by soils with high erosion potential, this impact is less than significant (Class II) for the Project as discussed in Section III.3.6, below. The potential for this impact to combine with similar effects of other projects would only occur if other projects were implemented in the same area at the same time as the proposed Project. However, construction of the Project will preclude other projects from being implemented concurrently in the same location. Furthermore Mitigation Measure H-1a (Implement an Erosion Control Plan and demonstrate compliance with water quality permits) will be implemented to reduce or prevent erosion impacts during construction. Therefore, Project impacts will not have the potential to combine with similar effects from other projects and will not be cumulative in nature.

Finding. The CPUC finds that the Project will not combine with other past, present, or reasonably foreseeable projects to cumulatively trigger or accelerate erosion during construction. No impact will occur.

Rationale for Finding. Given the Project-related erosion will be less than significant with implementation of Mitigation Measure H-1a and construction of the Project will preclude other projects from being implemented concurrently in the same location, Project impacts will not have the potential to combine with similar effects from other projects and will not be cumulative in nature. No impact will occur.

Reference. Final EIR Section 3.7

Cumulative Impact G-3: Excavation or grading during construction activities could cause slope instability or trigger landslides

While Impact G-3 could occur if Project-related excavation and grading were to trigger slope failures, this impact is less than significant (Class II) for the Project as described in Section III.3.6, below. The potential for this impact to combine with similar effects of other projects would only occur if other projects were implemented on the same slopes at the same time as the proposed Project. However, construction of the Project will preclude other projects from being implemented concurrently in the same location. Furthermore Mitigation Measure G-3 (Conduct geological surveys for landslides and protect against slope instability) will be implemented to minimize the potential for construction triggered slope failures. Therefore, Project

impacts will not have the potential to combine with similar effects from other projects and will not be cumulative in nature.

Finding. The CPUC finds that the Project will not combine with other past, present, or reasonably foreseeable projects to cumulatively cause slope instability or trigger landslides during excavation or grading activities associated with construction. No impact will occur.

Rationale for Finding. Given the Project-related excavation and grading during construction will be less than significant with implementation of Mitigation Measure G-3 and construction of the Project will preclude other projects from being implemented concurrently in the same location, Project impacts will not have the potential to combine with similar effects from other projects and will not be cumulative in nature. No impact will occur.

Reference. Final EIR Section 3.7

III.1.7 Hydrology and Water Quality

Depletion of Groundwater Supplies or Interference with Groundwater Recharge (Criterion HYD2)

Should groundwater be encountered during construction-related excavation, dewatering of the construction site will be required. In accordance with APM HYD-6 (Drilling and Construction Site Dewatering Management), dewatering operations will include, as applicable, the use of sediment traps and sediment basins per BMP NS-2 (Dewatering Operations) from the California Stormwater Quality Association's (CASQA) California Stormwater BMP Handbook – Construction (CASQA, 2003). Any groundwater encountered during construction will be returned to the subsurface as a part of the dewatering process.

Creation of new impervious surfaces through construction of the Project could interfere with groundwater recharge by reducing the amount of surface area through which precipitation and surface water percolates to underground aquifers. Impervious surfaces that will result from construction of the Project include concrete tower footings, concrete pads beneath various substation elements, such as transformer banks, and paved or sealed access roads.

Operation of the Project will consist of transmission of electric current though the transmission line as well as periodic maintenance, which will consist of driving construction vehicles along or within the transmission ROW, and will have no effect on groundwater recharge.

Finding. The CPUC finds that the Project will not impact groundwater supplies or interfere with groundwater recharge. No impact will occur.

Rationale for Finding. Although construction-related excavation activities may encounter perched groundwater, thus requiring dewatering activities in accordance with APM HYD-6, such activities would not contribute to the depletion of groundwater supplies or the interference with groundwater recharge. With respect to new impervious surfaces created as part of the Project, the concrete tower footings and concrete pads beneath various substation elements would cover very small areas and would be distributed over a large geographic region, and therefore would not substantially interfere with groundwater recharge. Furthermore, operations of the Project would involve the transmission of electric current through transmission lines with periodic maintenance activities consisting of driving construction vehicles along or within the transmission ROW, which would have no effect on groundwater recharge. Therefore, construction and operation of the Project will have no impact on groundwater supplies or interfere with groundwater recharge.

Reference. Final EIR Section 3.8

Flooding from Increased Rate or Amount of Surface Runoff (Criterion HYD4)

Although grading will occur at tower locations, new and/or expanded substations, crane pads, pulling and splicing stations, and access roads, this ground disturbance will be spread over a large geographic area and will not alter the overall topography of the Project area. Impervious surfaces that will result from construction of the Project include concrete tower footings, concrete pads beneath various substation elements such as transformer banks and paved or sealed access roads. Concrete tower footings and concrete pads beneath various substation elements will cover very small areas and will be distributed over a large geographic region, and therefore will not substantially interfere with groundwater infiltration. The Project will not alter precipitation amounts or intensities, or the amount of precipitation or imported water that infiltrates into the groundwater. Therefore, the rate or amount of surface runoff resulting from the Project will not change relative to existing conditions. Therefore, the Project will not alter any precipitation amounts or intensities, nor will it require any additional water to be imported into the Project area.

Finding. The CPUC finds that the Project will not result in flooding as a result of increase rates or amounts of surface runoff. No impact will occur.

Rationale for Finding. Ground disturbance associated with Project construction will be spread over a large geographic area and will not alter the overall topography of the Project area. Furthermore, the creation of impervious surfaces associated with the Project will cover very small areas and will also be distributed over a large geographic area. Therefore, no impacts from flooding resulting from increased rates or amount of surface runoff will occur.

Reference. Final EIR Section 3.8

III.1.8 Land Use

Cumulative Impact L-1: Construction of the Project would temporarily disrupt, displace or preclude existing residential land uses

No projects will be constructed at the same time as the Project that would affect the residential land uses within 1,000 feet of the Project's construction-related activities. Furthermore, construction disturbances are temporary in nature and will not continue beyond the construction period. As such, temporary disruptions, displacement, or preclusion of existing residential land uses will not potentially combine with the effects of future projects following Project construction.

Finding. The CPUC finds that the Project will not combine with other past, present, or reasonably foreseeable projects to cumulatively disrupt, displace or preclude existing residential land uses within 1,000 feet of the Project's construction-related activities. No impact will occur.

Rationale for Finding. No projects will be constructed at the same time as the Project that would affect the residential land uses within 1,000 feet of the Project's construction-related activities; therefore, no cumulative impacts resulting from temporary disruptions, displacement, or preclusion of existing residential land uses will occur.

Reference. Final EIR Section 3.9

Cumulative Impact L-2: Construction of the Project would temporarily disrupt, displace or preclude existing non-residential land uses

No projects will be constructed at the same time as the Project that would affect the non-residential land uses within 1,000 feet of the Project's construction-related activities. Furthermore, construction disturbances

are temporary in nature and will not continue beyond the construction period. As such, temporary disruptions, displacement, or preclusion of existing non-residential land uses will not potentially combine with the effects of future projects following Project construction.

Finding. The CPUC finds that the Project will not combine with other past, present, or reasonably foreseeable projects to cumulatively disrupt, displace or preclude existing non-residential land uses within 1,000 feet of the Project's construction-related activities. No impact will occur.

Rationale for Finding. No projects will be constructed at the same time as the Project that would affect the non-residential land uses within 1,000 feet of the Project's construction-related activities; therefore, no cumulative impacts resulting from temporary disruptions, displacement, or preclusion of existing non-residential land uses will occur.

Reference. Final EIR Section 3.9

III.1.9 Public Services and Utilities

Require new or expanded water entitlements and resources (Criterion PSU5)

In the North Region of the Project area, the allocation amounts to approximately 38.1 billion gallons of water, and in the South Region, approximately 230 billion gallons of water will be allocated. With such an established system, the Project will connect with existing water services and will not require expanded resources. In addition, during Project construction, water will be required for dust suppression, and domestic drinking and sanitary purposes. The amount of water required will be largely dependent on site-specific conditions, and will be used over the 59-month construction period for the Project. Therefore, water used during construction will not increase the demands of the water suppliers, and will not require new or expanded water facilities, sources, or entitlements. During the operation and maintenance period, the insulators will not require annual cleaning. Consequently, the Project will require negligible amounts of water for maintenance activities. Water demands of the Project will not pose an impact.

Finding. The CPUC finds that the Project will not require new or expanded water entitlements and resources. No impact will occur.

Rationale for Finding. The Project will connect with existing water services and will not require expanded resources. The amount of water required during construction will be largely dependent on site-specific conditions, and will be used over the 59-month construction period for the Project. Therefore, water used during construction will not increase the demands of the water suppliers, and will not require new or expanded water facilities, sources, or entitlements. Additionally, the Project will require negligible amounts of water for maintenance activities.

Reference. Final EIR Section 3.11

III.1.10 Traffic and Transportation

Construction would be inconsistent with transportation plans (Criterion TRA9)

An average of approximately 75 workers will commute to various locations along the proposed route ROW each workday during Project construction. Transmission line workers will be dispersed in groups throughout the Project area and will not typically be working at the same place at any one time. Haul truck traffic will include trucks carrying equipment and materials, spoils for disposal, and new and old tower support pieces. Trips will be made to and from various points along the transmission line route. The dispersion of workers

at various worksites along the approximate 173-mile route will preclude Project-related construction traffic from exceeding any of the CMP thresholds of the affected counties.

Finding. The CPUC finds that the Project will not be inconsistent with transportation plans. No impact will occur.

Rationale for Finding. The dispersion of workers at various worksites along the approximate 173-mile route will preclude Project-related construction traffic from exceeding any of the CMP thresholds of the affected counties.

Reference. Final EIR Section 3.13

III.1.11 Wildfire Prevention and Suppression

Cumulative Impact F-4: Construction and/or maintenance activities would increase the risk of personnel injury or death in the event of fire

While the Project will increase the risk of construction and maintenance personnel injury or death in the event of an uncontrolled wildland fire to a less-than-significant level after mitigation, this effect will not combine with other past, present, or reasonably foreseeable projects to result in a cumulative impact to personnel. Therefore this impact would not be cumulatively significant.

Finding. The CPUC finds that construction and/or maintenance activities associated with the Project will not result in a cumulative increase in the risk of personnel injury or death in the event of a fire. No impact will occur.

Rationale for Finding. Because the Project will not combine with other past, present, or reasonably foreseeable projects to result in a cumulative impact to personnel in the event of a fire, no impact will occur.

Reference. Final EIR Section 3.16

Cumulative Impact F-5: Presence of the overhead transmission line would increase the risk of wildfire and compromise firefighter safety

While the Project will not result in a new ongoing source of potential wildfire ignitions within a fireshed, the existing transmission lines within the Tehachapi Fireshed that the Project will replace represent an ongoing source of potential wildfire ignitions. Once operational, the potential for wildfire ignitions as a result of the presence of a transmission line will persist, but will not increase. Past, present, and reasonably foreseeable projects that have been/would be constructed near fuel-laden wildlands would also increase the probability of igniting a wildfire that would result in widespread damages. Even a single ignition that escapes containment in the highly fire-prone Tehachapi Fireshed could have devastating effects on communities, firefighter health and safety, and natural resources, and these mitigation measures would not ensure prevention or containment of all ignitions.

Finding. The CPUC finds that the presence of overhead transmission lines will not combine with other past, present, or reasonably foreseeable projects to cumulatively increase the risk of wildfire or compromise firefighter safety. No impact will occur.

Rationale for Finding. Because the risk of wildfire ignition will not increase as a result of the Project, this effect will not combine with other past, present, and reasonably foreseeable projects to result in a cumulative impact. Therefore this impact would not be cumulatively significant and no impact will occur.

Reference. Final EIR Section 3.16

III.1.12 Electrical Interference and Hazards

Cumulative Impact EIH-1: The Project would cause radio, television, communications, or electronic equipment interference

The electrical interference and hazards associated with the Project occur in the immediate vicinity of the transmission line ROW. These impacts would be similar to the impacts of the existing transmission lines which the Project is adjacent to and would not be additive. No cumulative impact on radios, televisions, communications, or other electronic equipment resulting from electrical interference will occur as a result of the Project.

Finding. The CPUC finds that the Project will not combine with other past, present, or reasonably foreseeable projects to result in cumulative interferences of radio, television, communications, or other electronic equipment . No impact will occur.

Rationale for Finding. Because the electrical interference and hazards associated with the Project occur in the immediate vicinity of the transmission line ROW, these impacts would not be cumulatively considerable. No impact will occur.

Reference. Final EIR Section 3.16

Cumulative Impact EIH-2: The Project would cause induced currents and shock hazards in joint use corridors

The electrical interference and hazards associated with the Project occur in the immediate vicinity of the transmission line ROW. These impacts would be similar to the impacts of the existing transmission lines which the Project is adjacent to and would not be additive. No cumulative impact from induced currents or shock hazards in joint use corridors will occur as a result of the Project.

Finding. The CPUC finds that the Project will not combine with other past, present, or reasonably foreseeable projects to result in cumulative induced currents or shock hazards in joint use corridors. No impact will occur.

Rationale for Finding. Because the electrical interference and hazards associated with the Project occur in the immediate vicinity of the transmission line ROW, these impacts would not be cumulatively considerable. No impact will occur.

Reference. Final EIR Section 3.16

Cumulative Impact EIH-3: Project operation would result in electric fields that would affect cardiac pacemakers

The electrical interference and hazards associated with the Project occur in the immediate vicinity of the transmission line ROW. These impacts would be similar to the impacts of the existing transmission lines which the Project is adjacent to and would not be additive. No cumulative impact to cardiac pacemakers will occur as a result of the Project.

Finding. The CPUC finds that the Project will not combine with other past, present, or reasonably foreseeable projects to result in cumulative impacts to cardiac pacemakers. No impact will occur.

Rationale for Finding. Because the electrical interference and hazards associated with the Project occur in the immediate vicinity of the transmission line ROW, these impacts would not be cumulatively considerable. No impact will occur.

Reference. Final EIR Section 3.16

Cumulative Impact EIH-4: Project structures would be affected by wind and earthquakes

The affects of wind and earthquakes would occur in the immediate vicinity of the transmission line ROW. These impacts would be similar to the impacts of the existing transmission lines which the Project is adjacent to and would not be additive. No cumulative impact from structures being affected by wind and earthquakes will occur as a result of the Project.

Finding. The CPUC finds that the Project will not combine with other past, present, or reasonably foreseeable projects to result in cumulative impacts from Project structures being affected by wind and earthquakes . No impact will occur.

Rationale for Finding. Because the hazards associated with the Project structures being affected by wind and earthquakes occur in the immediate vicinity of the transmission line ROW, these impacts would not be cumulatively considerable. No impact will occur.

Reference. Final EIR Section 3.16

III.2 Environmental Impacts Found to be Less than Significant

The CPUC hereby finds that the following environmental impacts of the Project are less than significant without the implementation of mitigation measures. Under CEQA, no mitigation measures are required for impacts that are less than significant (14 Cal. Code Regs. § 15126.4(a)(3)). However, the discussion below identifies applicant proposed measures (APMs) and mitigation measures that will be implemented to further reduce Project impacts.

III.2.1 Agricultural Resources

For the analysis of agricultural resources impacts, the extent of the area analyzed was defined as (1) agricultural land uses immediately adjacent to the ROW, (2) agricultural land uses located near the construction equipment/materials transportation routes, (3) agricultural land uses affected by construction and operation activities, and (4) agricultural land uses that have national, regional, or local significance and are within one mile of the ROW. For the analysis of the conversion of Farmland and conflicts with Williamson Act contracts, specific impact acreages were calculated by determining how many transmission structures and pulling and stringing sites will traverse Farmland and the length of access and spur roads that will traverse these lands. Impact acreages assumed 0.92 acres of temporary disturbance per transmission structure, 0.92 acres of temporary disturbance per pulling and stringing site, 0.003 acres of permanent disturbance per transmission structure, and access and spur road widths of 14 feet which will be counted for both temporary and permanent disturbance.

Impact AG-2: Operation would permanently convert Farmland to non-agricultural use.

The Project will traverse 7.98 miles of Prime Farmland, 0.92 miles of Unique Farmland, and 0.18 miles of Farmland of Statewide Importance and will include 2.99 miles of access and spur roads, with a total of 44 T/L towers and approximately 10 stringing and pulling sites located on agricultural lands in Segments 4 and 8. While the stringing and pulling sites will be restored following the completion of construction activities, tower footings and foundations and some access and spur roads will represent permanent disturbances to land uses, including Farmland.

Of the 44 T/L towers, 24 towers will be LSTs along Segment 4 and 20 towers will be a mix of LSTs and TSPs along Segments 8A, 8B, and 8C. Towers installed in the portions of Segments 8A and 8C traversing Farmland will be TSPs while towers installed in the portions of Segment 8B traversing Farmland will be LSTs. Segments 8A and 8C will include 12 TSPs on Farmland while Segment 8B will include 8 LSTs on Farmland. A single LST will permanently convert 0.003 acres of land while a single TSP will permanently convert 0.001 acres of land. Consequently, T/L towers associated with the Project will permanently convert a total of 0.76 acres of Farmland to non-agricultural uses.

Finding. The CPUC finds that Impact AG-2 will be less than significant without mitigation.

Rationale for Finding. Applicant Proposed Measures (APMs) included as part of the Project minimize this potential impact. Specifically, APM AG-2 (Locate Project Activities to Minimize Impacts to Active Agricultural Operations) will help to minimize the area of permanent conversion. The Project will permanently convert 5.83 acres of Farmland to non-agricultural use. As this total area is less than the minimum area necessary for sustainable agriculture and less than the minimum DOC mapping unit, the permanent conversion of Farmland under the Project to non-agricultural uses will not be significant.

Reference. Final EIR Section 3.2; Table ES-3

III.2.2 Air Quality

The air quality significance criteria were developed considering the CEQA significance criteria developed by the local air quality districts in the Project area, approved CEQA air quality checklists, and considering other federal criteria. The most stringent of the adopted regional thresholds for construction activities and for Project operations in each jurisdiction, including the South Coast Air Quality Management District (SCAQMD), Antelope Valley Air quality Management District (AVAQMD), and Kern County Air Pollution Control District (KCAPCD), were applied to the Project. The SCAQMD recommends additional localized significance thresholds (LSTs) for toxic air contaminants (TACs), odors, and ambient air quality, and as such these were also applied to the Project. In addition to the regional and local significance criteria, the General Conformity Rule applicability "de minimis" emission were applied to those Project areas in federal jurisdiction and control that are in nonattainment of the National Ambient Air Quality Standards (NAAQS). Finally, greenhouse gas (GHG) significance was determined based on based on whether the Project will result in greenhouse gas emissions that substantially exceed baseline greenhouse gas emissions and that following construction will not impel a regional reduction in GHGs.

Impact AQ-2: Operating emissions would exceed the SCAQMD, AVAQMD, and/or KCAPCD regional emission thresholds.

Operation and maintenance of the Project will result in short-term direct and indirect impacts to ambient air quality. The Project direct operating emissions are comprised of increased inspection and maintenance activities. The emissions caused directly by operation, maintenance, and inspection of the Project will be below all applicable regional daily and annual emission thresholds, and will not result in significant direct operational emissions within any jurisdiction. Therefore, direct operational impacts of the Project will not conflict with any air quality management plan. Project indirect emissions are comprised of the Project's impact on the transmission grid and operation of existing and forecast power plants. The indirect emissions for the Project have not been calculated by CAISO, but it is assumed that the indirect emission reductions from the displacement of fossil-fuel fired power plant emissions are higher than the maximum daily direct emission increases and much high than the annual direct emission increase from the limited inspection and maintenance activities required to maintain the new transmission lines and associated facilities.

Finding. The CPUC finds that Impact AQ-2 will be less than significant without mitigation. The Project's direct operating emissions are minor and will therefore not conflict with any air quality management plans and will have a less-than-significant impact in all jurisdictions. Additionally, the Project's transmission of renewable energy is assumed to help facilitate an indirect emission decrease and an overall emissions decrease. Therefore, the operations of the Project will provide a beneficial operating emissions impact.

Rationale for Finding. The direct maximum daily operating emissions are minimal and the Project is assumed to create an indirect emission reduction. The operating emissions occur over a large area as a result of non-stationary activities such as line inspection and road maintenance so that a significant amount of normal operating emissions will not occur in any single location in quantities that could approach the SCAQMD, AVAQMD, and/or KCAPCD regional emission thresholds.

Reference. Final EIR Section 3.3; Table ES-3

Impact AQ-4: Operation of the Project would expose sensitive receptors to substantial pollutant concentrations.

Operations of the Project will result in short-term direct and indirect impacts to ambient air quality. The Project direct operating emissions are comprised of increased inspection and maintenance activities.

Finding. The CPUC finds that Impact AQ-4 will be less than significant without mitigation. Operation of the Project will not cause localized emissions above the SCAQMD LST thresholds, and Project operation will not have a significant impact on local sensitive receptors.

Rationale for Finding. The direct maximum daily operating emissions are minimal and the Project is assumed to create an indirect emission reduction. The operating emissions occur over a large area as a result of non-stationary activities such as line inspection and road maintenance so that a significant amount of normal operating emissions will not occur in any single location in quantities that could approach the SCAQMD LST thresholds.

Reference. Final EIR Section 3.3; Table ES-3

Impact AQ-5: Construction or operation of the Project would generate toxic air contaminant emissions that would exceed SCAQMD risk thresholds.

While the construction of the Project will generate large quantities of criteria pollutant emissions, the Project covers a very large area and does not generate large quantities of emissions at any one site, such as a major stationary source, nor does it generate large quantities of toxic air contaminants, with the potential exception of diesel particulate matter (DPM). Additionally, the Project's construction occurs over a limited period of time that will further reduce the long term chronic exposures (carcinogenic and non-carcinogenic exposures) to DPM and other air toxic contaminants.

Finding. The CPUC finds the Impact AQ-5 will be less than significant without mitigation. The Project's toxic air contaminant emissions will not exceed SCAQMD risk thresholds such that the Project will have less-than-significant health risk impacts.

Rationale for Finding. The risk from Project construction at any given receptor area will be well below the SCAQMD significance thresholds. Operation emissions of toxic air contaminants are negligible and as noted previously the Project will result in an indirect net emission decrease that will lower risk from toxic air contaminants.

Reference. Final EIR Section 3.3; Table ES-3

Impact AQ-7: The Project would create objectionable odors.

Construction equipment and equipment used during construction operations, such as the potential for small areas of asphalt paving (minor hot or cold mix patching); and the operations maintenance/inspection equipment may create mildly objectionable odors.

Finding. The CPUC finds that the odor impacts from the Project's construction and operation will be less than significant, and Impact AQ-7 will be less than significant without mitigation..

Rationale for Finding. These odors will be temporary and will not affect a substantial number of people. No mitigation measures for odor reduction are necessary for this Project.

Reference. Final EIR Section 3.3; Table ES-3

Impact AQ-10: Emissions would contribute to climate change.

During construction the Project will cause short-term greenhouse gas (GHG) emissions. GHG emissions include truck transport emissions to the site from the last major shipping terminal (port, rail yard, etc.) but do not include rail or ship transport of cable, steel, electrical equipment, etc. During operation of the Project, minor quantities of direct long-term GHG emissions, in the form of additional SF_6 equipment leak emissions will occur. Inspection and maintenance activities will also cause a small increase in GHG emissions. The Project's construction and operating GHG emission increases will be more than offset by the Project providing greater renewable energy transmission and providing improved transmission effectiveness and efficiency, which partially implements one of the Intergovernmental Panel on Climate Change (IPCC) key strategies for mitigating climate change.

Finding. The CPUC finds that the Project's direct operating GHG emissions are minor and will be less than significant without mitigation. Additionally, the Project will create a substantial indirect emission decrease, resulting in a beneficial GHG emissions impact.

Rationale for Finding. The Project's direct operating GHG emissions are minor and the Project will create a substantial indirect emission decrease that, even considering the Project's construction GHG emissions, will create an overall GHG emissions decrease over the Project's life. Additionally, the Project's purpose will implement key strategies for mitigating climate change proposed by the California Energy Commission and the IPCC to improve transmission and increase renewable energy use. Therefore, the Project will provide a beneficial GHG emissions impact.

Reference. Final EIR Section 3.3; Table ES-3

Cumulative Impact AQ-2: Operating emissions would exceed the SCAQMD, AVAQMD, and/or KCAPCD regional emission thresholds.

Direct operating emissions for the Project are very minimal and will occur over a large area and will not cumulatively have the potential to exceed SCAQMD, AVAQMD, and KCAPCD emission significance thresholds. Indirectly the Project will reduce operating emissions.

Finding. The CPUC finds that operation of the Project will have a less-than-significant cumulative regional impact to air quality.

Rationale for Finding. Direct operating emissions for the Project are minimal, occur over a large area, and will not have the potential to exceed regional emission thresholds; therefore, operating emissions will not be cumulatively significant. Furthermore, the Project will indirectly reduce operating emissions and therefore will not result in a cumulatively adverse or significant impact.

Reference. Final EIR Section 3.3; Table ES-3

Cumulative Impact AQ-4: Operation of the Project would expose sensitive receptors to substantial pollutant concentrations.

Direct operating emissions for the Project are minimal, will occur over a large area, and will not cumulatively exceed SCAQMD, AVAQMD, or KCAPCD significance thresholds. Indirectly the Project will reduce operating emissions.

Finding. The CPUC finds that operation of the Project will have a less-than-significant cumulative localized air quality impact to sensitive receptors.

Rationale for Finding. Since the Project's operation will have minimum direct localized operating emissions and the Project will help create an overall net emission decrease, it will have a less-than-significant cumulative localized impact to sensitive receptors.

Reference. Final EIR Section 3.3; Table ES-3

Cumulative Impact AQ-5: Construction or operation of the Project would generate toxic air contaminant emissions that would exceed SCAQMD risk thresholds.

Construction activities associated with the Project do not have large amounts of toxic air contaminant emissions, are of short duration, and do not have significant emissions in any single area that could create a significant risk to local populations. Similarly, the cumulative projects construction will not be expected to have significant emissions of toxic air contaminants, and will not have the potential to cumulatively exceed SCAQMD risk thresholds.

Finding. The CPUC finds that the Project will have a less-than-significant cumulative health risk associated with toxic air contaminant emissions.

Rationale for Finding. Given the temporary nature and low toxic air contaminant emission level for the Project and cumulative projects, the Project will have a less-than-significant cumulative health risk.

Reference. Final EIR Section 3.3; Table ES-3

Cumulative Impact AQ-7: The Project would create objectionable odors.

Construction equipment and operations, such as asphalt paving, may create temporary and mildly objectionable odors. Such odors will not significantly affect a substantial number of people. To have the potential to combine with odors from the Project, odor-generating activities from other current and Projects will have to occur concurrently, occur in very close proximity with the odor-generating activities of the Project, and result in a cumulatively worse odor condition.

Finding. The CPUC finds that odor impacts related to the Project will be adverse but not cumulatively significant.

Rationale for Finding. Given the temporary nature and relative mildness of the Project's construction odors, odor impacts related to the Project will be adverse but not cumulatively significant.

Reference. Final EIR Section 3.3; Table ES-3

III.2.3 Biological Resources

As discussed in Section 3.4 (Biological Resources) of the Final EIR, extensive literature searches were conducted consisting of a review of relevant databases, maps, technical reports, jurisdictional plans and

polices, as well as relevant environmental documents to determine the federal and State listed endangered, threatened, proposed endangered or threatened, rare, and special-status plant and wildlife species that have potential to occur within the vicinity of the Project. In addition, extensive field surveys were conducted in order to verify the location of any habitat or species that will be affected by Project development and areas of temporary construction activity. Biological reconnaissance surveys, focused surveys, and protocol surveys were conducted throughout the Project area during 2007, 2008, and 2009.

For the purposes of the analysis in the Final EIR and based on CEQA requirements, biological resources identified include all plant and wildlife species and habitat observed during field studies and all those included in the results of the literature review. Those identified were analyzed in order to identify portions of the ROW and substation locations that are known to support listed and special-status plant and wildlife species, or are most likely to support habitat for listed and special-status plant and wildlife species.

Impact B-11: The Project could result in mortality of desert tortoises as a result of increased predation by common ravens.

Construction of the Project will increase the number and size of transmission towers and substation-associated structures that provide potential nest sites for common ravens. This species is a known predator of juvenile desert tortoises.

Finding. The CPUC finds that impacts resulting from raven predation on desert tortoises will be less than significant without mitigation.

Rationale for Finding. Raven population increases appear to be more associated with increased food supplies made available via human disposal (e.g., landfills, dumpsters, and litter) than access to perch sites. In addition, perch sites in the Project area do not appear to be a limiting factor as many of the existing towers are utilized by ravens and other birds as roosting sites and Joshua trees are relatively abundant in the northernmost portion of the Project where desert tortoises have the potential to occur. Raven population increases, if they occur, are expected to be small and food supplies will not change appreciably. Therefore, increased predation on the desert tortoise, if present, is not expected to result from additional towers. No raven-control mitigation is necessary for this Project.

Reference. Final EIR Section 3.4; Table ES-3

Impact B-20: The Project could result in electrocution of State and/or federally protected birds.

Direct and operational impacts from the Project include electrocution of large aerially perching bird species. Indirect effects associated with this impact include increased risk of wildfire due to electrocuted birds or nests contacting flammable vegetation or other materials. APMs BIO-4 and BIO-9, included as part of the Project, state that SCE construction and operations crews will use BMPs, and that transmission facilities will be designed to be raptor-safe in accordance with the *Suggested Practices for Raptor Protection on Power Lines: The State of the Art in 2006* (APLIC, 2006).

Finding. The CPUC finds that electrocution impacts to State and/or federally protected birds will be less than significant without mitigation.

Rationale for Finding. None of the wingspans or heights of any of the birds that could occur in the Project area are long enough to simultaneously contact two energized phase conductors for the Project. Furthermore, the risk of electrocution on lines energized at voltages above 69 kV is extremely low. Although special-status birds may under some circumstances be subject to electrocution, the likelihood of electrocutions occurring at voltages greater than 69 kV is extremely low (APLIC, 2006). With the

implementation of APMs BIO-4 and APM BIO-9, impacts to State and/or federally protected birds resulting from electrocution will be less than significant.

Reference. Final EIR Section 3.4; Table ES-3

Impact B-21: The Project could result in collision with overhead wires by State and/or federally protected birds.

Mortality of bird species due to collision with overhead power lines, towers, cranes, or other Project components could occur during construction as well as during operation of the Project. APM BIO-9, included as part of the Project, ensures the incorporation of raptor safety protection into the Project design.

Finding. The CPUC finds that impacts to State and/or federally protected birds resulting from transmission line collisions will be less than significant without mitigation.

Rationale for Finding. Because the majority of the Project includes replacing existing lines with new lines, the overall risk to birds will be similar to baseline risks. On NFS lands, avian safety measures in the form of swan wrap will be required on towers/shield/conductor lines where it is deemed necessary by the USDA Forest Service. APM BIO-9 will also be implemented as part of the Project. This measure states that all transmission structures will be designed to be raptor-safe in accordance with the *Suggested Practices for Raptor Protection on Power Lines: The State of the Art in 2006* (APLIC, 2006). No further mitigation is required.

Reference. Final EIR Section 3.4; Table ES-3

Impact B-28: The Project could disturb wintering mountain plovers.

In the Project area, mountain plovers are known to winter in the Northern Region where they forage and roost mainly in recently tilled agricultural fields, although they are also known to roost in recently graded road beds. The Project will affect approximately 24 acres of agriculture lands scattered along Segment 4 in the Northern Region. Of this acreage, an unknown portion will be recently tilled during the time of year (mid-October to mid-February) in which mountain plovers may be present.

Finding. The CPUC finds that impacts to wintering mountain plovers will be less than significant without mitigation.

Rationale for Finding. Because the total acreage of impacted habitat is small compared to what is available regionally, and implementation of the Project will not restrict the range of the species, impacts to wintering mountain plovers resulting from construction disturbance will be less than significant. No further mitigation is required.

Reference. Final EIR Section 3.4; Table ES-3

Impact B-34: The Project could result in transmission line strikes by special-status bat species.

Special-status and Forest Service Sensitive bat species with the potential to occur in the Project include the pallid bat, Townsend's big-eared bat, western red bat, hoary bat, spotted bat, western mastiff bat, big free-tailed bat, and pocketed free-tailed bat. A potential impact to these species resulting from Project implementation is the direct loss of individuals from fatal strikes with transmission lines.

Finding. The CPUC finds that impacts to special-status bats from collision with the transmission lines will be less than significant without mitigation.

Rationale for Finding. The pallid bat and Townsend's big-eared bat generally fly too low while foraging to be impacted by additional transmission lines; the number of fatal strikes for these species is expected to be very low and not significant. In addition, pallid bats primarily forage on the ground for terrestrial insects such as scorpions and beetles. The western mastiff bat, big free-tailed bat, pocketed free-tailed bat, spotted bat, hoary bat, and western red bat all fly high enough to potentially be impacted by additional transmission lines. However, given that most bat species can use echolocation to discriminate objects as small as 0.4 to 0.004 inch in size (Vaughan and Vaughan, 1986), and the size of guard lines and 500-kV or 220-kV transmission lines are typically equal to or greater than 0.5 inch in diameter, the frequency of transmission line strikes is expected to be extremely low. Therefore, the number of fatal strikes is still expected to be quite low and insufficient to substantially reduce the number of these species. No mitigation is required.

Reference. Final EIR Section 3.4; Table ES-3

Impact B-40: The Project could interfere with established bird and bat migratory corridors.

A potential impact to migrating bird and bat species resulting from Project implementation is the interference with established migratory corridors as a result of fatal collisions with transmission lines.

Finding. The CPUC finds that impacts resulting from interference with established bird and bat migratory corridors will be less than significant without mitigation.

Rationale for Finding. There are no known bird or bat migratory corridors that will be directly impeded by the Project. Large concentrations of migrants are not known to utilize any portion of the Project (See Appendix B of the *Biological Specialist Report* [Aspen and H.T. Harvey & Associates, 2009], Avian Risk Assessment). Further, bats are expected to avoid transmission lines because they can detect objects as small as 0.4 to 0.004 inch in size through echolocation (Vaughan and Vaughan, 1986), and the size of guard lines and transmission lines is typically greater than or equal to 0.5 inch in diameter. Therefore, the impact to bird and bat migratory corridors from the Project will be less than significant. No mitigation is required.

Reference. Final EIR Section 3.4; Table ES-3

Impact B-41: Corona noise could result in disturbance to wildlife.

As discussed in Section 3.10.2 of the Final EIR (Affected Environment: Noise), the most notable noise source in the immediate vicinity of the majority of the Project route is the corona noise from the existing transmission lines. Corona generates audible noise during operation of transmission lines. The noise is generally characterized as a crackling, hissing, or humming sound and is most noticeable during wet conductor conditions such as rain or fog. Audible noise from transmission lines is often masked by the background noise at locations beyond the edge of the ROW, particularly where the line runs near a source of background noise such as a freeway, creek, or river channel. In addition, wind, OHV use, and highways noise can often be much louder than corona noise, even in relatively undisturbed areas such as the ANF. The amount of corona produced by a transmission line is a function of the voltage of the line, the diameter of the conductor (or bundle of conductors), the elevation of the line above sea level, the condition of the conductor and hardware, and the local weather conditions. This noise increases with the voltage of the line, irregularities on the conductor surface caused either by age or moisture, and wet ambient meteorological conditions, when high humidity, fog, or rain occur. While a wealth of information related to the effects of anthropogenic noise on wildlife is available in the literature, studies focused on corona noise are extremely limited.

Finding. The CPUC finds that impacts to wildlife resulting from corona noise will be less than significant without mitigation.

Rationale for Finding. The effects of corona noise on wildlife are poorly understood, and it is difficult to predict the degree to which the increase in corona noise will impact local wildlife. In the Project area, animals are already subject to existing corona noise from about <20 to 51 dBA (see Table 3.10-3 of the Final EIR), and while the Project will result in louder corona noise for most segments (estimated to be approximately 22 to 60 dBA; see Table 3.10-5 of the Final EIR), wildlife are expected to have already been exposed and likely habituated to this disturbance. In addition, corona noise attenuates rapidly at short distances from the ROW. Thus, impacts to wildlife resulting from corona noise will be less than significant. No mitigation is required.

Reference. Final EIR Section 3.4; Table ES-3

Cumulative Impact B-11: The Project could result in mortality of desert tortoises as a result of increased predation by common ravens.

The Project will increase the number of transmission towers and substation-associated structures that provide potential nest and perch sites for common ravens, which are known predators of juvenile desert tortoises. Raven population increases appear to be associated with increased perch sites and food supplies made available to ravens via human disposal (e.g., landfills, dumpsters, and litter). Past actions (e.g., development, urbanization, landfill construction, litter, recreation) have resulted in considerable incremental adverse impacts to desert tortoises resulting from common raven predation. Although natural events such as drought and fire have also adversely impacted desert tortoise populations, no natural event has been linked to population increases of common ravens and their predation of desert tortoises. Foreseeable future actions in this area will also result in incremental adverse impacts to desert tortoises resulting from common raven predation. Foreseeable future actions include projects such as the PdV, Alta, and Pine Tree wind farms; Route 58 Mojave Alignment Project; Hyundai Corporation Test Track Facility and Habitat Conservation Plan; California High-Speed Train System; and at least 12 separate small- and large-scale residential and planned community developments in southern and central Kern County.

Finding. The CPUC finds that the Project's contribution to cumulative impacts resulting from raven predation on desert tortoises will be less than significant without mitigation.

Rationale for Finding. Raven population increases, if they occur, are expected to be small, and food supplies are not expected to change appreciably in portions of the Project area where desert tortoises may occur. Therefore, the construction of additional towers and substation-associated structures is not expected to result in a significant increase in cumulative predation of the desert tortoise, if present, by common ravens. The Project will not make a cumulatively considerable contribution to a significant cumulative impact. No mitigation is required.

Reference. Final EIR Section 3.4; Table ES-3

Cumulative Impact B-13: The Project could result in the loss of Critical Habitat for the Santa Ana sucker.

Critical habitat for the Santa Ana sucker exists downstream of Cogswell Reservoir, in an area that includes a potential access road for heavy equipment (West Fork Cogswell Road). This access road is paved and runs for approximately 7.4 miles adjacent to the West Fork San Gabriel River, which is designated critical habitat for the Santa Ana sucker. Use of this access road could result in accidental spills, increased turbidity due to vehicles using wet crossings, and potentially alter light regimes from the trimming and/or removal of some riparian vegetation. Vehicle passage through flowing water or leakage onto roadways that is transported into the river during storm events could result in the degradation of habitat. However, this road is not proposed

for use under Alternative 6. As the construction of the Project on NFS lands will be a combination of Alternatives 2 and 6, the ultimate decision whether or not to allow SCE to use this road during construction will be determined in the USDA Forest Service's Record of Decision on the TRTP. The West Fork Cogswell Road will not be used for access to the transmission line during operation and maintenance of the Project.

Mitigation measures included in the Project which address the Project's incremental contribution to this cumulative effect include Mitigation Measures B-1a (Provide restoration/compensation for impacts to native vegetation communities), B-1b (Implement a Worker Environmental Awareness Program), B-2 (Implement RCA Treatment Plan), B-3a (Prepare and implement a Weed Control Plan), B-8b (Conduct biological monitoring), B-12 (Implement avoidance and minimization measures for Santa Ana sucker and other aquatic organisms), H-1a (Implement an Erosion Control Plan and demonstrate compliance with water quality permits), and H-1b (Dry weather construction).

Finding. The CPUC finds that changes or alterations have been required in, or incorporated into, the Project which avoid or substantially lessen the Project's contribution to cumulative impacts to the Santa Ana sucker. Due to the inclusion of Project mitigation listed above, the incremental impacts of the Project to Santa Ana sucker critical habitat will be less than significant should the West Fork Cogswell Road be used as a construction access route. If it is not used, there will be no impact to Santa Ana sucker critical habitat.

Rationale for Finding. Direct loss of critical habitat for this species will not occur from the Project. However, degradation of critical habitat may occur from the accidental release of mud, petroleum products, heavy metals, or other construction materials if the West Fork Cogswell Road is used for construction access to the Project. However, through the implementation of project minimization measures described under Impact B-12 (see Section III.3.3), these effects will be minimized or avoided. With the implementation of these measures the Project will not appreciably diminish the value of the habitat or affect the constituent elements required for occupancy by this species. Operational effects will not occur because once the Project has been completed use of the West Fork Cogswell Road will not occur. Because Project mitigation will minimize or eliminate effects to critical habitat for the Santa Ana sucker, the Project's incremental contribution will be negligible. In addition, other projects with the potential to impact Santa Ana sucker critical habitat in the Project area will be conditioned on mitigation similar to the Project as they will occur on federal lands under the jurisdiction of the USDA Forest Service. Therefore, the Project will not make a cumulatively considerable contribution to a significant cumulative impact. No additional mitigation is required.

Reference. Final EIR Section 3.4; Table ES-3

Cumulative Impact B-20: The Project could result in the electrocution of State and/or federally protected birds.

Direct and operational impacts from the Project include electrocution of large aerially perching bird species. Indirect effects associated with this impact include increased risk of wildfire due to electrocuted birds or nests contacting flammable vegetation or other materials. Similar risks could also occur on other transmission line projects in the region, namely the Antelope Transmission Project Segments 2 and 3 in the Northern Region.

APMs BIO-4 and BIO-9, which are included as part of the Project, state that SCE construction and operations crews will use BMPs, and that transmission facilities will be designed to be raptor-safe in accordance with the *Suggested Practices for Raptor Protection on Power Lines: The State of the Art in 2006* (APLIC, 2006).

Finding. The CPUC finds that the Project's contribution to cumulative impacts of electrocution by transmission lines on State and federally protected birds resulting from the Project and other past, present, and reasonably foreseeable projects will be less than cumulatively significant.

Rationale for Finding. The likelihood of electrocutions occurring on transmission lines of voltages greater than 69 kV is low (APLIC, 2006). Although approximately 17 miles of transmission lines proposed in the Antelope Transmission Project Segment 2 will come within close proximity (>0.5 miles) to Segments 10 and 5 of the Project in the Northern Region, the likelihood of electrocution on this line is also low because it will be a 500-kV line. Large, aerial-perching birds such as hawks and eagles are most susceptible to electrocution from power lines, however the elements of a 500-kV or 220-kV line are spaced far enough apart that even the largest raptors are unlikely to be electrocuted. Additionally, the implementation of APMs BIO-4 and BIO-9 as part of the Project will minimize the Project's incremental contribution to this cumulative effect. The cumulative impacts of electrocution by transmission lines on state and federally protected birds resulting from the Project and other past, present, and reasonably foreseeable projects will be less than cumulatively significant. No further mitigation is required.

Reference. Final EIR Section 3.4; Table ES-3

Cumulative Impact B-31: The Project could disturb nesting California spotted owls.

California spotted owls are known to nest within the ANF in Segments 6 and 11 of the Project. In many areas, both access roads and tower locations cross occupied habitat including known nesting areas. Direct impacts to nesting California spotted owls include lower reproductive success, nest abandonment, predation, and increased stress levels due to chronic noise levels, fugitive dust, vibration, and air turbulence associated with heavy equipment and helicopter operations. Other direct impacts include the loss of suitable nest trees as a result of vegetation clearing for tower pads, tower removal sites, pulling and tensioning sites, and construction, grading, and widening of new spur roads and existing access roads. Operational impacts include collisions with transmission lines and disturbance due to increased human presence as a result of public use of new or improved spur and access roads.

Fuel treatments are proposed by the USDA Forest Service for both Mill Creek Summit and Upper Big Tujunga Canyon, and both of these areas directly overlap with Segment 6. Fuel treatments at these sites will reduce the amount of tree cover and create considerable noise of short duration adjacent to Segment 6.

Mitigation measures under the Project include Mitigation Measures B-1b (Implement a Worker Environmental Awareness Program), B-30 (Conduct pre- and during construction nest surveys for spotted owl), and AQ-1a (Implement Construction Fugitive Dust Control Plan), which will minimize the Project's incremental contribution to this cumulative impact.

Finding. The CPUC finds that changes or alterations have been required in, or incorporated into, the Project which avoid or substantially lessen the Project's contribution to cumulative impacts to nesting California spotted owls. With the inclusion of Project mitigation listed above, the Project's cumulative contribution to nesting California spotted owls will be less than significant.

Rationale for Finding. Other fuels reduction projects proposed in the Project area will be subject to the same requirements as the Project with regard to California spotted owls, and will be mitigated similarly to the Project. The Project construction activities would potentially result in disturbance to nesting California spotted owls in the Central Region of the Project. However, implementation of APMs BIO-2 and BIO-4 through BIO-6, which are included as part of the Project, as well as Mitigation Measures B-1b, B-30, and

AQ-1a will reduce the Project's incremental contribution to this cumulative impact. Cumulative impacts would not be significant and no further mitigation is required.

Reference. Final EIR Section 3.4; Table ES-3

Cumulative Impact B-34: The Project could result in transmission line strikes by special-status bat species.

The Antelope Transmission Project Segments 1-3 proposes the construction of approximately 51 miles of transmission lines for the western Antelope Valley in the vicinity of the Project. This transmission line project in combination with the TRTP will cumulatively increase the probability of transmission line strikes for special-status bat species in the Northern Region.

Finding. The CPUC finds that cumulative impacts resulting from transmission line strikes by special-status bats will be less than significant.

Rationale for Finding. The frequency of transmission line strikes by special-status bats is expected to be quite low, due to the ability of these bat species to detect and avoid transmission lines during echolocation. Therefore, the cumulative impacts of transmission line strikes on special-status bat species resulting from the Project and other past, present, and reasonably foreseeable projects will be less than significant. No mitigation is required.

Reference. Final EIR Section 3.4; Table ES-3

Cumulative Impact B-40: The Project could interfere with established bird and bat migratory corridors.

The loss of established bird and bat migratory corridors as a result of transmission line construction could be cumulatively significant within the Northern Region of the Project, where approximately 17 miles of transmission lines proposed in the Antelope Transmission Project Segment 2 will come within close proximity (>0.5 mile) to Segment 5 of the Project. The Antelope Transmission Project in combination with the TRTP could occur along a significant migratory route in the Antelope Valley for migratory bats, including western red bat and hoary bat.

Finding. The CPUC finds that cumulative impacts resulting from interference with established bird and bat migratory corridors will be less than significant.

Rationale for Finding. The Antelope Transmission Project and TRTP transmission lines are not located along major landbird migration routes and are not expected to have a significant cumulative effect on migratory patterns or migration routes for birds within the Northern Region. Bat migratory corridors will not be lost owing to the ability of these bat species to detect and avoid transmission lines during echolocation. Therefore, the cumulative impacts of transmission lines on bird and bat migratory corridors resulting from the Project and other past, present, and reasonably foreseeable projects will be less than significant. No mitigation is required.

Reference. Final EIR Section 3.4; Table ES-3

Cumulative Impact B-41: Corona noise could result in disturbance to wildlife.

Corona noise from the Project as well as other proposed transmission lines in the Project vicinity have the potential to disturb wildlife. Specifically, the Antelope Transmission Project will be located in close proximity to the Project in the Northern Region.

Finding. The CPUC finds that cumulative impacts to wildlife resulting from corona noise will be less than significant.

Rationale for Finding. As the effects of corona noise on wildlife are poorly understood, it is difficult to predict the degree to which the increase in corona noise resulting from the TRTP and other cumulative projects will impact local wildlife, including special-status species. Animals, especially breeding birds and other wildlife that use sound for communication, will be expected to move away from the line in order to minimize interference with communication. However, because of the availability of habitats in the Project area, this will not be expected to constitute a substantial impact. Corona noise is already present along most of the Project, and while the Project will result in louder corona noise for most segments, wildlife can be expected to have already been exposed and likely habituated to this disturbance. As such, corona noise from the Project is not expected to combine with noise from other projects in a cumulatively significant manner. Therefore, the cumulative impacts of corona noise to wildlife resulting from the Project and other past, present, and reasonably foreseeable projects will be less than significant and no mitigation is required.

Reference. Final EIR Section 3.4; Table ES-3

III.2.4 Environmental Contamination and Hazards

The majority of listed hazard sites are located in the southern portion of the Project in Los Angeles and San Bernardino counties. To collect information on the existing conditions for the TRTP, a search of regulatory agency databases was conducted by Environmental Data Resources, Inc. The agency databases identify sites with current or past hazardous waste concerns, such as the use and storage of chemicals, leaks and spills of chemicals, and leaking underground storage tanks. Such database searches by third-party specialized contractors are often relied upon by agencies and others to identify known or potential sources of contamination. Review of other available regulatory agency databases (SWRCB Geotracker and DTSC Envirostor) and of aerial photographs to verify land uses of concern was also performed. This review was performed in order to note any issues related to use and storage of hazardous materials within the Project area.

No Phase I Environmental Site Assessments (ESAs) have been or were conducted as part of this study; however, SCE will conduct Phase I ESA studies at each new or expanded substation location and along newly acquired transmission line rights-of-way (ROW). Each Phase I ESA will include an electronic records search of federal, state and local environmental databases. The database search will cover the entire TRTP route and will then be reviewed to identify any potential areas of concern that will require further assessment. (See APM HAZ-1 in Table 3.6-13 of the Final EIR.)

Impact E-1: Soil or groundwater contamination results due to improper handling and/or storage of hazardous materials during construction activities.

During construction operations, hazardous materials such as vehicle fuels, oil, hydraulic fluid, and other vehicle maintenance fluids will be used and stored in construction staging yards. Gasoline, diesel fuel, oil, hydraulic fluid, lubricants paints, solvents, adhesives, and cleaning chemicals used in construction activities, equipment, and vehicles can be released during construction as a result of accidents, and/or leaking equipment or vehicles. Spills and leaks of hazardous materials during construction activities could result in

soil or groundwater contamination. Accidental spills or releases of hazardous materials into a dry stream bed or wash, or on the banks of a stream channel, could indirectly impact water quality through runoff during a subsequent storm event, when the spilled material will be washed into a stream or water body. Additionally, accidental spills or releases of hazardous materials could indirectly impact groundwater through leaching. Hazardous material spills that are left on the ground surface for an extended period or that are followed quickly by a storm event could leach through the soil and into the groundwater, thereby resulting in the degradation of groundwater quality.

APMs included as part of the Project will minimize the potential for this impact to occur, including APM HAZ-2 (Hazardous Materials and Waste Handling Management Program) and, as discussed in detail in Section 3.8 (Hydrology and Water Quality), APMs HYD-1 (Construction SWPPP), HYD-2 (Environmental Training Program), HYD-3 (Accidental Spill Control), and HYD-4 (Non-storm Water and Waste Management Pollution Controls).

Finding. The CPUC finds that changes or alterations have been required in, or incorporated into, the Project which avoid or substantially lessen the Project's contribution to cumulative impacts to soil or groundwater contamination due to improper handling and/or storage of hazardous materials during construction activities. With the inclusion of the APMs and Project mitigation listed above, the Project's cumulative contribution to soil or groundwater contamination due to improper handling and/or storage of hazardous materials during construction activities will be less than significant.

Rationale for Finding. If improper handling and/or storage of hazardous materials occurs during Project construction, APM HAZ-2, and APMs HYD-1 through HYD-4, will reduce the potential for contamination of groundwater by ensuring that that any spilled material and any resulting surficial contaminated soil will be quickly and correctly cleaned up and disposed of, resulting in limited to no exposure of hazardous materials to the environment and workers. In particular, APM HAZ-2 (Hazardous Materials and Waste Handling Management Program) will be included as part of the Project in order to reduce the likelihood of spills through implementation of several measures including: proper storage and handling procedures; standard hazardous waste transport; Project-specific training for personnel; procedures for fueling and maintaining construction equipment and helicopters; and an emergency response program to ensure quick and safe cleanup of accidental spills.

Reference. Final EIR Section 3.6; Table ES-3

Impact E-5: Soil or groundwater contamination could result from an accidental spill during operation.

Soil or groundwater contamination could result from accidental spill or release of hazardous materials at the substations during facility operation or along the transmission line during maintenance operations. This could potentially result in exposure of facility workers and the public to hazardous materials.

APM HAZ-5 (Spill Prevention, Countermeasure, and Control Plan and Hazardous Materials Business Plan), included as part of the Project, will minimize the potential for this impact to occur

Finding. The CPUC finds that impacts to soil or groundwater contamination from an accidental spill during Project operation will be less than significant with no mitigation required.

Rationale for Finding. Implementation of APM HAZ-5 will minimize the potential for Impact E-5 to occur. According to APM HAZ-5, SCE will minimize and/or avoid unforeseen spills of hazardous materials during operation at the substations by updating and utilizing the Spill Prevention, Countermeasure, and Control (SPCC) plan and Hazardous Materials Business Plans (HMBPs) for the upgraded substations (Antelope, Vincent, Rio Hondo, Mesa, Gould, Chino, and Mira Loma) and by preparing and utilizing SPCC

and HMBP plans for the new Whirlwind substation. In the event of a spill, APM HAZ-5 will reduce the potential for contamination and exposure of workers or the public to hazardous materials by ensuring that any spilled material and any resulting surficial contaminated soil will be quickly and correctly cleaned up and disposed of, resulting in limited to no exposure of hazardous materials to the environment and workers.

Reference. Final EIR Section 3.6; Table ES-3

Cumulative Impact E-1: Soil or groundwater contamination results due to improper handling and/or storage of hazardous materials during construction activities.

The Project area consists of both undeveloped and open space land where there is little likelihood of significant soil or groundwater contamination or commercial and industrial land with current or historic soil or groundwater contamination. Soil or groundwater contamination due to improper handling and/or storage of hazardous materials during construction activities could occur through accidental releases of hazardous materials used during construction. The Project would make a cumulatively considerable contribution to a cumulative impact if, when combined with other projects, it would result in volumes of contaminated soil requiring off-site treatment that exceed the capacity of available treatment facilities or would result in substantial exposure of hazardous materials to the public.

APM HAZ-2 (Hazardous Materials and Waste Handling Management), included as part of the Project, will ensure that this Project impact is less than significant.

Finding. The CPUC finds that this impact will not have the potential to combine with impacts of other projects and will not be cumulatively significant.

Rationale for Finding. APM HAZ-2 will be implemented as part of the Project. It will decrease the potential for accidental releases to occur and will ensure potentially harmful materials are cleaned up in the unlikely event of a release. Since any spills of contaminated material will be immediately cleaned, soil or groundwater contamination will be less than significant as a result of improper handling and/or storage of hazardous materials. Therefore, the Project will not make a cumulatively considerable contribution to a cumulatively significant impact.

Reference. Final EIR Section 3.6; Table ES-3

Cumulative Impact E-2: Excavation or grading could result in mobilization of existing soil or groundwater contamination from known sites

Excavation or grading could result in mobilization of existing soil or groundwater contamination from known sites if preexisting soil and groundwater contamination is encountered during Project construction, which will result in exposure of construction workers to potential health hazards. Such exposure will be hazardous to people in the immediate vicinity of the contamination because the contaminant will either be limited to the medium in which it is discovered or will volatilize and become airborne. If fumes from potential contamination volatilized, risk of exposure will decrease as distance from the source of contamination increased due to dispersal of the fumes.

APM HAZ-1 (Phase I Environmental Site Assessment (ESA)) which will be implemented as part of the Project, will minimize the Project's incremental contribution to this impact, as well as Mitigation Measures E-2a (Perform Phase I ESAs along existing transmission line ROWs) and E-2b (Perform Phase II Investigations for potentially contaminated sites).

Finding. The CPUC finds that changes or alterations have been required in, or incorporated into, the Project which avoid or substantially lessen the Project's contribution to cumulative impacts to mobilization of

existing soil or groundwater contamination from known sites. With the inclusion of the APMs and Project mitigation listed above, the Project's cumulative contribution to mobilization of existing soil or groundwater contamination from known sites will be less than significant.

Rationale for Finding. APMs and mitigation that will be implemented under the Project will require investigation of potentially contaminated sites along the proposed transmission line route as well as clean up of any contamination identified, and will minimize the Project's incremental contribution to this impact. Because any contamination encountered will be removed and/or remediated prior to construction, this impact will not have the potential to combine with impacts of other projects and will not make a cumulatively considerable contribution to a cumulatively significant impact.

Reference. Final EIR Section 3.6; Table ES-3

Cumulative Impact E-3: Landfill gas and/or natural gas located near active, inactive or abandoned oil wells could be encountered during excavation or grading, resulting in explosions or exposure of workers to toxic gases.

Landfill gas and/or natural gas located near active, inactive or abandoned oil wells could be encountered during excavation or grading, resulting in explosions or exposure of workers to toxic gases along portions of the Project alignment that are in close proximity to landfills and active, inactive, and abandoned oil wells. Although, Mitigation Measures E-3a (Determine if landfill gases are present), E-3b (Implement personnel safety and monitoring measures), and E-3c (Verify location and status of abandoned oil and natural gas wells) will reduce the potential for encountering methane and other natural gases, the potential for encountering natural gases will still exist. A cumulative impact will occur if natural gas encountered by the Project combines with gas encountered during concurrent construction activities of a project located in very close proximity to the Project.

Finding. The CPUC finds that this impact does not have the potential to combine with impacts of other projects and will not be cumulatively significant.

Rationale for Finding. No concurrent projects located immediately adjacent to the portions of the route located near landfills or oil wells have been identified.

Reference. Final EIR Section 3.6; Table ES-3

Cumulative Impact E-4: Unanticipated preexisting soil and/or groundwater contamination could be encountered during excavation or grading.

Unanticipated preexisting soil and/or groundwater contamination could be encountered during excavation or grading if pre-existing soil and groundwater contamination is encountered during Project construction, which will result in exposure of construction workers to potential health hazards. Such exposure will be hazardous to people in the immediate vicinity of the contamination since the contaminant will either be limited to the medium in which it is discovered or will volatilize and become airborne. If fumes from potential contamination volatilized, risk of exposure will decrease as distance from the source of contamination increased due to dispersal of the fumes.

APM HAZ-3 (Soil Management Plan), which will be implemented as part of the Project, and Mitigation Measures E-4a (Appoint individuals with correct training for sampling, data review, and regulatory coordination) and E-4b (Document compliance with APM HAZ-3) will reduce the Project's incremental contribution to this cumulative impact.

Finding. The CPUC finds that changes or alterations have been required in, or incorporated into, the Project which avoid or substantially lessen the Project's contribution to cumulative impacts resulting from unanticipated preexisting soil and/or groundwater contamination. With the inclusion of the APMs and Project mitigation listed above, the Project's cumulative contribution resulting from unanticipated preexisting soil and/or groundwater contamination will be less than significant.

Rationale for Finding. Any contamination encountered during Project activities will be removed and/or remediated prior to construction in accordance with APM HAZ-3, MM E-4a, and MM E-4b, which would be implemented under the Project. This impact will not have the potential to combine with impacts of other projects and will not be cumulatively significant.

Reference. Final EIR Section 3.6; Table ES-3

Cumulative Impact E-5: Soil or groundwater contamination could result from an accidental spill during operation.

Soil or groundwater contamination could result from an accidental spill at the substations during facility operation or along the transmission line during maintenance operations.

APM HAZ-5 (Spill Prevention, Countermeasure, and Control Plan and Hazardous Materials Business Plan), included as part of the Project, will minimize the Project's incremental contribution to this cumulative impact.

Finding. The CPUC finds that changes or alterations have been required in, or incorporated into, the Project which avoid or substantially lessen the Project's contribution to cumulative impacts to soil or groundwater contamination from an accidental spill during operation. With the inclusion of the APM listed above, the Project's cumulative contribution to soil or groundwater contamination from an accidental spill during operation will be less than significant.

Rationale for Finding. APM HAZ-5 will require measures to minimize and/or avoid unforeseen spills of hazardous materials during operations as well as to clean up potentially harmful materials in the unlikely event of a release. These measures will greatly reduce the likelihood of a release as well as the potentially harmful effect of a release. Because measures will be in place to greatly reduce the likelihood of a release as a result of Project activities, this impact will not be cumulatively significant.

Reference. Final EIR Section 3.6; Table ES-3

III.2.5 Geology, Soils, and Paleontology

The CPUC and USDA Forest Service examined the regional topography, geology, seismicity, soils, and paleontology in the Project area, by collecting baseline geologic, seismic, soils, and paleontological information from published and unpublished literature, GIS data, and online sources for the Project and the surrounding area. The literature and data review was supplemented by field reconnaissance. The literature review and field reconnaissance focused on the identification of specific geologic hazards and paleontologic resources along and adjacent to the Project ROW.

Impact G-8: Grading and excavation could destroy paleontologic resources.

Grading activities for new access and spur roads, and excavation for tower and substation building foundations could encounter potentially fossil-bearing deposits throughout nearly all of the Project segments underlain by Quaternary alluvial deposits (Segments 4, 5, 7, 8, 9, 10, and 11) and Tertiary sedimentary rock in the Montebello, Puente, and Chino Hills (Segment 8). Construction activities could destroy the fossils

contained in the earth materials and the opportunity to properly retrieve, study, catalog, and archive them will be lost.

The Applicant will implement APMs PALEO-1 through PALEO-9, which are included as part of the Project. These measures will minimize impacts to paleontologic resources.

Finding. The CPUC finds that the potential for paleontological resources to be destroyed as a result of the Project will be less than significant with no mitigation required.

Rationale for Finding. APM PALEO-1 (Retention of Paleontologist), APM PALEO-2 (Conduct Pre-construction survey), and APM PALEO-3 (Prepare and implement a Paleontological Resource Management Plan [PRMP]) will be completed prior to construction to allow a certified paleontologist to plan for and supervise the pre-construction planning and field surveys. SCE's APM PALEO-4 (Environmental training), APM PALEO-5 (Construction monitoring), APM PALEO-6 (Recovery and testing), and APM PALEO-7 (Prepare monthly progress reports) will occur during construction. These activities will train construction supervisors and crews to be aware of paleontologic resources and provide procedures to follow in the event fossils are encountered during excavation. In addition, the construction-related paleontology APMs will require a paleontologic monitor, under the supervision of the Project certified paleontologist, to monitor ground-disturbing activities on a part-time or full-time basis in areas with rock units of moderate to high sensitivity. At the conclusion of construction, SCE's APM PALEO-8 (Analysis and prepare final Paleontologic Resource Recovery Report) and APM PALEO-9 (Curation) will provide for documenting and preserving all of the paleontologic resources discovered during construction. These measures will reduce the potential for paleontological resources to be destroyed to a less than significant level.

Reference. Final EIR Section 3.7; Table ES-3

Cumulative Impact G-4: Project structures could be damaged by surface fault rupture at crossings of active faults exposing people or structures to hazards.

Failure of Project structures could result in power outages, damage to nearby roads or structures, and injury or death to nearby people. Past and future projects located in close proximity to Project structures will be exposed to the same conditions and therefore the same impacts. Collapse Failure of Project structures and adjacent structures will combine to result in a significant impact where such structures are in close proximity to other structures or people, such as other parallel and crossing transmission lines and substations, and residential and commercial developments located adjacent to the Project route along Segments 5, 7, 8 and the southern portions of Segment 11 between S11 MP 18.5 to 19.

Implementation of Mitigation Measure G-4 (Avoid placement of Project structures on active fault traces), which is required under the Project, will minimize the Project's incremental contribution to this cumulative effect.

Finding. The CPUC finds that changes or alterations have been required in, or incorporated into, the Project which avoid or substantially lessen the Project's contribution to cumulative impacts to damage of structures by surface fault rupture at crossings of active faults exposing people or structures to hazard. With the inclusion of the Project mitigation listed above, the Project's cumulative contribution to damage of structures by surface fault rupture at crossings of active faults exposing people or structures to hazard will be less than significant.

Rationale for Finding. Avoiding the placement of Project structures on active fault traces, as required by Mitigation Measure G-4 of the Project, will result in cumulative impacts that are less than significant. Additionally, due to similar policies regarding construction within active fault zones that have been imposed

on past projects and that will likely be imposed on reasonably foreseeable projects, this cumulative impact will be less than significant.

Reference. Final EIR Section 3.7; Table ES-3

Cumulative Impact G-5: Project structures could be damaged by seismically induced groundshaking and/or ground failure exposing people or structures to hazards.

Seismically induced groundshaking and/or ground failure could result in damage to Project structures which could result in power outages, damage to nearby roads or structures, and injury or death to nearby people. Past and future projects located in close proximity to Project structures will be exposed to the same conditions and therefore the same impacts. Failure of Project structures and adjacent structures will combine to result in a significant impact where such structures are in close proximity to other structures or people, such as other parallel and crossing transmission lines and substations, and residential and commercial developments located adjacent to the Project route along Segments 5, 7, 8, and the southern portion of Segment 11.

Implementation of Mitigation Measures G-3 (Conduct geological surveys for landslides and protect against slope instability), G-5a (Reduce effects of groundshaking), and G-5b (Conduct geotechnical investigations for liquefaction), which are required under the Project, will minimize the Project's incremental contribution to this cumulative effect.

Finding. The CPUC finds that changes or alterations have been required in, or incorporated into, the Project which avoid or substantially lessen the Project's contribution to cumulative impacts associated with Project structures being damaged by seismically induced groundshaking and/or ground failure. With the inclusion of the Project mitigation listed above, the Project's cumulative contribution to impacts associated with Project structures being damaged by seismically induced groundshaking and/or ground failure will be less than significant.

Rationale for Finding. Mitigation Measure G-5a requires site-specific seismic analyses to avoid damage from seismic groundshaking, Mitigation Measure G-5b requires design-level geotechnical investigations designed to assess the potential for liquefaction and design of Project features to avoid damage from liquefaction, and Mitigation Measure G-3 requires identification of existing and potential unstable slopes to minimize the potential slope failures. These mitigation measures of the Project will minimize the Project's contribution to this cumulative impact. Due to similar policies regarding construction within areas of potentially substantial seismic shaking and seismically induced ground failures that have been imposed on past projects and that will likely be imposed on reasonably foreseeable projects, this cumulative impact will be less than significant.

Reference. Final EIR Section 3.7; Table ES-3

Cumulative Impact G-6: Project structures could be damaged by problematic soils exposing people or structures to hazards.

Unidentified expansive and corrosive soils could damage Project structures and facilities and could comprise their structural integrity, which could result in power outages, damage to nearby roads or structures, and injury or death to nearby people, as described in Section 3.7.6.1 where such structures are in close proximity to other structures or people, such as other parallel and crossing transmission lines and substations, and residential and commercial developments located adjacent to the Project route along Segments 5, 7, 8 and the southern portion of Segment 11.

Implementation of Mitigation Measure G-6 (Conduct geotechnical studies to assess soil characteristics and aid in appropriate foundation design), which is required under the Project, will minimize the Project's incremental contribution to this cumulative effect.

Finding. The CPUC finds that changes or alterations have been required in, or incorporated into, the Project which avoid or substantially lessen the Project's contribution to cumulative impacts associated with Project structures being damaged by problematic soils. With the inclusion of the Project mitigation listed above, the Project's cumulative contribution to impacts associated with Project structures being damaged by problematic soils will be less than significant.

Rationale for Finding. Implementation of Mitigation Measure G-6 will minimize the Project's contribution to this cumulative impact by requiring studies to identify the presence of unsuitable soils and designing of Project features to avoid damage from problematic soils. Also, due to similar policies regarding construction within areas of potentially unsuitable and damaging soils that have been imposed on past projects and that will likely be imposed on reasonably foreseeable projects, this cumulative impact will be less than significant

Reference. Final EIR Section 3.7; Table ES-3

Cumulative Impact G-7: Transmission line structures could be damaged by landslides, earth flows, or debris slides, during operation.

Failure of Project structures and adjacent structures will combine to result in a significant impact where such structures are in close proximity to other structures or people, such as other parallel and crossing transmission lines and substations, and residential and commercial developments located adjacent to the Project route along Segments 5, 7, 8 and the southern portion of Segment 11.

Implementation of Mitigation Measure G-3 (Conduct geological surveys for landslides and protect against slope instability), which is required under the Project, will minimize the Project's incremental contribution to this cumulative effect.

Finding. The CPUC finds that changes or alterations have been required in, or incorporated into, the Project which avoid or substantially lessen the Project's contribution to cumulative impacts associated with Project structures being damaged by landslides, earth flows, or debris slides during operation. With the inclusion of the Project mitigation listed above, the Project's cumulative contribution to impacts associated with Project structures being damaged by landslides, earth flows, or debris slides during operation will be less than significant.

Rationale for Finding. Implementation of Mitigation Measure G-3 will minimize the Project's contribution to this cumulative impact by requiring identification of existing and potential unstable slopes to minimize the potential slope failures which will minimize the Project's contribution to this cumulative impact. Due to similar policies regarding construction within areas of unstable and potentially unstable slopes that have been imposed on past projects and that will likely be imposed on reasonably foreseeable projects, this cumulative impact will be less than significant

Reference. Final EIR Section 3.7; Table ES-3

Cumulative Impact G-8: Grading and excavation could destroy paleontologic resources.

Unknown, unrecorded paleontological resources may be found at nearly any development site. It is not known what paleontological resources, if any, will be affected by development of all present and future projects along and near the Project; however, given the density of past development in these areas and the

large number of reasonably foreseeable projects in the area, it is reasonable to assume that paleontologic resources exist and will be expected to be uncovered in at least several of these sites.

APMs PALEO-1 through PALEO-9, which are included as part of the Project, will minimize the Project's incremental contribution to this cumulative effect.

Finding. The CPUC finds that the incremental contribution of the Project to Cumulative Impact G-8 will be less than significant, and the Project will not result in a significant impact associated with effects of grading and excavation on paleontologic resources.

Rationale for Finding. APMs of the Project that will be employed during construction will reduce the potential that any scientifically important fossils will be destroyed and will provide for the systematic collection, analysis, and documentation of any such discoveries. Should resources be discovered during construction of current and future projects, they will be subject to legal requirements designed to protect them, thereby reducing the effect of impacts. Therefore Project impacts, when combined with impacts from past, present and reasonably foreseeable projects, will not be significant and no additional mitigation measures are necessary.

Reference. Final EIR Section 3.7; Table ES-3

III.2.6 Hydrology and Water Quality

Impacts to hydrology and water quality have been assessed in comparison to baseline conditions for the affected environment of the Project Area, including climate, topography, surface water resources, groundwater basins, floodplains, water quality, and land use. These baseline conditions were evaluated based on their potential to be affected by construction activities as well as operation and maintenance activities related to the Project.

Impact H-3: Operation and maintenance activities would degrade water quality through the accidental release of potentially harmful or hazardous materials.

Surface water quality will be degraded if harmful or hazardous materials are accidentally released within a stream channel during Project operation and maintenance activities at stream crossings along access roads and near tower locations. Due to the use of vehicles and other motorized equipment during operations and maintenance, some of the potentially hazardous substances that could be released include: diesel fuel, gasoline, lubricant oils, hydraulic fluid, antifreeze, transmission fluid, and lubricant grease. Surface water could be directly contaminated through contact with a flowing stream, and groundwater resources could be indirectly affected if hazardous materials are left on the ground surface and allowed to leach into the groundwater. In contrast with construction activities, which will include more intensive use of heavy equipment for longer periods of time, operation of the Project will include activities with substantially less potential to result in water quality degradation from the accidental spill of hazardous materials. Operational activities will include annual visual inspections of Project facilities via helicopter and light truck, with maintenance performed on an as-needed basis.

APMs HYD-2 (Environmental Training Program) and HYD-3 (Accidental Spill control), which are included as part of the Project, will substantially reduce the potential for water quality degradation through accidental release of potentially harmful or hazardous materials by ensuring that inspection and maintenance personnel have the knowledge and means to quickly and effectively address accidental releases of hazardous materials.

Finding. The CPUC finds that impacts to water quality resulting from the accidental release of harmful or hazardous materials during operation and maintenance of the Project will be less than significant without the implementation of mitigation measures.

Rationale for Finding. APMs HYD-2 (Environmental Training Program) and HYD-3 (Accidental Spill control) will minimize the potential for accidental spills of potentially harmful or hazardous materials to directly contact or be carried into nearby waterways, or leach into the groundwater. No mitigation is necessary for this impact.

Reference. Final EIR Section 3.8; Table ES-3

Cumulative Impact H-3: Operation and maintenance activities would degrade water quality through the accidental release of potentially harmful or hazardous materials.

Surface and groundwater quality could be degraded through the accidental release of potentially harmful or hazardous materials during Project operation and maintenance activities. Within the cumulative analysis area, several large residential development projects are already approved, and several more large residential development projects are planned, such as the Aera Master Planned Community near the City of Diamond Bar and the New Model Colony near the City of Ontario. Operational activities for a residential development would include occupancy of the development, use of the residential facilities, including use of water resources and discharge of wastewater, and vehicle trips by residents and visitors to and from the residential development. These residential development operation activities could lead to an accidental release of potentially harmful or hazardous materials. These potential impacts would affect many of the same streams that would be crossed by the Project. However, existing water quality regulations will greatly reduce the potential for an accidental release of hazardous materials.

Finding. The CPUC finds that changes or alterations have been required in, or incorporated into, the Project which avoid or substantially lessen the Project's contribution to cumulative impacts resulting from operation and maintenance activities causing degradation of water quality through the accidental release of potentially harmful or hazardous materials. APMs HYD-2 (Environmental Training Program) and HYD-3 (Accidental Spill control) will minimize the potential for accidental spills of potentially harmful or hazardous materials to directly contact or be carried into nearby waterways, or leach into the groundwater. In addition, existing water quality regulations will greatly reduce the potential for an accidental release of hazardous materials. Therefore, the Project's cumulative contribution will be less than significant.

Rationale for Finding. This impact of the Project is less than significant and site-specific. Therefore, the potential for this impact to combine with similar impacts of past, present, and reasonably foreseeable future projects is unlikely. Cumulatively, this impact is less than significant with no mitigation required.

Reference. Final EIR Section 3.8; Table ES-3

Cumulative Impact H-4: Project structures would cause erosion, sedimentation, or other flood-related damage by impeding flood flows.

Encroachment of a Project structure into a stream channel or floodplain could result in flooding of or erosion damage to the encroaching structure, diversion of flows and increased flood risk for adjacent property, or increased erosion on adjacent property. Impact H-4 is most likely to occur where transmission towers or other permanent Project features are constructed in or closely adjacent to a watercourse. None of the infrastructure associated with the Project will be situated within a watercourse. However, some towers will be placed in areas subject to periodic overland flow and flooding, such as the Santa Fe Flood Control Basin, the Whittier Narrows Flood Control Basin, and some broad, ephemeral washes in the Northern

Region. Numerous present and foreseeable residential development projects, such as the Aera Master Planned Community near the City of Diamond Bar and the New Model Colony near the City of Ontario, could impede flood flows if proper design features were not implemented.

This impact of the Project will be reduced to a less-than-significant level with implementation of Mitigation Measure H-1a (Implement an Erosion Control Plan and demonstrate compliance with water quality permits), which will also minimize the Project's incremental contribution to this cumulative effect.

Finding. The CPUC finds that changes or alterations have been required in, or incorporated into, the Project which avoid or substantially lessen the Project's contribution to cumulative impacts resulting from Project structures causing erosion, sedimentation, or other flood-related damage by impeding flood flows. With the inclusion of the Project mitigation listed above, the Project's cumulative contribution to impacts resulting from Project structures causing erosion, sedimentation, or other flood-related damage by impeding flood flows will be less than significant.

Rationale for Finding. This impact of the Project is less than significant and site-specific. Therefore, the potential for this impact to combine with similar impacts of past, present, and reasonably foreseeable future projects is unlikely. Cumulatively, this impact is less than significant with no mitigation required.

Reference. Final EIR Section 3.8; Table ES-3

Cumulative Impact H-5: Project structures would be inundated by mudflow.

Mudflows are a type of mass wasting or landslide, where earth and surface materials are rapidly transported downhill under the force of gravity. Mudflow may be triggered by heavy rainfall that the soil is not able to sufficiently drain or absorb. As a result, soil and rock materials become unstable and eventually slide away from their existing location, in a mudflow event.

APMs HYD-1 (Construction SWPPP) and HYD-7 (Flood and Erosion Structure Damage Protection) which are included as part of the Project, and Mitigation Measure G-3 (Conduct geological surveys for landslides and protect against slope instability), which is required under the Project, will minimize the potential for inundation of Project structures by mudflow, and will minimize the potential for this impact of the Project to combine with similar impacts in the cumulative scenario.

Finding. The CPUC finds that changes or alterations have been required in, or incorporated into, the Project which avoid or substantially lessen the Project's contribution to cumulative impacts resulting from the inundation of Project structures by mudflow. With the inclusion of the Project mitigation listed above, the Project's cumulative contribution to impacts from the inundation of Project structures by mudflow will be less than significant.

Rationale for Finding. APMs HYD-1 and HYD-7, and Mitigation Measure G-3 will minimize the Project's incremental contribution to this cumulative effect. While the present and reasonably foreseeable residential development projects in the cumulative effects area could potentially increase the probability that Project structures will be inundated by mudflow, this potential is likely very low because residential development projects tend to decrease the overall slope in an area through grading and earth movement. An overall decrease in slope will lower the probability that Project structures will be inundated by mudflow. No mitigation is required.

Reference. Final EIR Section 3.8; Table ES-3

III.2.7 Land Use

The identification of existing land uses was based upon a consolidation of the classification scheme used by the Southern California Association of Governments (SCAG) for its mapping of existing land uses. Use of the SCAG General Plan land use designation data ensures a consistent classification scheme across all of the various jurisdictions potentially affected by the Project. Identified land uses were subsequently verified through review of recent aerial photographs and published maps, as well as field reconnaissance. Additionally, adopted General Plans and related land use management and planning documents of the jurisdictions affected by the Project were collected and reviewed for consistency.

Impact L-3: Operation and maintenance of the Project would cause long-term disruption of existing and planned residential land uses.

The Project's new and expanded ROW, in conjunction with its substation expansion needs, will require an estimated 1,298 acres of land in the North Region, 27 acres of land in the Central Region (including all of Segment 11), and 43.4 acres of land in the South Region (with an estimated 27 acres of ROW abandoned). In addition, the Project will result in the permanent disturbance of an estimated 180.6 to 244.3 acres of land, including an estimated 65.7 to 88.7 acres in the North Region, 99.3 to 134.4 acres in the Central Region, and 15.6 to 17.2 acres in the South Region. Due to the incorporation of Alternative 6 into the Project, a greater number of helicopter inspections will be required because of the number of towers that will not be accessible by truck. Operation and maintenance of the Duck Farm 66-kV Underground Re-Route and the Whittier Narrows 66-kV Underground Re-Route and Whittier Narrows 66-kV Overhead Re-Route options associated with Alternative 7 will occur within the same ROW as the Project.

Finding. The CPUC finds that the Project's preclusion of, and incompatibility with, current and future residential land uses both within proposed new and expanded ROWs, and adjacent to existing ROWs, will be adverse but less than significant. Similarly, operation and maintenance of re-route options under the Project will be adverse but less than significant. No mitigation is required.

Rationale for Finding. With the exception of the substation expansions, it is unknown how much new and expanded ROW acreage will be acquired in fee or easement by SCE. However, regardless of whether these lands are made available by lease, easement, or purchase, SCE's required acquisition of the rights to construct and operate the Project with affected private property owners, in conjunction with its acquisition of the regulatory approvals required for new and expanded ROWs and substation sites, will inherently allow for the preclusion of either future residential development or the expansion of existing residential development. Additionally, operation and maintenance of the Re-Route options will not be anticipated to require additional activities that could increase long-term preclusions of, disturbances to, or incompatibilities with existing and planned residential land uses. The partial removal (e.g., undergrounding) of the existing Hondo-Amador-Jose-Mesa 66-kV and Jose-Mesa 66-kV subtransmission lines will likely be considered a beneficial impact to those residents that are adjacent to their respective ROWs.

Reference. Final EIR Section 3.9; Table ES-3

Cumulative Impact L-3: Operation and maintenance of the Project would cause long-term disruption of existing and planned residential land uses.

Portions of the Project Segments 10 and 4 and the proposed Whirlwind Substation will be constructed within the planned residential development boundaries of the Willow Springs Specific Plan. Segments 4 and 5 will also abut existing or planned residential properties in Los Angeles County. Other energy projects have been proposed that will affect these same land uses. The proposed PdV/Manzana Wind Energy Project will

occupy 6,435 acres in the Willow Springs area, which may preclude future residential development. The Antelope Transmission Project Segments 1 through 3 will be constructed parallel to the Project through the existing and future residential communities of Ritter Ranch and Anaverde (City of Palmdale).

Finding. The CPUC finds that because SCE will purchase or lease new and expanded substation sites and ROWs in full agreement with existing property owners, the Project's incremental contribution to this cumulative impact will be less than significant.

Rationale for Finding. Prior to construction of Project Segments 10 and 4, SCE will be required to acquire regulatory approvals for new and expanded ROWs and substation sites, as well as the rights to construct and operate the Project with affected private property owners. In addition, Segment 5 will be located within existing ROW and will not preclude residential development.

Reference. Final EIR Section 3.9; Table ES-3

Cumulative Impact L-5: Construction, operation or maintenance of the Project would conflict with relevant federal, State, or local land use plans, goals, or policies.

The Project traverses multiple jurisdictions, all of which have adopted plans related to land use planning, development, and management. As a preliminary step toward identifying those plans which contain policies and goals specific to the development, operation and maintenance of transmission lines and their associated substations, a policy screening analysis was conducted. Of the various policies, goals and objectives identified in the Policy Screening Report for detailed evaluation, seventeen were directly related to land use and the construction, operation and maintenance of transmission lines. Table 3.9-20 of the Final EIR provides the consistency analysis for these seventeen policies, goals and objectives.

The implementation of Mitigation Measures L-2b (Aircraft flight path and safety provisions and consultation) and L-4 (Consult with federal, State and local agencies), required under the Project, will minimize the Project's incremental contribution to this cumulative effect.

Finding. The CPUC finds that changes or alterations have been required in, or incorporated into, the Project which avoid or substantially lessen the Project's contribution to cumulative impacts resulting from conflict with USDA Forest Service land use policies and local land use plans and policies as they relate to transmission lines and associated facilities. With the inclusion of the Project mitigation listed above, the Project's cumulative contribution to impacts resulting from conflict with USDA Forest Service land use policies and local land use plans and policies as they relate to transmission lines and associated facilities will be less than significant.

Rationale for Finding. The Project will be authorized by the USDA Forest Service through its permitting and Forest Plan amendment prior to construction. Additionally, the implementation of Mitigation Measures L-2b and L-4 will avoid conflicts with any applicable federal, State or local land use plans, goals, or policies.

Reference. Final EIR Section 3.9; Table ES-3

III.2.8 Public Services and Utilities

The Project Area is served by public service and utility systems in Kern County, Los Angeles County, the ANF, and incorporated cities within Los Angeles County and San Bernardino County. A variety of regional and local purveyors in these areas provide and maintain public services and utility systems associated with fire and police protection, schools, hospitals, natural gas, electricity, water, solid waste collectors and facilities, and public works facilities.

Impact PSU-3: Construction and operation would impede emergency aircraft response services.

The use of helicopters during construction in the ANF could interfere with emergency response aircrafts if an emergency were to occur in the vicinity of proposed helicopter construction sites. In addition, portions of Segment 6, Segment 7, Segment 8A, and Segment 11 will increase the existing maximum height of transmission lines and towers by approximately 50 feet (change in height will not apply to the Alternative 3 or Alternative 7 portions of the Project). This height increase will decrease the effectiveness of aerial firefighting and other emergency response operations because aircrafts will have to fly at higher altitudes to avoid conflicts with the transmission lines and towers. Flying at higher altitudes can reduce the accuracy of targeted drops of water and flame retardant used to suppress and contain wildfires, and will reduce visibility for other emergency situations. However, because there are existing transmission lines in the shared ROW and aerial firefighting crews avoid making drops near the ROW under existing conditions, the addition of the Project will present only a marginal increase in the required altitude of aircrafts working through the shared ROW.

Finding. The CPUC finds that any potential interference with aerial firefighting operations during a wildfire event in the areas surrounding the Project will be eliminated by FAA restrictions, and Impact PSU-3 will be less than significant with no mitigation required.

Rationale for Finding. Should construction or maintenance activities require the use of helicopters, Project helicopters will be restricted by FAA rules on temporary flight restrictions from flying in designated areas, therefore eliminating any potential interference with aerial firefighting operations during a wildfire event in the areas surrounding the Project.

Reference. Final EIR Section 3.11; Table ES-3

Impact PSU-6: Project construction would temporarily increase water use and Project operation would contribute to increased long-term water consumption.

Construction of the Project will require water on a daily basis at construction sites for dust suppression, and human consumption and sanitary purposes. The amount of water used per day for dust suppression will depend on the length of access roads used, weather conditions, road surface conditions, and other site-specific conditions. Water required for consumption and sanitary purposes by construction crews will be a very small portion of the Project's water use during construction.

Adequate local water supplies are available to meet the temporary water requirements associated with Project construction. Therefore, based on the construction and consumption activities that will require water, the Project will not create a demand for water that will burden the existing water supply or require increased allotments from the State Water Project. The Project will be constructed in eight segments between approximately December 2009 and October 2014, thereby dispersing water use over a 59-month period. Once constructed, the Project will only require water for maintenance purposes, such as substation irrigation and equipment cleaning, and for drinking and sanitary purposes for crews visiting substation locations.

Finding. The CPUC finds that water requirements of the Project will not change the ability of the water suppliers to serve existing customers, and Impact PSU-6 will be less than significant with no mitigation required.

Rationale for Finding. Temporary increased demand for water from local water purveyors along the proposed route will not be large enough to affect the existing supply, especially considering that water usage for the Project will be spread over a 59-month period and across multiple locations, thereby not creating a significant increase in demand at one particular time or place.

Reference. Final EIR Section 3.11; Table ES-3

Impact PSU-7: Additional wastewater would be generated during Project construction and operation.

Wastewater generated during Project construction will be limited to that generated by Project personnel and will be accommodated by portable toilets brought to staging areas for construction crews. These portable toilets will be emptied into septic tanks or municipal sewage systems. The workforce necessary for construction of the Project is anticipated to range from approximately 10 to 350 personnel, with an estimated average daily workforce of 75 personnel.

Finding. The CPUC finds that wastewater generation associated with the Project will not place a significant burden on wastewater facilities serving the area and will not necessitate expansion of wastewater collection or treatment facilities serving the area; therefore, Impact PSU-7 will be less than significant with no mitigation required.

Rationale for Finding. Wastewater generation associated with the Project will be temporary and will not require expansion of the capacity of local wastewater collection or treatment systems. As the ANF has no wastewater treatment facilities, there will be no impacts on NFS lands. The operation of the Project substations will generate small quantities of additional wastewater that will not necessitate any expansion of the capacity of local facilities.

Reference. Final EIR Section 3.11; Table ES-3

Impact PSU-8: Additional solid waste would be generated during Project construction and operation.

Various solid waste materials will be generated during construction of the Project. SCE will recycle at least 50 percent of projected construction and demolition waste in accordance with the Integrated Waste Management Act of 1989. For waste materials that cannot be reused or recycled, solid waste management facilities located within the vicinity of the Project will be used for the disposal of waste. According to SCE, the average daily solid waste disposal will be approximately 528 tons; however, this an overestimate since it only takes in account scrap metal recycling and materials reusable at SCE or on site. The actual disposal amount is expected to be substantially less, when cribbing wood, cardboard boxing and crating, soil, and vegetation are recycled to the extent practical. The remaining waste will be disposed regularly over the 59-month construction period, and is not expected to result in a considerable percentage of the daily disposal limits or remaining capacity of the landfills.

Landfills serving the Project area have remaining capacities estimated to handle the inert waste generated by the Project, and the quantity of construction-related materials transported to these landfills will not affect any daily volume thresholds established by the facility. Once constructed, Project operations will generate minimal amounts of solid waste. Broken equipment and small quantities of solid waste will be generated through routine operation and maintenance of substations. However, such quantities will not affect existing landfill capacities.

Finding. The CPUC finds that impacts on waste facilities will be adverse but not significant. While no mitigation measures are required to reduce this impact to a less-than-significant level, implementation of Mitigation Measure PSU-9 (Recycle construction waste) will ensure that maximum recycling activities will occur. Impact PSU-8 of the Project will be less than significant with no mitigation required.

- **MM PSU-9 Recycle construction waste.** SCE shall recycle a minimum of 50 percent of the waste generated during construction activities along the entire Project route. Following the completion of construction activities, SCE shall submit documentation to the CPUC and FS verifying the recycling of 50 percent of generated Project waste.

Rationale for Finding. The average daily amount of waste generated by the Project is conservatively estimated to be 528 tons. Spread out over the 59-month construction schedule, this amount is not expected to exceed the available capacity of the landfills serving the Project area, and recyclable material will be taken to recycling facilities. After the construction period, operation and maintenance activities will not generate solid waste.

Reference. Final EIR Section 3.11; Table ES-3

Cumulative Impact PSU-1: Emergency services would be needed if an accident or other emergency incident occurs at a construction site.

Construction of the Project could result in potentially hazardous conditions that will require emergency services. If construction activities for other projects in the area also result in potentially hazardous conditions that require emergency services and such potentially hazardous conditions are introduced in the same general area and timeframe as such conditions under the Project, the resulting impacts could be significant to emergency service providers.

The implementation of Mitigation Measures PSU-1a (Revise SCE's Fire Management Plan), PSU-1b (Review of construction methods by county fire departments), PSU-1c (Practice safe welding procedures), and PSU-1d (Fire preventive construction equipment requirements), required under the Project, will minimize the Project's incremental contribution to this cumulative effect.

Finding. The CPUC finds that changes or alterations have been required in, or incorporated into, the Project which avoid or substantially lessen the Project's contribution to cumulative impacts to emergency services as a result of an accident or other emergency incident at a construction site. With the inclusion of the Project mitigation listed above, the Project's cumulative contribution to impacts to emergency services as a result of an accident or other emergency incident at a construction site will be less than significant.

Rationale for Finding. Due to mitigation measures required for the Project, the likelihood of the need for emergency response teams as a result of construction accidents will be low.

Reference. Final EIR Section 3.11; Table ES-3

Cumulative Impact PSU-2: Temporary lane closures during the construction period would interfere with emergency response vehicles.

Construction of the Project will interfere with the regular flow of traffic due to temporary lane closures. From a cumulative impacts perspective, emergency vehicles will be adversely affected if construction of other projects listed in the Cumulative Scenario were to occur in the proximity of the Project.

The implementation of Mitigation Measure T-1a (Traffic Control Plan), required under the Project, will minimize the Project's incremental contribution to this cumulative effect.

Finding. The CPUC finds that changes or alterations have been required in, or incorporated into, the Project which avoid or substantially lessen the Project's contribution to cumulative impacts associated with interference with emergency vehicles due to temporary lane closures during construction. With the inclusion of the Project mitigation listed above, the Project's cumulative contribution to impacts associated with interference with emergency vehicles due to temporary lane closures during construction will be less than significant,

Rationale for Finding. With implementation of the Traffic Control Plan required by Mitigation Measure T-1a, emergency access will not be significantly impeded by multiple construction sites in the same vicinity and timeframe.

Reference. Final EIR Section 3.11; Table ES-3

Cumulative Impact PSU-3: Construction and operation would impede emergency aircraft response services.

Construction and operation of the Project could interfere with emergency aircraft services. Construction of other projects in the vicinity of the Project could also cause interruptions for emergency response operations.

Finding. The CPUC finds that the Project's incremental contribution to this cumulative impact will not be cumulatively considerable.

Rationale for Finding. All flight operations will be restricted by FAA rules on temporary flight restrictions from flying in designated areas.

Reference. Final EIR Section 3.11; Table ES-3

Cumulative Impact PSU-4: Utility systems would be temporarily disrupted during the construction period.

Disruptions in the flow of utility services for co-located utilities are likely to occur during the construction period, and will require the implementation of Mitigation Measure PSU-4 (Notification of utility service interruption) in order to reduce the Project's impacts to a less-than-significant level. Construction of other projects in the vicinity of the Project may also cause temporary utility disruptions. It is unlikely that utility disruptions will occur at the same time.

The implementation of Mitigation Measure PSU-4 (Notification of utility service interruption), required under the Project, will minimize the Project's incremental contribution to this cumulative effect.

Finding. The CPUC finds that changes or alterations have been required in, or incorporated into, the Project which avoid or substantially lessen the Project's contribution to cumulative impacts associated with disruption of utility systems during construction. With the inclusion of the Project mitigation listed above, the Project's cumulative contribution to impacts associated with disruption of utility systems during construction will be less than significant.

Rationale for Finding. If a disruption is known to be unavoidable, SCE will coordinate with the affected jurisdiction/s and service provider/s in order to avoid multiple or extended disruptions, in accordance with Mitigation Measure PSU-4.

Reference. Final EIR Section 3.11; Table ES-3

Cumulative Impact PSU-5: Public Works maintenance yards would be disrupted during the construction period.

Construction of the Project will likely result in disruptions at Public Works maintenance yards. The implementation of Mitigation Measure PSU-5 (Notification of public service interruption), required under the Project, will minimize the Project's incremental contribution to this cumulative effect.

Finding. The CPUC finds that changes or alterations have been required in, or incorporated into, the Project which avoid or substantially lessen the Project's contribution to cumulative impacts associated with disruption of Public Works maintenance yards during construction. With the inclusion of the Project mitigation listed above, the Project's cumulative contribution to impacts associated with disruption of Public Works maintenance yards during construction will be less than significant.

Rationale for Finding. If a disruption is known to be unavoidable, SCE will coordinate with the appropriate Public Works Department/s in accordance with Mitigation Measure PSU-5, in order to avoid multiple or extended disruptions.

Reference. Final EIR Section 3.11; Table ES-3

Cumulative Impact PSU-6: Project construction would temporarily increase water use and Project operation would contribute to increased long-term water consumption.

Water will be required for dust suppression during the entire construction period. Each jurisdiction along the proposed route will contribute to the water required by Project construction, which is reasonably expected to be a small fraction of the available water supply. From a cumulative perspective, the majority of planned and proposed projects included in the cumulative scenario are residential developments, which require substantially more water and water infrastructure during construction than the Project.

Finding. The CPUC finds that the Project's contribution to this cumulative impact will not be cumulatively considerable.

Rationale for Finding. The majority of planned and proposed cumulative projects will require substantially more water and water infrastructure during construction than the Project and the existing water supply for each region, which is listed in Section 3.11.2.2 (Affected Environment: Water), shows that multiple water allocations are available along the entire length of the proposed route.

Reference. Final EIR Section 3.11; Table ES-3

Cumulative Impact PSU-7: Additional wastewater would be generated during Project construction and operation.

Construction of present and reasonably foreseeable future projects in the vicinity of the proposed route will contribute to wastewater generation.

Finding. The CPUC finds that the Project's contribution to this impact will not be cumulatively considerable.

Rationale for Finding. The generation of wastewater from construction personnel associated with the Project or construction from surrounding developments will not exceed the capabilities of wastewater facilities. While the Project, in combination with present and reasonably foreseeable future projects will incrementally increase the generation of wastewater, this will not significantly impact the capabilities of waste management and will not have a cumulatively considerable impact. Therefore, the Project will not make a cumulatively considerable contribution to a cumulatively significant impact.

Reference. Final EIR Section 3.11; Table ES-3

Cumulative Impact PSU-8: Additional solid waste would be generated during Project construction and operation.

Waste generated by the Project will be disposed of (including through recycling) over the 59-month construction period and is not expected to exceed the available capacity of the landfills noted in Table 3.11-9. In the cities of Lancaster and Palmdale, the Project and other present and reasonably foreseeable future projects are generally located west of the established development, in previously undeveloped land.

Finding. The CPUC finds that the Project's contribution to this impact will not be cumulatively considerable.

Rationale for Finding. Waste management services are abundant and there are numerous disposal facilities with available space. Therefore, while the Project and the present and reasonably foreseeable future projects will require waste capabilities during construction, such waste is not expected to exceed the capabilities of existing waste disposal facilities and recycling facilities. The cumulative impact will not be significant.

Reference. Final EIR Section 3.11; Table ES-3

Cumulative Impact PSU-9: The amount of waste material recycled during construction activities would not adhere to State standards.

The Project will be in full compliance with the Integrated Waste Management Act of 1989, which requires all local and county governments to adopt a Source Reduction and Recycling Element to identify means of reducing the amount of solid waste sent to landfills. Mitigation Measure PSU-9 (Recycle construction waste) will ensure compliance for Project-related impacts. In addition, other planned, proposed, or reasonably foreseeable projects are also subject to the Integrated Waste Management Act of 1989 and must therefore incorporate maximum recycling efforts during construction activities. Therefore, Impact PSU-9 would not be cumulatively considerable

Finding. The CPUC finds that the Project's contribution to this impact will not be cumulatively considerable.

Rationale for Finding. Compliance with the Integrated Waste Management Act of 1989 will be adhered to by the Project and all other cumulative projects. Therefore, the Project-related impacts will not be cumulatively considerable and impacts will be less than significant.

Reference. Final EIR Section 3.11; Table ES-3

III.2.9 Traffic and Transportation

Information regarding the existing roadway system and transportation infrastructure and facilities was obtained from the following sources: highway maps, route alignment maps, the Proponent's Environmental Assessment, and other maps from various reports and websites of the affected State and local agencies. Roadway capacities and operating criteria were obtained from general plans, traffic departments, and or public works departments of the affected agencies. Traffic volume data were obtained from agency websites and databases. Lane information was obtained from aerial photographs, local government agencies, public maps, and field reconnaissance.

Impact T-9: Construction vehicles and equipment could damage road ROWs.

Construction of the Project is not expected to cause any physical damage to roads, sidewalks, medians, etc., within public roads or sidewalks. However, there is the potential for unexpected damage to occur on features in road ROWs due to the operation of construction vehicles and equipment. The Alternative 6 portions of the Project will use several centralized staging areas for construction of Segment 6 and Segment 11, and fewer roadways will be traveled by construction vehicles than the comparable portion of Alternative 2; however, although the potential for this impact to occur will be decreased due to the incorporation of Alternative 6, the impact will still occur.

APM TRA-5 (Repair Damaged Streets), included as part of the Project, will require any damage to local streets to be repaired, and streets be restored to their pre-Project condition.

Finding. The CPUC finds that impacts of construction vehicles and equipment to road ROWs will be less than significant with no mitigation required.

Rationale for Finding. APM TRA-5 will ensure that any physical damage to roads, sidewalks, or medians as a result of construction will be restored to their pre-Project condition.

Reference. Final EIR Section 3.13; Table ES-3

Cumulative Impact T-1: Closure of roads to through traffic or reduction of travel lanes would result in substantial congestion.

Construction of the Project could result in roadway closures at locations where the construction activities, especially transmission line stringing, will be located within ROWs of public streets and highways. Such closures are regulated by the applicable jurisdictional agency through encroachment permits which require specific measures to minimize disruption to local traffic flow. All projects requiring work within ROWs of public streets and highways are required to obtain encroachment permits. In order for a cumulative impact to occur, lane closures from different projects will have to occur at the same time and on the same road or a connecting road within close proximity (up to two miles) to the lane closure from the Project. The Alternative 6 portions of the Project will result in the addition of a slightly higher number of construction-related trips to area roadways during construction of Segment 6 and Segment 11. This increase in traffic will incrementally increase the contribution of the Project to this cumulative impact.

The implementation of Mitigation Measures T-1a (Prepare Traffic Control Plans) and T-1b (Restrict lane closures), required under the Project (inclusive of portions of Alternative 6), will minimize the Project's incremental contribution to this cumulative effect.

Finding. The CPUC finds that changes or alterations have been required in, or incorporated into, the Project which avoid or substantially lessen the Project's contribution to cumulative impacts associated with substantial congestion as a result of closure of roads to through traffic or reduction of travel lanes. With the inclusion of the Project mitigation listed above, the Project's cumulative contribution to impacts associated with substantial congestion as a result of closure of roads to through traffic or reduction of travel lanes will be less than significant.

Rationale for Finding. Past projects in the Project Area will not combine with impacts of the Project because construction of those projects is complete and lane closures associated with such construction will no longer be necessary. Reasonably foreseeable projects in the Project Area will not combine with impacts of the Project to result in a significant impact due to Mitigation Measures T-1a and T-1b, which are required under the Project and would facilitate advanced planning for potential traffic impacts.

Reference. Final EIR Section 3.13; Table ES-3

Cumulative Impact T-2: Construction traffic would result in congestion on area roadways.

Construction of the Project will temporarily increase traffic (through Project trip generation) on the regional and local roadways. Past development within the Project area outside of the ANF has substantially contributed to congestion on area roadways. Current and reasonably foreseeable projects in these areas will also temporarily increase traffic in these areas during construction. Additionally, development and population growth in these areas is expected to continue to increase. It is reasonable to assume that several residential and commercial developments that are currently under construction in these areas will be completed and partially occupied by the time Project construction begins in this area. Traffic associated with these future residential developments will contribute to congestion on area roadways. Alternative 6 portions of the Project will result in the addition of a slightly higher number of construction-related trips to area roadways during construction of Segment 6 and Segment 11. This increase in traffic will also incrementally increase the contribution of Alternative 6 to this cumulative impact.

The implementation of Mitigation Measures T-2 (Prepare Construction Transportation Plan), required under the Project (inclusive of portions of Alternative 6), will minimize the Project's incremental contribution to this cumulative effect.

Finding. The CPUC finds that changes or alterations have been required in, or incorporated into, the Project which avoid or substantially lessen the Project's contribution to cumulative impacts associated with congestion on area roadways as a result of construction traffic. With the inclusion of the Project mitigation listed above, the Project's cumulative contribution to impacts associated with congestion on area roadways as a result of construction traffic will be less than significant.

Rationale for Finding. Current and reasonably foreseeable projects in the Project Area could temporarily increase traffic in a similar way as the Project. However, the Project's incremental contribution to this cumulative impact will be minimized through Mitigation Measure T-2 (Prepare Construction Transportation Plan), and no significant cumulative impact would occur.

Reference. Final EIR Section 3.13; Table ES-3

Cumulative Impact T-3: Construction activities could temporarily interfere with emergency response.

Lane closures associated with construction of the Project could disrupt the routes traveled by emergency providers. Other current and reasonably foreseeable projects will have the same potential to restrict emergency service provider routes. However, the implementation of Mitigation Measures T-1a (Prepare Traffic Control Plans), required under the Project, will minimize the Project's incremental contribution to this cumulative effect.

Finding. The CPUC finds that changes or alterations have been required in, or incorporated into, the Project which avoid or substantially lessen the Project's contribution to cumulative impacts associated with interference with emergency response as a result of construction activities. With the inclusion of the Project mitigation listed above, the Project's cumulative contribution to impacts associated with interference with emergency response as a result of construction activities will be less than significant.

Rationale for Finding. Mitigation Measure T-1a (Prepare Traffic Control Plans) requires construction activity to be coordinated in advance with emergency service providers to avoid restricting movements of emergency vehicles and, additionally, lane closures associated with the Project will be of very short duration and the Project's incremental contribution to the cumulative impact will not be significant.

Reference. Final EIR Section 3.13; Table ES-3

Cumulative Impact T-4: Construction activities could temporarily disrupt transit routes.

Lane closures associated with construction of the Project could disrupt the routes traveled by bus transit services. Other current and reasonably foreseeable projects will have the same potential to restrict transit service routes. However, the implementation of Mitigation Measure T-4 (Avoid disruption of bus service), required under the Project, will minimize the Project's incremental contribution to this cumulative effect.

Finding. The CPUC finds that changes or alterations have been required in, or incorporated into, the Project which avoid or substantially lessen the Project's contribution to cumulative impacts associated with interference with emergency response as a result of construction activities. With the inclusion of the Project mitigation listed above, the Project's cumulative contribution to impacts associated with interference with emergency response as a result of construction activities will be less than significant.

Rationale for Finding. Mitigation Measure T-4 (Avoid disruption of bus service) requires construction activity to be coordinated in advance with school districts and transit providers and, additionally, lane closures associated with the Project will be of very short duration and the Project's incremental contribution to the cumulative impact will not be significant.

Reference. Final EIR Section 3.13; Table ES-3

Cumulative Impact T-6: Construction activities could temporarily interfere with the use of pedestrian/bicycle paths.

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 bike routes were blocked. However, the implementation of Mitigation Measure T-6 (Ensure pedestrian and bicycle circulation and safety), required under the Project, will minimize the Project's incremental contribution to this cumulative effect.

Finding. The CPUC finds that changes or alterations have been required in, or incorporated into, the Project which avoid or substantially lessen the Project's contribution to cumulative impacts associated with interference with the use of pedestrian/bicycle paths as a result of construction activities. With the inclusion of the Project mitigation listed above, the Project's cumulative contribution to impacts associated with interference with the use of pedestrian/bicycle paths as a result of construction activities will be less than significant.

Rationale for Finding. Implementation of Mitigation Measure T-6 (Ensure pedestrian and bicycle circulation and safety) will ensure that impacts of the Project will not contribute to cumulatively significant impacts by requiring establishment of alternative pedestrian and bicycle routes around the Project construction zone for safe passage as well as temporary detours for trail users.

Reference. Final EIR Section 3.13; Table ES-3

Cumulative Impact T-10: Project transmission structures could present an aviation hazard.

The Project will result in construction of structures greater than 200 feet in height, and will place structures beneath potential military flight test pathways, which could result in an aviation hazard or obstruction hazard to nearby airports or military training activities. The Project, as well as any other project that will result in construction of features over 200 feet in height, will be required to submit a Notice of Construction to the FAA Air Traffic Division for review and approval.

Finding. The CPUC finds that the Project's contribution to this impact will not be cumulatively significant.

Rationale for Finding. Final design of all projects with structures greater than 200 feet in height will have to comply with FAA guidelines. Projects located within military flight pathways will be required to submit the project application to the appropriate US Military Branch for review to ensure conflicts will not occur.

Reference. Final EIR Section 3.13; Table ES-3

Cumulative Impact T-11: Underground construction activities would temporarily restrict access to properties.

Due to the incorporation of Alternative 7 into the Project, underground construction activities will occur in the Southern Region and could potentially block access to property entrances and driveways.

Finding. The CPUC finds that the Project's contribution to this impact will not be cumulatively significant.

Rationale for Finding. The regulatory agency responsible for issuing encroachment permits for the Project and other projects in the cumulative scenario will ensure that work within a public road will not occur simultaneously with the Project to avoid significant cumulative impacts.

Reference. Final EIR Section 3.13; Table ES-3

III.2.10 Wilderness and Recreation

Under the significance criteria used to assess wilderness and recreation impacts of the Project in the Final EIR, and considering the combined effects of Alternatives 2, 3, 6, and 7, all direct or indirect Project-level wilderness and recreation impacts of the Project require mitigation to be less than significant. However, two cumulative impacts of the Project will be less than significant without the implementation of mitigation measures, as discussed below.

Cumulative Impact R-2: Operational and maintenance activities would restrict access to or disrupt activities within established recreational areas.

Operation and maintenance activities associated with the Project will have the potential to temporarily restrict access to or disrupt activities within some recreational areas and Developed Recreation resources as a result of site-specific activities needed to operate and maintain the transmission line. Recreational resources and opportunities located within the Project ROW will be particularly susceptible to this impact. If operation and maintenance activities associated with other projects in the geographic scope of this cumulative analysis will also result in temporary access restriction or disruption of existing activities within established recreational areas, and such effects of the operation and maintenance of other projects occur at the same time as they will for the Project, a cumulative impact will result. However, it is highly unlikely that operation and maintenance activities for multiple projects will result in similar impacts to the same recreational resources at the same time.

Finding. The CPUC finds that cumulative impacts resulting from operational and maintenance activities that will restrict access to or disrupt activities within established recreational areas will be less than cumulatively considerable without the implementation of mitigation measures.

Rationale for Finding. Any restriction or disruption of recreational activities associated with operation and maintenance of the Project will be site-specific and will not combine with similar impacts of other projects. No mitigation is required.

Reference. Final EIR Section 3.15; Table ES-3

Cumulative Impact R-3: Project activities (construction or operation and maintenance) would cause or contribute to the degradation of one or more of the four primary characteristics of a designated Wilderness Area, as defined by the Wilderness Act, Public Law 88-577 (16 U.S.C. 1131-1136).

The Project has the potential to cause or contribute to the degradation of one of the primary characteristics of a designated Wilderness Area in the ANF, which is the characteristic of "solitude and unconfined recreation" in the San Gabriel Wilderness Area. From a cumulative perspective, existing development has occurred across NFS lands in the ANF in the past (utility corridors, communication sites, powerhouses, reservoirs, and mining sites) and it is reasonably foreseeable that similar future projects will occur in the ANF, but it is considered highly unlikely that at least one such project would have the potential to cause or contribute to the degradation of a primary characteristic of the San Gabriel Wilderness Area in the same way and/or during the same timeframe as the Project. Therefore, cumulative impacts are less than significant.

Finding. The CPUC finds that cumulative impacts resulting from the degradation of one or more of the our primary characteristics of a designated Wilderness Area are less than significant.

Rationale for Finding. It is reasonably foreseeable that similar future projects will occur in the ANF, but it is considered highly unlikely that at least one such project would have the potential to cause or contribute to the degradation of a primary characteristic of the San Gabriel Wilderness Area in the same way and/or during the same timeframe as the Project. Therefore, cumulative impacts are less than significant. No mitigation is required.

Reference. Final EIR Section 3.15; Table ES-3

Cumulative Impact R-5: The Project would contribute to degradation of Off-Highway Vehicle (OHV) trails or Open Riding Areas, or would result in a loss of recreational opportunity for OHV users.

Impacts to OHV resources and opportunities will not occur in the North or South Regions of the Project Area. In the Central Region, which is largely comprised of NFS lands in the ANF, the Project will require temporary road closures that will contribute to the temporary loss of recreational opportunities for OHV users. Road closures associated with construction traffic may affect existing OHV routes, thereby temporarily removing such routes from availability to OHV recreationists.

Finding. The CPUC finds that cumulative impacts of the Project associated with the degradation of OHV trails or Open Riding Areas, or the loss of recreational opportunity for OHV users, will be less than cumulatively considerable without the implementation of mitigation measures.

Rationale for Finding. Impacts to OHV resources or opportunities associated with the Project will be temporary in nature, and similar impacts of other projects in the Central Region are highly unlikely. No mitigation is required.

Reference. Final EIR Section 3.15; Table ES-3

III.2.11 Wildfire Prevention and Suppression

The TRTP corridor currently contains several other high-voltage transmission lines. The Project will be constructed primarily within existing ROW adjacent to these existing structures, which create an ongoing source of potential wildfire ignitions.

Numerous wildland-urban interface communities exist throughout the Tehachapi Fireshed. These communities are situated in harm's way when a large fire sweeps through the area. Furthermore, the presence of humans in the fuel-laden Tehachapi Fireshed has increased the number of human-related wildfire ignitions in recent decades, which has resulted in shorter intervals between large fires. Human

activities have altered natural fire regimes relative to their historic range of variability (Syphard et al., 2007). California chaparral shrublands have experienced such substantial human population growth and urban expansion that the increase in ignitions, coupled with the most severe fire weather in the country (Schroeder et al. 1964), have increased fire frequency above the historic range of variability (Keely et al., 1999). Impacts to ecosystems, communities, and species are possible if a disturbance regime, like wildfire, exceeds its natural range of variability (Landres et al., 1999; Dale et al., 2000).

The Project will be accessed by several narrow, unpaved roads in the ANF and Puente Hills Landfill Native Habitat Preservation Authority (PHLNHPA) lands, and construction activities could limit emergency vehicle access. If adequate road access cannot be maintained in remote areas of the ANF due to construction and maintenance activities, or due to the presence of parked vehicles and large equipment on narrow single-lane roads, the access restriction could directly result in delay or disruption of firefighting response in the event of fire. Such delays or disruptions will result in reduced effectiveness of firefighting efforts.

Impact F-2: Presence of new or taller overhead transmission line would reduce the effectiveness of firefighting.

Portions of Segment 6, Segment 7, Segment 8A, and Segment 11 will increase the maximum height of transmission lines in the shared ROW through the Tehachapi Fireshed. The height increase will be approximately 50 feet on average along these segments. The increased height of transmission lines in these areas will decrease the effectiveness of aerial firefighting activities because firefighting aircraft will have to fly at higher altitudes to avoid conflicts with the transmission lines and towers. Flying at higher altitudes can reduce the accuracy of targeted drops of water and flame retardant used to suppress and contain wildfires.

Finding. The CPUC finds that the impact of increased heights of transmission lines in Segments 6, 7, 8A, and 11 to aerial firefighting effectiveness will be less than significant without the implementation of mitigation measures.

Rationale for Finding. Because there are existing transmission lines in the shared ROW, aerial firefighting crews avoid making drops near the ROW under existing conditions, and the addition of Project infrastructure will present only a marginal increase in the required altitude of aerial vehicles working through the shared ROW. Impacts will be less-than-significant.

Reference. Final EIR Section 3.16; Table ES-3

Impact F-5: Presence of the overhead transmission line would increase the risk of wildfire.

The Tehachapi Fireshed is a high-risk fireshed based on its wildfire history, fuels present, and wildland-urban interface communities at risk. Any T/L faults that create sparks or ignite nearby vegetation in the Tehachapi Fireshed could result in a large and catastrophic wildfire, which will put large areas and potentially many households at risk. The potential for unavoidable ignitions related to the presence of the overhead transmission line to occur during extreme fire weather increases the likelihood of a catastrophic wildfire. The risk of ignitions and the risk of damage from a Project-related ignition will be substantially reduced through implementation of adequate line clearances in compliance with CPUC General Order 95 (“GO 95”) Rule 35, and by performing adequate inspections to detect imminent component failures in compliance with GO 95 Rule 31.2. The portions of Project that will be located within the Tehachapi Fireshed will replace existing transmission lines. Therefore, the existing transmission lines within the Tehachapi Fireshed that the Project will replace represent an ongoing source of potential wildfire ignitions. Once operational, the potential for wildfire ignitions as a result of the presence of a transmission line will persist, but will not be increased.

Finding. The CPUC finds that the impacts of the Project's overhead transmission line to increased risk of wildfire will be less than significant without the implementation of mitigation measures.

Rationale for Finding. The presence of the Project will not increase the likelihood of a catastrophic wildfire. The transmission lines constructed within the Tehachapi Fireshed will have the same potential for igniting a wildfire as the existing transmission lines the project will replace. Therefore, Impact F-5 will be less than significant.

Reference. Final EIR Section 3.16; Table ES-3

Cumulative Impact F-1: Construction and/or maintenance activities would reduce the effectiveness of firefighting.

Construction activities related to the Project in the ANF, residential development near the ANF (such as the Tejon Mountain Village), and maintenance of existing transmission lines in the shared ROW through the ANF could limit emergency vehicle access in the Forest. If adequate road access cannot be maintained in remote areas of the ANF due to construction and maintenance activities, the access restriction could delay firefighting response. Existing transmission line maintenance activities that block roads within the ANF could combine to seriously delay firefighting operations during the fire season in the event of a fire in the ANF.

APM HAZ-4 (Fire Management Plan, Specification E-2005-104; February 21, 2006), included as part of the Project, and Mitigation Measure F-1(Prepare wildland traffic control plans), required under the Project, will minimize the Project's incremental contribution to this effect.

Finding. The CPUC finds that changes or alterations have been required in, or incorporated into, the Project which avoid or substantially lessen the Project's contribution to cumulative impacts associated with a reduction of the effectiveness of firefighting. With the inclusion of the Project mitigation listed above, the Project's cumulative contribution to impacts associated a reduction of the effectiveness of firefighting will be less than significant.

Rationale for Finding. APM HAZ-4 (Fire Management Plan, Specification E-2005-104; February 21, 2006) requires SCE to follow its Fire Management Plan during construction of the Project. The Fire Management Plan covers fire safety provisions, equipment, communication, and reporting during construction. Should construction or maintenance activities require the use of helicopters, Project helicopters will be restricted by FAA rules on temporary flight restrictions from flying in designated areas, eliminating any potential interference with aerial firefighting operations during a wildfire event in the areas surrounding the Project. In addition, implementation of Mitigation Measure F-1(Prepare wildland traffic control plans) requires SCE to develop wildland traffic control plans as part of the Traffic Control Plans required by Mitigation Measure T-1a (Prepare Traffic Control Plans) in consultation with the USDA Forest Service (ANF) and Puente Hills Landfill Native Habitat Preservation Authority (PHLNHPA), as appropriate. The wildland traffic control plans shall stipulate mechanisms through which narrow roads shall be kept passable for emergency service providers in a wildfire-related or other emergency situation. SCE will appoint a Road Master, who shall administer the wildland traffic control plans and facilitate emergency vehicle access in the event of a wildfire-related or other emergency. The wildland traffic control plans shall identify strategic locations for adequate construction and maintenance vehicle parking, as necessary, in consultation with the land management agency, and alternate routes for large equipment and vehicle evacuation shall be identified to the extent possible. Wildland traffic control plans will be prepared in consultation with the land management agencies for both construction and maintenance activities and shall be submitted to the USDA Forest Service and PHLNHPA at least 30 days prior to construction in areas managed by these agencies.

Reference. Final EIR Section 3.16; Table ES-3

Cumulative Impact F-2: The presence of new or higher overhead transmission line would reduce the effectiveness of firefighting.

The addition of the aboveground transmission lines on towers of substantially higher maximum height than existing towers through the Tehachapi Fireshed will only marginally reduce the effectiveness of firefighting activities within the Fireshed by limiting aerial operations and will therefore not combine with other past, present, and reasonably foreseeable projects in the area to result in a cumulative impact. The cumulative effect will be less than significant.

Finding. The CPUC finds that the impacts of the Project's overhead transmission line to reduce the effectiveness of firefighting will be less than significant and will therefore not combine with other past, present and reasonably foreseeable projects in the area to result in a cumulative impact. Impacts are less than significant and no mitigation measures are required.

Rationale for Finding. The addition of larger, taller aboveground transmission structures through the Tehachapi Fireshed will only marginally reduce the effectiveness of firefighting activities within the Fireshed by limiting aerial operations and will therefore not combine with other past, present, and reasonably foreseeable projects in the area to result in a cumulative impact. The cumulative effect will be less than significant.

Reference. Final EIR Section 3.16; Table ES-3

III.2.12 Electrical Interference and Hazards

Electrical interference and electrical hazards include both safety and nuisance issues, such as interference with radio, television, communications, or electronic equipment; induced currents or shock hazards; interference with cardiac pacemakers; and hazards related to wind or earthquake events.

Impact EIH-3: Project operation would result in electric fields that would affect cardiac pacemakers.

The electric fields associated with the Project's transmission lines may be of sufficient magnitude to impact operation of a few older model pacemakers resulting in them reverting to an asynchronous pacing. Cardiovascular specialists do not consider prolonged asynchronous pacing to be a problem; periods of operation in this mode are commonly induced by cardiologists to check pacemaker performance. There are, however, exceptions which include: individuals that are completely dependent on their pacemakers for maintaining all cardiac rhythms; individuals whose pacemakers function in inhibited modes, where field interference could severely compromise cardiovascular function; and individuals with compromised coronary circulation who are prone to episodes of reduced cardiac blood flow. The precise coincidence of an individual being exposed to high electric fields within a transmission line ROW and a biological need of that individual for the full function of his/her pacemaker would appear, in general, to be a rare event However, given the data available, the probability of such a coincidence to occur cannot be estimated. Clear exceptions to this conclusion are individuals who are completely dependent on a pacemaker for all cardiac rhythms.

Finding. The CPUC finds that Project-related interference with cardiac pacemakers will be of short duration and will not result in significant impacts. No mitigation is required.

Rationale for Finding. Given the rarity of an exposure event to occur simultaneously with a biological need for full function pacemakers, it would be unlikely that the transmission line's electric field would cause harmful interference to the operations of cardiac pacemakers. Furthermore, while the proposed transmission

lines would generate electric fields that may impact operation of some older model pacemakers, the resulting interference would be of short duration and is not considered significant or harmful.

Reference. Final EIR Section 3.17; Table ES-3

Impact EIH-4: Project structures would be affected by wind and earthquakes.

Wind. Transmission line structures used to support overhead transmission lines must meet the requirements of the California Public Utilities Commission, General Order No. 95, Rules for Overhead Electric Line Construction. This design code and the NESC include loading requirements related to wind conditions. Transmission support structures are designed to withstand different combinations of loading conditions including extreme winds. These design requirements include use of safety factors that consider the type of loading as well as the type of material used (e.g., wood, steel or concrete). Failures of transmission line support structures are extremely rare and are typically the result of anomalous loading conditions such as tornadoes or ice storms. The Project will be constructed on steel lattice towers or tubular steel poles, and failure would be extremely unlikely.

Earthquake. Overhead transmission lines consist of a system of support structures and interconnecting wire that is inherently flexible. Industry experience has demonstrated that under earthquake conditions structure and member vibrations generally do not occur or cause design problems. Overhead transmission lines are designed for dynamic loading under variable wind conditions that generally exceed earthquake loads.

Finding. The CPUC finds that risk to Project structures associated with high winds or earthquake that could cause transmission line structures to threaten public safety is less than significant. No mitigation is required.

Rationale for Finding. The Project will be constructed on steel lattice towers or tubular steel poles, where failure as a result of extreme wind conditions is highly unlikely. Overhead transmission lines are designed for dynamic loading under variable wind conditions that generally exceed earthquake loads. Consequently, the risk that Project structures will be affected by high winds or an earthquake is less than significant.

Reference. Final EIR Section 3.17; Table ES-3

III.3 Significant Environmental Impacts that Have Been Reduced to a Less than Significant Level

The CPUC hereby finds that the following environmental impacts can and will be mitigated to below a level of significance based upon the implementation of mitigation measures identified in the Final EIR and listed in this section. These findings are based on the discussion of impacts in the detailed issue area analyses in Chapter 3 (Affected Environment and Environmental Consequences) of the Final EIR. An explanation of the rationale for each finding is presented below.

III.3.1 Agricultural Resources

Impact AG-1: Construction activities would temporarily preclude the agricultural use of some Farmland.

Project construction activities will include the installation of 220-kV and 500-kV T/Ls, installation of structure foundations, extension of spur roads, and the stringing of conductor and overhead groundwire in areas of Prime Farmland, Unique Farmland, and Farmland of Statewide Importance (Farmland). In Farmland traversed by Segment 4, 24 T/L towers will be constructed, 8 stringing and pulling areas will be cleared, and approximately 2.13 miles of access and spur road will be graded. While Segment 5 will cross approximately 0.15 miles of Prime Farmland, no construction will occur within this parcel of Farmland. In

Farmland crossed by Segments 8A, 8B, and 8C, 20 T/L towers will be constructed, 2 stringing and pulling areas will be cleared and approximately 0.86 miles of access and spur roads will be graded. In total, the Project will require the construction of 44 T/L towers, 10 stringing and pulling areas, and 2.99 miles of access and spur roads on Farmland, which will temporarily convert a total of approximately 54.75 acres of Farmland to non-agricultural uses, which will result in a significant impact.

APMs AG-1 (Coordinate with Landowner) and AG-2 (Locate Project Activities to Minimize Impacts to Active Agricultural Operations), included as part of the Project, will reduce the significance of this impact.

Finding. The CPUC finds that changes or alterations have been incorporated into the Project which avoid or substantially lessen the significant effects on the environment from Impact AG-1. Specifically, the following mitigation measure is feasible and is hereby adopted to mitigate significant effects from Impact AG-1 to a less-than-significant level.

- **MM AG-1 Coordinate construction activities with agricultural landowners.** SCE shall coordinate with property owners of Farmland (Prime Farmland, Farmland of Statewide Importance, Unique Farmland) and Williamson Act lands that will be used for construction of the Project, including access and spur roads, staging areas, and other Project-related activities. The purpose of this coordination is to establish the use of Prime Farmland, Farmland of Statewide Importance, Unique Farmland, and Williamson Act lands during construction in order to: (1) schedule construction activities at a location and time when damage to agricultural operations would be minimized , to the extent practicable; and (2) ensure that any areas damaged or disturbed by construction are restored to a condition that closely approximates conditions that existed prior to construction-related disturbance, to the extent practicable.

  SCE's coordination with the agricultural landowners in the areas where Farmland or Williamson Act land will be temporarily disturbed is intended to minimize disruption to agricultural operations. This includes avoiding construction during peak planting, growing, and harvest seasons, if feasible, based on outage limitations. If damage or destruction occurs, SCE shall perform restoration activities on the disturbed area in order to return the area to a condition that closely approximates conditions that existed prior to construction-related disturbance. This could include activities such as soil preparation, regrading, and reseeding. SCE shall document its coordination efforts with affected agricultural landowners regarding the continued use of Farmland and/or Williamson Act lands and shall submit this documentation to the CPUC at least 30 days prior to the start of any construction activities on the affected agricultural parcels.

Rationale for Finding. Applicant proposed measures AG-1, AG-2, and AG-3 require towers, roads, and pulling and splicing areas to be sited in locations that will minimize impacts to agricultural lands. These measures will reduce a portion of the impacts to Farmlands. Mitigation Measure AG-1 (Coordinate construction activities with agricultural landowners) requires coordination with property owners of Farmland to determine construction scheduling, compensation for damages, and specifications for the restoration of disturbed land. It clarifies timing and reporting requirements and requires the restoration of disturbed land to pre-determined or pre-construction conditions. Together with the applicant proposed measures, implementation of Mitigation Measure AG-1 will reduce temporary preclusion of agricultural uses of Farmland to a less-than-significant level.

Reference. Final EIR Section 3.2; Table ES-3

Impact AG-3: Construction activities would interfere with agricultural operations.

The Project will be constructed across approximately 23.69 miles of agricultural land in Kern County, approximately 31.92 miles of agricultural land in Los Angeles County, and approximately 19.94 miles of

agricultural land in San Bernardino County. Construction activities across these agricultural lands will primarily consist of construction of the 220-kV and 500-kV T/Ls in Segments 4, 5, 6, 8A, 8B, and 8C, but will also include the construction of Cottonwind Substation on grazing land in Kern County and the expansion of the Antelope Substation in Los Angeles County. These construction activities could conflict with existing agricultural operations.

The presence and use of heavy equipment, including road graders, dozers, excavators, and trucks, needed to construct the new spur roads could interfere with agricultural operations by damaging crops or soil, impeding access to certain fields or plots of land, obstructing farm vehicles, or potentially disrupting drainage and irrigation systems. These events could result in the temporary reduction of agricultural productivity in the area. Similar to the construction of spur roads, the construction of the 220-kV and 500-kV T/Ls, including tower installation and wire stringing, the construction of the Cottonwind Substation, and expansion of the Antelope Substation, will also interfere with agricultural operations. These interferences could result in a temporary decrease in agricultural productivity resulting in a significant impact.

APMs AG-1 (Coordinate with Landowner), AG-2 (Locate Project Activities to Minimize Impacts to Active Agricultural Operations), and AG-3 (Avoid Harvest Season), included as part of the Project, will reduce the significance of this impact.

Finding. The CPUC finds that changes or alterations have been incorporated into the Project which avoid or substantially lessen the significant effects on the environment from Impact AG-3. Specifically, the following mitigation measure is feasible and is hereby adopted to mitigate significant effects from Impact AG-3 to a less than significant level.

- **MM AG-1 Coordinate construction activities with agricultural landowners.** *(See above for full text)*

Rationale for Finding. APMs AG-1 (Coordinate with Landowner), AG-2 (Locate Project Activities to Minimize Impacts to Active Agricultural Operations), and AG-3 (Avoid Harvest Season) will be implemented to site construction in locations that will minimize Project impacts to agricultural lands, compensate agricultural operations for lost crops, and schedule work outside of harvest season. These APMs will reduce some of the impacts to agricultural operations, but address only a portion of the impacts. Mitigation Measure AG-1 (Coordinate construction activities with agricultural landowners) expands on APMs of the Project, clarifies timing and reporting requirements, and requires the restoration of disturbed land to pre-determined or pre-construction conditions. With implementation of these measures, impacts to agricultural operations from construction activities will be less than significant.

Reference. Final EIR Section 3.2; Table ES-3

Impact AG-4: Operation would interfere with agricultural operations.

Operation and maintenance of the Project will result in the presence of a 220-kV and 500-kV T/Ls, including tower structures and wire, and access and spur roads across agricultural lands. The presence of access and spur roads across agricultural operations could divide farm properties, which could create an obstacle to farming that impedes access to certain fields or plots, and creates irregularly shaped fields in which it will be difficult to maneuver farm equipment. New roadways could also disrupt drainage and irrigation systems, affect the efficacy of windbreaks, fragment farms, and allow for the introduction of invasive weeds within and around disturbed areas. These interferences could also permanently decrease the agricultural productivity of agricultural operations. Similar to the presence of new access and spur roads, the 220-kV and 500-kV T/Ls, Whirlwind Substation, and the Antelope Substation expansion could also interfere with agricultural operations, and could permanently decrease agricultural productivity.

APMs AG-1 (Coordinate with Landowner) and AG-2 (Locate Project Activities to Minimize Impacts to Active Agricultural Operations), included as part of the Project, will reduce the significance of this impact.

Finding. The CPUC finds that changes or alterations have been incorporated into the Project which avoid or substantially lessen the significant effects on the environment from Impact AG-4. The following mitigation measure is feasible and is hereby adopted to mitigate significant effects from Impact AG-4 to a less than significant level.

- **MM AG-1 Coordinate construction activities with agricultural landowners.** (*See above for full text*)

Rationale for Finding. APMs AG-1 (Coordinate with Landowner) and AG-2 (Locate Project Activities to Minimize Impacts to Active Agricultural Operations) will be implemented to site roads and structures in locations that will minimize the impacts to agricultural operations and compensate agricultural operations for lost crops. These APMs will reduce some of the impacts to agricultural operations, but address only a portion of the impacts. Mitigation Measure AG-1 (Coordinate construction activities with agricultural landowners) expands on these APMs, clarifies timing and reporting requirements, and requires the restoration of disturbed land to pre-determined or pre-construction conditions. With the implementation of these measures, long-term impacts to agricultural operations will be avoided and minimized such that impacts will be adverse but less than significant.

Reference. Final EIR Section 3.2; Table ES-3

III.3.2 Air Quality

Impact AQ-6: The Project would not conform to Federal General Conformity Rules.

The Project will result in significant impacts if the Project were to cause annual emissions that exceed the General Conformity de minimus thresholds and the Project cannot be shown to conform to the State Implementation Plan (SIP). Based on the current Project schedule, with implementation of a combination of Alternative 2/6 (with respect to the number of helicopter constructed towers), the annual NOx emissions during the years affected (2010 to 2012) will exceed the general conformity de minimus level within the South Coast Air Basin.

Implementation of Mitigation Measures AQ-1a through AQ-1j and AQ-6, listed below, will reduce construction impacts to air quality to the maximum degree feasible.

Finding. The CPUC finds that changes or alterations have been incorporated into the Project which avoid or substantially lessen the significant effects on the environment from Impact AQ-6. Specifically, the following mitigation measures are feasible and are hereby adopted to mitigate significant effects from Impact AQ-6 to a less-than-significant level.

- **MM AQ-1a Implement Construction Fugitive Dust Control Plan.** SCE shall develop a Fugitive Dust Emission Control Plan (FDECP) for construction work. The Plan shall be completed prior to construction and approved by the CPUC and FS. This Plan is in addition to any fugitive dust control plan required by the South Coast Air Quality Management District (SCAQMD). Measures to be incorporated into the plan shall include, but are not limited to the following:
    - Non-toxic soil binders, equivalent or better in efficiencies than the CARB approved soil binders, shall be applied per manufacturer recommendations to active unpaved roadways, unpaved staging areas, and unpaved parking area(s) throughout construction to reduce fugitive dust emissions. On NFS lands, SCE shall obtain FS approval of any soil binders to be used.

- Unpaved road travel will be limited to the extent possible by; limiting the travel of heavy equipment in and out of the unpaved areas (move from construction site to construction site rather than back to marshalling or staging areas daily); through carpooling/busing construction workers to the maximum feasible extent; and by developing travel routes to each construction site that minimize unpaved road travel to the extent possible, according to FS or other regulatory agency road use restriction. The FDECP will include a road travel plan applicable for construction sites with unpaved access greater than one mile.
- Water the disturbed areas of the active construction sites at least three times per day and more often if uncontrolled fugitive dust is noted.
- Enclose, cover, water twice daily, and/or apply non-toxic soil binders according to manufacturer's specifications to exposed piles with a five percent or greater silt content.
- Maintain unpaved road vehicle travel to the lowest practical speeds, and no greater than 15 miles per hour (mph), to reduce fugitive dust emissions.
- All vehicle tires shall be inspected, are to be free of dirt, and washed as necessary prior to entering paved roadways.
- Install wheel washers or wash the wheels of trucks and other heavy equipment where vehicles exit unpaved access to the construction sites.
- Cover all trucks hauling soil and other loose material, or require at least two feet of freeboard.
- Establish a vegetative ground cover (in compliance with biological resources impact mitigation measures) or otherwise create stabilized surfaces on all unpaved areas at each of the construction sites within 21 days after active construction operations have ceased.
- Increase the frequency of watering, if water is used as a soil binder for disturbed surfaces, or implement other additional fugitive dust mitigation measures, to all active disturbed fugitive dust emission sources when wind speeds (as instantaneous wind gusts) exceed 25 mph.

SCAQMD Rule 403 Best Available Control Measures (BACM) are required to be proposed in the FDECP and implemented when and if the BACM are as strict or stricter than the control measures listed above. Additionally, mitigation measures provided on the SCAQMD CEQA website Tables XI-A through XI-E (http://www.aqmd.gov/ceqa/handbook/mitigation/fugitive/ MM_fugitive.html or as updated by SCAQMD) must be implemented in the FDECP where applicable. This mitigation measure covers construction work performed within all three local air quality jurisdictions.

- **MM AQ-1b Off-road Diesel-fueled Equipment Standards.** All off-road construction diesel engines not registered under CARB's Statewide Portable Equipment Registration Program, which have a rating of 50 horsepower (hp) or more, shall meet, at a minimum, the Tier 2 California Emission Standards for Off-Road Compression-Ignition Engines as specified in California Code of Regulations, Title 13, section 2423(b)(1) unless that such engine is not available for a particular item of equipment. In the event a Tier 2 engine is not available for any off-road engine larger than 50 hp, that engine shall have tailpipe retrofit controls that reduce exhaust emissions of NOx and PM to no more than Tier 2 emission levels. Tier 1 engines will be allowed on a case-by-case basis only when the Project owner has documented that no Tier 2 equipment or emissions equivalent retrofit equipment is available for a particular equipment type that must be used to complete the Project's construction. This shall be documented with signed written correspondence by the appropriate construction contractor along with documented correspondence with at least two construction equipment rental firms. Equipment properly registered under and in compliance with CARB's Statewide Portable Equipment Registration Program are in compliance with this mitigation measure.

- **MM AQ-1c Limit Vehicle Traffic and Equipment Use.** Construction worker carpooling will be encouraged and other vehicle trips and equipment use will be limited to the extent practical by efficiently scheduling staff and daily construction activities to minimize the use of unnecessary/duplicate equipment when possible.

- **MM AQ-1d Heavy Duty Diesel Haul Vehicle On-road Equipment Standards.** Require the use of 2006 engines or pre-2006 engines with CARB certified Level 3 diesel emission controls for all on-road heavy duty diesel haul vehicles that are contracted on a continuing basis for use to haul equipment and waste for the Project.

- **MM AQ-1e On-road Vehicles Standards.** All on-road construction vehicles, other than those meeting the requirements of Mitigation Measure AQ-1d (Heavy Duty Diesel Haul Vehicle On-road Equipment Standards), shall meet all applicable California on-road emission standards and shall be licensed in the State of California. This does not apply to construction worker personal vehicles.

- **MM AQ-1f Properly Maintain Mechanical Equipment.** The construction contractor shall ensure that all mechanical equipment associated with Project construction is properly tuned and maintained in accordance with the manufacturer's specifications.

- **MM AQ-1g Restrict Engine Idling to 5 Minutes.** Diesel engine idle time shall be restricted to no more than 5 minutes. Exceptions are vehicles that need to idle as part of their operation, such as concrete mixer trucks.

- **MM AQ-1h Schedule Deliveries Outside of Peak Traffic Hours.** All material deliveries to the marshalling yards and from the marshalling yards to the construction sites shall be scheduled outside of peak traffic hours (6:00 to 9:30 am and 3:30 to 6:30 pm) to the extent feasible, and other truck trips during peak traffic hours shall be minimized to the extent feasible.

- **MM AQ-1i Off-road Gasoline-fueled Equipment Standards.** As practicable, all off-road stationary and portable gasoline powered equipment shall have EPA Phase 1/Phase 2 compliant engines, where the specific engine requirement shall be based on the new engine standard in affect two years prior to the initiating Project construction. In the event that EPA Phase 1/Phase 2 compliant engines are determined not to be practicable, SCE shall provide documentation to the CPUC and FS with an explanation.

- **MM AQ-1j Reduction of Helicopter Emissions.** Helicopter use will be limited to the extent feasible and helicopters with low emitting engines shall be used to the extent practical.

- **MM AQ-6 General Conformity Emission Offset Mitigation.** In the event that the final emission estimate for the selected Project alternative as provided in the Project's Conformity Analysis exceeds the NOx and/or VOC emission applicability thresholds, and assuming the SCAQMD does not provide confirmation that the Project's emissions are accounted for in the State Implementation Plan (SIP) emission estimates per 40 CFR §93.158(a)(1), then the Project will obtain emission reduction credits to fully offset the NOx and/or VOC emissions per 40 CFR §93.158(a)(2) for the years that the Project has been estimated to exceed the NOx and/or VOC emission applicability thresholds. Credits shall be submitted to the CPUC and FS for review and approval.

  SCE will have several options for obtaining emission offset mitigation, including:

  - Traditional NOx emission reduction credits (ERCs) that are in units of lbs/day, where 1 lb/day equals 365 lbs/year. These credits can now be subdivided into short-term yearly credits for purchase. These credits are available at market based prices that can be very expensive.

- Reclaim Trading Credits (RTCs) that are in units of lbs and are year specific. These credits have historically been much less expensive than traditional ERCs.
- Creation of new emission reduction credits, such as mobile source emission reduction credits (MSERCs), where considered enforceable by USEPA for purposes of General Conformity offsets, through methods such as the SCAQMD Regulation XVI Mobile Source Offset Programs or other methods similar to existing stationary source control programs such as the Carl Moyer Program.

While there are many options to obtain the necessary offset credits to comply with mitigation measure AQ-6, it is likely that RTCs will make up the bulk of the credits that SCE obtains, which should reduce the cost impact of this mitigation measure.

Rationale for Finding. Mitigation measure AQ-1a will reduce fugitive dust through the reduction of the creation of emissions by stabilizing unpaved road surfaces and using water to bind active soil handling activities among other measures. Mitigation measures AQ-1b to AQ-1j will reduce the on-road and off-road construction equipment exhaust emissions to the extent feasible. Mitigation Measures AQ-6 requires the Project applicant (SCE) obtain emission reduction credits to fully offset the NOx and/or VOC emissions per 40 CFR §93.158(a)(2) for the years that the Project is estimated to exceed the NOx and/or VOC emission applicability thresholds. Implementation of these mitigation measures ensures that the Project will conform to Federal General Conformity Rules and this impact will be less than significant.

Reference. Final EIR Section 3.3; Table ES-3

Impact AQ-8: The Project would not conform to Angeles National Forest air quality strategies.

Angeles National Forest air quality strategies are limited to the following: AIR 1- Minimize Smoke and Dust, and AIR 2 - Forest Air Quality Emissions. The ANF strategy AIR 1 is very general and is directed to "Control and reduce fugitive dust to protect human health, improve safety and moderate or eliminate environmental impacts." The only action item of this strategy is to "Incorporate visibility requirements into project plans." The combination of Alternatives 2 and 6 in the Project increases the amount of helicopter construction within the ANF from that required by Alternative 2 alone, which will increase certain emissions (NOx and SOx) and decrease others (PM10 or fugitive dust) during the periods when helicopter construction occurs.

The ANF air quality strategy AIR 2 relates to providing an air quality inventory for prescribed burns and wildfires and therefore does not directly relate to the Project's construction and operation emissions.

Implementation of Mitigation Measures AQ-1a through AQ-1j will reduce construction impacts to air quality to the maximum degree feasible.

Finding. The CPUC finds that changes or alterations have been incorporated into the Project which avoid or substantially lessen the significant effects on the environment from Impact AQ-8. Specifically, the following mitigation measures are feasible and are hereby adopted to mitigate significant effects from Impact AQ-8 to a less-than-significant level.

- **MM AQ-1a** **Implement Construction Fugitive Dust Control Plan.** (*See above for full text*)
- **MM AQ-1b** **Off-road Diesel-fueled Equipment Standards.** (*See above for full text*)
- **MM AQ-1c** **Limit Vehicle Traffic and Equipment Use.** (*See above for full text*)
- **MM AQ-1d** **Heavy Duty Diesel Haul Vehicle On-road Equipment Standards.** (*See above for full text*)

- **MM AQ-1e** **On-road Vehicles Standards.** (*See above for full text*)
- **MM AQ-1f** **Properly Maintain Mechanical Equipment.** (*See above for full text*)
- **MM AQ-1g** **Restrict Engine Idling to 5 Minutes.** (*See above for full text*)
- **MM AQ-1h** **Schedule Deliveries Outside of Peak Traffic Hours.** (*See above for full text*)
- **MM AQ-1i** **Off-road Gasoline-fueled Equipment Standards.** (*See above for full text*)
- **MM AQ-1j** **Reduction of Helicopter Emissions.** (*See above for full text*)

Rationale for Finding. Mitigation measure AQ-1a will reduce fugitive dust through the reduction of the creation of emissions by stabilizing unpaved road surfaces and using water to bind active soil handling activities among other measures. Mitigation measures AQ-1b to AQ-1j will reduce the on-road and off-road construction equipment exhaust emissions to the extent feasible. Therefore, the ANF air quality strategies will be met and impacts will be less than significant.

Reference. Final EIR Section 3.3; Table ES-3

Impact AQ-9: The Project would not conform with applicable Air Quality Management Plans.

The Project will be constructed in compliance with applicable federal, State, and local requirements. Additionally, the Project construction mitigation measures (AQ-1a through AQ-1j) required to mitigate regional emission impacts to the extent feasible were developed after consulting SCAQMD personnel to confirm mitigation measures that will be consistent with SCAQMD approved Air Quality Management Plans (AQMP). The operating emissions will result from minimal inspection and maintenance activities that will not significantly impact air quality and the Project will not directly or indirectly cause any population growth that is not considered in the current approved air quality plan.

Finding. The CPUC finds that changes or alterations have been incorporated into the Project which avoid or substantially lessen the significant effects on the environment from Impact AQ-9. Specifically, the following mitigation measures are feasible and are hereby adopted to mitigate significant effects from Impact AQ-9 to a less-than-significant level.

- **MM AQ-1a** **Implement Construction Fugitive Dust Control Plan.** (*See above for full text*)
- **MM AQ-1b** **Off-road Diesel-fueled Equipment Standards.** (*See above for full text*)
- **MM AQ-1d** **Heavy Duty Diesel Haul Vehicle On-road Equipment Standards.** (*See above for full text*)

Rationale for Finding. Implementation of Mitigation Measures AQ-1a, AQ-1b, and AQ-1d, which limit fugitive dust and on- and off-road diesel fuel emissions, will ensure the Project is consistent with the currently approved Air Quality Management Plans and this impact will remain less than significant.

Reference. Final EIR Section 3.3; Table ES-3

III.3.3 Biological Resources

Impact B-1: Construction activities would result in temporary and permanent losses of native vegetation.

As discussed in Section 3.4 (Biological Resources) of the Final EIR, the Project will result in both temporary and permanent impacts to a variety of regionally unique habitats. Direct impacts to native vegetation communities will occur as a result of the removal of vegetation during construction activities. These ground-disturbing construction activities include clearing and grading for tower pad preparation, tower removal

sites, pulling and tensioning sites, helicopter staging areas, and construction, grading, and widening of new spur roads and existing access roads. Indirect impacts to native vegetation communities could include alterations in existing topography and hydrology regimes, the accumulation of fugitive dust, disruptions to native seed banks from ground disturbance, and the colonization of non-native, invasive plant species. Ongoing operations and maintenance impacts will occur during routine inspection and maintenance of the Project facilities or as a result of facilitated public access. These impacts could include trampling or crushing of native vegetation by vehicular or foot traffic, alterations in topography and hydrology, increased erosion and sedimentation, and the introduction of non-native, invasive plants due to increased human presence.

APMs BIO-1 through BIO-7 have been incorporated into the Project to reduce impacts to native vegetation. A complete description of APMs applicable to Biological Resources is located in Final EIR Table 3.4-16. These APMs include avoiding or compensating for impacts to vegetation communities, personnel training, restricting work to within predetermined limits of construction, implementing Best Management Practices (BMPs), construction monitoring, flagging vegetation for avoidance, and revegetation with appropriate seed mixes.

Even with implementation of the APMs, the Project will have a significant impact on native vegetation according to Significance Criterion BIO1 (Substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by CDFG or FWS). The impacts will be significant because the APMs are not specific enough or do not provide enough mitigation to adequately compensate for the impacts. In addition to implementing the APMs, Mitigation Measures B-1a, B-1b, B-1c, H-1a, and AQ-1a will be required to mitigate Impact B-1 to a less-than-significant level.

Finding. The CPUC finds that changes or alterations have been incorporated into the Project which avoid or substantially lessen the significant effects on the environment from Impact B-1. Specifically, the following mitigation measures are feasible and are hereby adopted to mitigate significant effects from Impact B-1 to a less-than-significant level.

- **MM B-1a Provide restoration/compensation for impacts to native vegetation communities.** The intent of this mitigation measure is to require SCE to restore disturbed sites to pre-construction conditions or the desired future conditions per the Angeles National Forest (ANF), Land Management Plan (LMP). Prior to construction SCE shall have a qualified biologist, where concurrence on the biologist has been provided by the CPUC and FS, document the community type and acreage of vegetation that would be subject to project disturbance. Impacts to all oaks and native trees (with >3 inch diameter at breast height [DBH]) will be documented by identifying the species, number, location, and DBH. On non-Federal lands all protection and replacement measures shall be consistent with applicable local jurisdiction requirements, such as the Los Angeles County Oak Tree Ordinance. Tree removal shall not be permitted until replacement trees have been planted or transplanting sites are approved.

  For NFS lands, the FS shall prepare a Habitat Restoration and Revegetation Plan in discussion with SCE for the Project, which shall include plans for restoration, enhancement/re-vegetation and/or mitigation banking. For non-Federal lands SCE shall prepare the Habitat Restoration and Revegetation Plan. Both plans shall include at minimum: (a) the location of the mitigation site (off site mitigation may be required); (b) locations and details for top soil storage (c) the plant species to be used; (d) seed and cutting collecting guidelines; (d) a schematic depicting the mitigation area; (e) time of year that the planting will occur and the methodology of the planting; (f) a description of the irrigation methodology for container, bareroot or other planting needing irrigation; (g) measures to control exotic vegetation on site; (h) success criteria; (i) a detailed monitoring program; j) locations and impacts to all oaks and native trees (over 3 inches DBH), k) locations of temporary or

permanent gates, barricades, or other means to control unauthorized vehicle access on access and spur roads as deemed necessary by the FS (NFS lands only).

SCE shall utilize a CPUC/FS/USACE-approved locally collected seed mix, locally collected cuttings, bare-root stock, etc. to revegetate areas disturbed by construction activities. All habitats dominated by non-native species prior to Project disturbance shall be revegetated using appropriate native species. FS approval is required for seeding on NFS land. The seed mix shall consist of native, locally occurring species collected from local seed sources. Cuttings and bare-root stock shall be of local origin. Restoration shall include the revegetation of stripped or exposed work sites and/or areas to be mitigated with vegetation native to the area. No commercially purchased seeds, stock, etc will be accepted without the approval of the FS on NFS lands and must be certified to be free of noxious weeds. Revegetation shall include ground cover, grass, shrub, and tree species in order to match disturbed areas to surrounding conditions and to restore or improve wildlife habitat quality to pre-project or higher levels. The Habitat Restoration and Revegetation Plan shall also include a monitoring element. Post seeding and planting monitoring will be yearly from years one to five and every other year from years six to ten, or until the success criteria are met. SCE shall restore temporarily disturbed areas, including existing tower locations that are to be removed by the Project, to pre-construction conditions or the desired future conditions per the LMP. If the survival and cover requirements have not been met, SCE is responsible for replacement planting to achieve these requirements. Replacement plants shall be monitored with the same survival and growth requirements as previously mentioned.

The FS will conduct a preconstruction evaluation of the probable impacts to all oaks and native trees in all construction-related disturbance areas. This evaluation shall be incorporated into the Habitat Restoration Plan and shall include the species and number of individuals, their DBH, location and potential impact type. Construction within the driplines of all native trees and oak trees/shrubs, and incidental trimming or damage to trees along the proposed access/spur routes shall not occur until the trees are evaluated by an FS botanist or qualified arborist. This person shall identify appropriate measures to minimize tree loss, such as the placement of fence around the dripline, padding vehicles, minimizing soil removal or addition around driplines, and the placement of matting under the existing dripline during construction activities. On the ANF, if a tree must have any construction-related activities such as equipment or soil staging within the drip zone, root pruning, or excessive branch pruning (greater than 25% in one year), then the tree must be monitored for five years for tree mortality. If any of these identified trees dies during the monitoring period, then the tree must be mitigated at the rate appropriate to the DBH.

The replacement ratios (using rooted plants in liners or direct planting of acorns [for oaks]) for native trees or any oaks which are to be removed shall be as follows: trees from 3 to 5 inches DBH shall be replaced at 3:1; trees from 5 to 12 inches shall be replaced at 5:1; trees from 12 to 24 inches shall be replaced at 10:1; trees from 24 to 36 inches shall be replaced at 15:1; and all oaks greater than 36 inches shall be replanted at a ratio of 20:1. The replacement ratio for damaged trees shall be 2:1 for trees with DBH less than 12 inches and a 5:1 ratio for trees with DBH greater than 12 inches. The DBHs for scrub oaks will be measured following DFG guidelines. On the ANF any oak or native tree which must be removed or killed as a result of construction or other Project-related activities shall be replaced in kind or mitigated at a comparable value. Compliance shall be evaluated annually for years one to five and bi-annually for years six to ten (years after tree planting). Trees shall be planted at locations acceptable to the landowner or managing agency. All planting locations, procedures, and results shall be evaluated by a qualified arborist and FS botanist. On non-Federal lands all protection and replacement measures shall be consistent with applicable local jurisdiction requirements, such as the Los Angeles County Oak Tree Ordinance.

Permanent impacts on federal lands shall be determined by the appropriate federal manager (FS and USACE) and on non-federal lands shall be determined by the CPUC at the ratios stated below or at

a comparable value. On NFS lands impacts will be considered permanent if they are not likely to recover after ten years post-disturbance. Where onsite restoration is planned for mitigation of temporary impacts to vegetation communities, SCE shall identify a Habitat Restoration Specialist, where concurrence has been provided by the CPUC/FS, to implement the method of restoration outlined by the FS in the Habitat Restoration Plan.

The creation or restoration of habitat shall be monitored annually for years one to five on both FS lands and private/State/USACE lands and bi-annually for years six to ten on FS lands, or until the success criteria are met, after mitigation site construction to assess progress and identify potential problems with the restoration site. Remediation activities (e.g. additional planting, removal of non-native invasive species, or erosion control) shall be taken during the ten-year period if necessary to ensure the success of the restoration effort. If the mitigation fails to meet the established performance criteria after the ten-year maintenance and monitoring period, monitoring and remedial activities shall extend beyond the ten-year period until the criteria are met or unless otherwise specified by the CPUC/FS/USACE (as appropriate). If a fire occurs in a revegetation area within the ten year monitoring period, SCE shall be responsible for a one-time replacement. If a second fire occurs, no replanting is required, unless the fire is caused by SCE activity. Off-site mitigation for NFS and non-NFS lands may be required if mitigation rates exceed what can be achieved on NFS land. This may be in the form of funding for land purchase for inclusion into the Angeles National Forest, mitigation banking, removing existing structures, or comparable restoration efforts.

During and after construction, FS-identified entrances to access roads on NFS lands shall be gated or blockaded in some manner and maintained to prevent the unauthorized use of these roads by the general public. Signs prohibiting unauthorized use of the access roads shall be posted on these gates.

Mitigation Ratios for Impacts to Vegetation Communities

Vegetation Community	Mitigation Ratios – Non-NFS Lands		Mitigation Ratios – NFS/Federal Lands	
	Temporary Impacts	Permanent Impacts	Temporary Impacts	Permanent Impacts
Woodland Vegetation				
Bigcone Douglas Fir-Canyon Oak Forest	1:1	2:1	2:1	5:1
Canyon Oak Forest	-	-	1:1	5:1
California Bay Forest	1:1	2:1	1:1	5:1
California Walnut Woodland	1:1	1.5:1	-	-
Coast Live Oak Woodland	1:1	1.5:1	1:1	5:1
Coulter Pine Forest	-	-	1:1	3:1
Joshua Tree Woodland	1:1	2:1	-	-
Mojavean Pinyon Woodland	1:1	2:1	2:1	5:1
Non-native Woodland	1:1*	1:1*	1:1*	1:1*
Yellow Pine Forest (Plantation)	-	-	1:1	3:1
Shrub-dominated Vegetation				
Big Sagebrush Scrub	1:1	1:1	1:1	3:1
Coastal Sage Scrub	1:1	1.5:1	2:1	5:1
Desert Saltbush Scrub	1:1	1:1	-	-
Chamise Chaparral	-	-	1:1	3:1
Mixed Chaparral	1:1	1:1	1:1	3:1
Scrub Oak Chaparral	-	-	1:1	5:1
Interior Live Oak Scrub	-	-	1:1	5:1
Mojave Creosote Bush Scrub	1:1	1:1	-	-
Mojave Mixed Woody Scrub	1:1	1:1	-	-
Mojavean Juniper Woodland and Scrub	1:1	1.5:1	2:1	5:1

Mitigation Ratios for Impacts to Vegetation Communities				
Vegetation Community	Mitigation Ratios – Non-NFS Lands		Mitigation Ratios – NFS/Federal Lands	
	Temporary Impacts	Permanent Impacts	Temporary Impacts	Permanent Impacts
Mojavean Pinyon and Juniper Woodland, Recently Burned	-	-	2:1	5:1
Mulefat Scrub	1:1	3:1	2:1	5:1
Rabbitbrush Scrub	1:1	1:1	-	-
Restoration – California Buckwheat Scrub	-	-	1:1	1:1
Riversidean Alluvial Fan Sage Scrub	1:1	3:1	2:1	5:1
Riparian Vegetation				
Desert Wash	1:1	3:1	2:1	5:1
Ruderal Wetland	1:1*	1:1*	-	-
Exotic-Giant Reed	1:1*	1:1*	1:1*	1:1*
Southern Arroyo Willow Riparian Forest	1:1	3:1	2:1	5:1
Southern Coast Live Oak Riparian Forest	1:1	3:1	2:1	5:1
Southern Cottonwood Willow Riparian Forest	1:1	3:1	2:1	5:1
Southern Sycamore-Alder Riparian Forest	1:1	3:1	2:1	5:1
Southern Willow Scrub	1:1	3:1	2:1	5:1
Sparsely Vegetated Streambed	1:1	3:1	2:1	5:1
Herbaceous Vegetation				
Bunchgrass Grassland	1:1	1.5:1	-	-
California Annual Grassland	1:1	1:1	1:1	3:1
Deerweed and Chia Herbaceous Field, Recently Burned	1:1	1:1	2:1	3:1
Desert Bunchgrass Grassland	1:1	1.5:1	-	-
Wildflower Field	1:1	1:1	2:1	3:1
Anthropogenic Vegetation				
Agriculture	0:1	0:1	-	-
Barren/developed	1:1*	1:1*	1:1*	1:1*
Ruderal Grassland	1:1*	1:1*	1:1*	1:1*
Ratios on Non-NFS Lands may be adjusted based on existing site conditions and disturbance levels with approval of the CPUC. Ratios could range from 0.5 to maximum noted in this Table based on site evaluation. *Non-native habitats will be reseeded with a native seed mix. Barren areas will be mitigated at a 1:1 ratio if they are determined to support sensitive wildlife (i.e. burrowing owls, etc.)				

- **MM B-1b Implement a Worker Environmental Awareness Program.** A Worker Environmental Awareness Program (WEAP) shall be implemented for construction crews by a qualified biologist(s) provided by SCE, where concurrence has been provided by the CPUC/FS prior to the commencement of construction activities. Training materials and briefings shall include but not be limited to: discussion of the Federal and State Endangered Species Acts, Bald and Golden Eagle Protection Act, and the Migratory Bird Treaty Act; the consequences of non-compliance with these acts; identification and values of plant and wildlife species and significant natural plant community habitats; fire protection measures; sensitivities of working on NFS lands and identification of FS sensitive species; hazardous substance spill prevention and containment measures; a contact person in the event of the discovery of dead or injured wildlife; and review of mitigation requirements. The WEAP shall also include the protocol to be followed when road kill is encountered in the work area or along access roads to minimize potential for additional mortality of scavengers, including listed species such as the California condor. On NFS lands, road kill shall be

reported to the FS or other applicable agency within 24 hours. On non-NFS lands, road kill shall be reported to the appropriate local animal control agency within 24 hours. Training materials and a course outline shall be provided to the CPUC and FS for review and approval at least 30 days prior to the start of construction. Maps showing the location of special-status wildlife, fish, or populations of rare plants, exclusion areas, or other construction limitations (i.e., limited operating periods) will be provided to the environmental monitors and construction crews prior to ground disturbance. SCE shall provide to the CPUC and FS a list of construction personnel who have completed training prior to the start of construction, and this list shall be updated by SCE as required when new personnel start work. No construction worker may work in the field for more than 5 days without participating in the WEAP.

- **MM B-1c Treat cut tree stumps with Sporax.** All stumps of trees (conifers and hardwoods) 3 inches DBH or greater resulting from activities associated with construction of the Project shall be treated with Sporax according to product directions to prevent the spread of annosus root disease. Only licensed applicators shall apply Sporax. Sporax shall not be used during rain events unless otherwise approved by the CPUC/FS/USACE.

- **MM AQ-1a Implement Construction Fugitive Dust Control Plan.** (*See above for full text*)

- **MM H-1a Implement an Erosion Control Plan and demonstrate compliance with water quality permits.** SCE shall develop and submit to the CPUC and FS for approval 30 days prior to construction an Erosion Control Plan, and implement Best Management Practices (BMPs), as described below. (Note: The Erosion Control Plan may be part of the same document as the Stormwater Pollution Prevention Plan.) Within the Erosion Control Plan, the applicant shall identify the location of all soil-disturbing activities, including but not limited to new and/or improved access and spur roads, the location of all streams and drainage structures that would be directly affected by soil-disturbing activities (such as stream crossings by access roads), and the location and type of all BMPs that would be installed to protect aquatic resources. The Erosion Control Plan shall include a proposed schedule for the implementation and maintenance of erosion control measures and a description of the erosion control practices, including appropriate design details. As part of the Erosion Control Plan, SCE shall maintain a logbook of all precipitation events within the Project area that produce more than one inch of precipitation within a 24-hour period. The logbook shall contain the date of the precipitation event, the approximate duration of the event, and the amount of precipitation (measured as the largest amount recorded by a rain gage or weather station within one mile of the Project). Additionally, the logbook shall include a narrative evaluation (and/or a numerical evaluation, if required by the FS or other jurisdictional agency) of the erosion-prevention effectiveness of the existing BMPs, as well as a description of any post-storm modifications to those BMPs. The logbook shall be submitted to the CPUC and FS for review within 30 days following the first storm event (after construction has begun) that produces greater than one inch of precipitation within a 24-hour period. SCE shall re-submit the logbook annually after the first storm of the rainy season that produces more than one inch of precipitation within a 24-hour period. The logbook shall be retired 5 years after completion of construction.

  In addition to the Erosion Control Plan, the applicant shall submit to the CPUC and the FS evidence of possession of all required permits before engaging in soil-disturbing construction/demolition activities, before entering flowing or ponded water, or before constructing a crossing at flowing or ponded water. Such permits may include, but are not limited to, a Streambed Alteration Agreement from the California Department of Fish and Game, a Clean Water Act (CWA) Section 404 permit from the USACE, a CWA Section 402 NPDES General Permit for Storm Water Discharges Associated with Construction Activities (General Permit) from the applicable Regional Water Quality Control Board(s) (RWQCBs), and/or a CWA Section 401 certification from the applicable RWQCBs. In addition, if construction-related excavation activities on National Forest System (NFS) lands encounter perched groundwater, triggering the need for dewatering activities to occur

in compliance with Applicant-Proposed Measure HYD-6 (Drilling and Construction Site Dewatering Management), SCE shall notify the Forest Service at the onset of dewatering and, upon the completion of dewatering activities at the affected site(s), SCE shall submit to the Forest Service written description of all executed dewatering activities, including steps taken to return encountered groundwater to the subsurface.

Rationale for Finding. The preparation and implementation of a Habitat Restoration and Revegetation Plan will compensate for impacts to vegetation communities by restoring areas temporarily disturbed during construction. Where impacts are permanent, compensation for the loss of habitats will occur through the preservation, enhancement, or restoration of comparable off-site lands, or through funding for land purchase for inclusion into the Angeles National Forest, mitigation banking, removing existing structures, or comparable restoration efforts. The implementation of a Worker Environmental Awareness Program will ensure that all construction personnel are familiar with applicable regulations and laws regarding sensitive species that could be encountered in the Project area, the consequences of non-compliance with these laws and regulations, identification and values of significant natural plant community habitats, fire protection measures, sensitivities of working on NFS lands and identification of USDA Forest Service sensitive species, hazardous substance spill prevention and containment measures, and review of mitigation requirements. Treating all stumps of trees resulting from Project construction activities with Sporax will prevent the spread of annosus root disease. Implementation of a Construction Fugitive Dust Control Plan will minimize impacts to vegetation communities associated with fugitive dust generated during construction. Implementation of an Erosion Control Plan and compliance with water quality permits will minimize impacts associated with erosion and water quality. Together these measures will reduce Project impacts to vegetation communities to a less-than-significant level.

Reference. Final EIR Section 3.4; Table ES-3

Impact B-2: The Project would result in the loss of desert wash or riparian habitat.

Riparian and wash communities occur in a variety of the surface water resources that are present in the Project area. Direct impacts to desert wash and riparian habitat include the temporary disturbance and permanent removal of native vegetation within these communities. Indirect impacts to these communities will be similar to those discussed for native vegetation communities (Impact B-1), above. These include increased sediment transport, alterations to existing topographical and hydrological conditions, fugitive dust accumulation, and the introduction of non-native, invasive plant species. During the construction and operation of the Project, impacts could include trampling and crushing of native plants by increased vehicular and human traffic, increased erosion and sediment transport, and the introduction of noxious and exotic weeds due to increased human presence.

Riparian Conservation Areas (RCAs) were identified in the Project area on NFS lands. An RCA is defined as “an area delineated next to water features requiring special management practices to maintain and/or improve watershed and riparian-dependent resource conditions” (USDA, 2005). While riparian areas are considered on both NFS lands and non-NFS lands, RCAs are defined only for the ANF as required by the Forest LRMP. Actions conducted within an RCA must meet specific criteria defined by the USDA Forest Service which include both biological and watershed goals and functions. In addition, actions that result in effects considered other than neutral or beneficial may not be conducted without an amendment to the existing Forest Plan (USDA, 2005). Under Alternative 2, over 265 RCAs were identified during field assessments for the Project on NFS lands. These RCAs fall within the transmission line ROW or along access roads that will be used and upgraded during construction of the Project. Approximately 96 RCAs occur where the transmission line crosses a substantial stream or drainage. One hundred and seventy-one

occur where access or spur roads cross ephemeral, intermittent, or perennial drainages. Of the 267 RCAs that occur on NFS lands, 95 will be subject to Project impacts that will not conform to the Forest Plan. These impacts will occur from road grading, tree removal, stream diversion, or similar actions. Under Alternative 6, the number of RCAs that occur where access or spur roads cross drainages is reduced to 86, with 58 being subject to potentially adverse impacts.

APMs BIO-3 through BIO-7, which are included as part of the Project, will help to reduce impacts to riparian and desert wash habitats. These APMs include avoiding or compensating impacts to jurisdictional waters and wetlands, implementation of best management practices, biological monitoring, personnel training, and coordinating and compensating for impacts to habitats. However, these APMs will not fully mitigate the impacts to riparian and desert wash habitats. . As such, Mitigation Measures B-1a, B-1b, B-2, H-1a, and AQ-1a will be required to mitigate Impact B-2 to a less-than-significant level.

Finding. The CPUC finds that changes or alterations have been incorporated into the Project which avoid or substantially lessen the significant effects on the environment from Impact B-2. Specifically, the following mitigation measures are feasible and are hereby adopted to mitigate significant effects from Impact B-2 to a less-than-significant level.

- **MM B-1a Provide restoration/compensation for impacts to native vegetation communities.** (*See above for full text*)
- **MM B-1b Implement a Worker Environmental Awareness Program.** (*See above for full text*)
- **MM B-2 Implement RCA Treatment Plan.** SCE shall not construct or modify any structure, culvert, or bridge or modify any habitat without the appropriate permits from regulatory agencies. SCE shall not construct or modify any structure, culvert, or bridge or modify any habitat on NFS lands in Riparian Conservation Areas (RCAs) without the authorization of the FS. Vegetation removal or road construction shall not occur in RCAs during the breeding season for nesting birds (February 1-August 15) unless otherwise approved by the FS. SCE shall prepare and implement a FS RCA Treatment Plan for the Project. This Plan shall include the specific activities that will occur at each of the RCA points crossed by the Project including the amount and type of vegetation to be cleared, the type of road crossing or improvement allowed for wet and dry crossings, and the methods that would be employed to reduce the effects of the Project on water quality. The Plan shall include timing restrictions for vehicle or equipment passage, restrictions on what activities may occur such as grading, vegetation removal or tree trimming, monitoring requirements, seasonal restrictions, and restoration requirements. This Plan shall be submitted to the FS for approval prior to construction or the grading of any access road. The Plan shall also be submitted to the CPUC for review.
- **MM AQ-1a Implement Construction Fugitive Dust Control Plan.** (*See above for full text*)
- **MM H-1a Implement an Erosion Control Plan and demonstrate compliance with water quality permits.** (*See above for full text*)

Rationale for Finding. The preparation and implementation of a Habitat Restoration and Revegetation Plan will compensate for impacts to riparian communities and desert wash habitat by restoring areas temporarily disturbed during construction. Where impacts are permanent, compensation for the loss of habitats will occur through the preservation, enhancement, or restoration of comparable off-site lands, or through funding for land purchase for inclusion into the Angeles National Forest, mitigation banking, removing existing structures, or comparable restoration efforts. The implementation of a Worker Environmental Awareness Program will ensure that all construction personnel are familiar with applicable regulations and laws regarding sensitive species that could be encountered in the Project area, the consequences of non-

compliance with these laws and regulations, identification and values of significant natural plant community habitats, fire protection measures, sensitivities of working on NFS lands and identification of USDA Forest Service sensitive species, hazardous substance spill prevention and containment measures, and review of mitigation requirements. The implementation of an RCA Treatment Plan will ensure that activities conducted within RCAs are approved by the USDA Forest Service prior to implementation and are conducted in such a way as to minimize disturbance to sensitive resources. Implementation of a Construction Fugitive Dust Control Plan will minimize impacts to vegetation communities associated with fugitive dust generated during construction. Implementation of an Erosion Control Plan and compliance with water quality permits will minimize impacts associated with erosion and water quality. Together these measures will reduce Project impacts to riparian and desert wash communities to a less-than-significant level.

Reference. Final EIR Section 3.4; Table ES-3

Impact B-3: The Project would result in the establishment and spread of noxious weeds.

The Project construction, operation, and maintenance activities will include ground disturbance which has the potential to result in the introduction of nonnative and invasive plant species. Weed seed sources exist throughout the Project area, and Project activities can spread weeds into areas that currently support light infestations or are weed-free.

There are no specific APMs designed to reduce the spread or establishment of noxious weeds in the Project area, but APMs that will reduce this impact include BIO-2, and BIO-4 through BIO-6. These APMs include minimizing vegetation removal at construction sites, implementation of best management practices, biological monitoring, personnel training, and coordinating and compensating for impacts to vegetation. However, these APMs will not reduce Impact B-3 to a less-than-significant level.. Therefore, to further reduce impacts of the Project from the spread or establishment of noxious weeds SCE shall implement Mitigation Measures B-1a, B-2, and B-3a through B-3c to reduce the establishment and spread of noxious weeds to a less-than-significant level.

Finding. The CPUC finds that changes or alterations have been incorporated into the Project which avoid or substantially lessen the significant effects on the environment from Impact B-3. Specifically, the following mitigation measures are feasible and are hereby adopted to mitigate significant effects from Impact B-3 to a less-than-significant level.

- **MM B-1a Provide restoration/compensation for impacts to native vegetation communities.** (*See above for full text*)
- **MM B-2 Implement RCA Treatment Plan.** (*See above for full text*)
- **MM B-3a Prepare and implement a Weed Control Plan.** SCE shall prepare and implement a comprehensive, adaptive Weed Control Plan on NFS lands for pre-construction and construction invasive weed abatement. The long term Weed Control Plan, including monitoring and eradication, will be defined as part of the 50 year Operations and Maintenance Permit. On the ROW easement lands administered by the FS, the Weed Control Plan shall incorporate all appropriate and legal agency-stipulated regulations. The Weed Control Plan shall be submitted to the FS for final authorization of weed control methods, practices, and timing prior to implementation of the Weed Control Plan on public lands. ROW easements located on private lands shall include adaptive provisions such as wheel and equipment washing for the implementation of the Weed Control Plan. The Weed Control Plan shall include the following:
    - A pre-construction weed inventory shall be conducted by surveying all areas subject to ground-disturbing activity, including, but not limited to, tower pad preparation and construction areas, tower removal sites, pulling and tensioning sites, assembly yards, and

areas subject to grading for new or improved access and spur roads. Weed populations that: (1) are rated High or Moderate for negative ecological impact in the California Invasive Plant Inventory Database (Cal-IPC, 2006); and (2) aid and promote the spread of wildfires (such as cheatgrass, Saharan mustard, and medusa head); and (3) are considered by the FS as species of priority (for NFS lands only) shall be mapped and described according to density and area covered. In areas subject to ground disturbance, weed infestations shall be treated prior to construction according to control methods and practices for invasive weed populations designed in consultation with the FS. The Weed Control Plan shall be updated and utilized for eradication and monitoring post construction.

- Weed control treatments shall include all legally permitted herbicide, manual, and mechanical methods applied with the authorization of the FS. The application of herbicides shall be in compliance with all state and federal laws and regulations under the prescription of a Pest Control Advisor (PCA), where concurrence has been provided by the CPUC/FS, and implemented by a Licensed Qualified Applicator. Herbicides shall not be applied during or within 72 hours of a scheduled rain event. Herbicides shall not be used within Riparian Conservation Areas (RCAs) on the ANF without approval of the FS. In riparian areas only water-safe herbicides shall be used. Herbicides shall not be applied when wind velocities exceed 6 mph. Where manual and/or mechanical methods are used, disposal of the plant debris will follow the regulations set by the FS. The timing of the weed control treatment shall be determined for each plant species in consultation with the FS (on NFS lands) with the goal of controlling populations before they start producing seeds.

For the preconstruction and construction of the Project, measures to control the introduction and spread of noxious weeds in the Project work area shall be taken as follows.

- On the ANF, from the time construction begins until ten years after construction is complete, surveying for new invasive weed populations and the monitoring of identified and treated populations shall be required at all sites impacted by construction (tower pads, staging areas, landing zones, etc.), including access/spur roads disturbed during the Project. Surveying and monitoring for weed infestations shall occur annually for years one to five and bi-annually for years six to ten. Treatment of all identified weed populations shall occur at a minimum of once annually. When no new seedlings or resprouts are observed at treated sites for three consecutive, normal rainfall years, the weed population can be considered eradicated and weed control efforts may cease for that impact site.
- During Project preconstruction and construction, all seeds and straw materials shall be weed-free rice straw, and all gravel and fill material shall be certified weed free by the county Agriculture Commissioners' Offices. Any deviation from this will be approved by a FS botanist. All plant materials used during restoration shall be native, certified weed-free, and approved by the CPUC and FS.
- During Project preconstruction and construction, vehicles and all equipment shall be washed (including wheels, undercarriages, and bumpers) before and after entering FS identified areas. On non-NFS lands vehicles and equipment shall be washed prior to commencing work in off road areas. Vehicles shall be cleaned at existing construction yards or legally operating car washes. SCE shall document that all vehicles have been washed prior to commencing project work. In addition, tools such as chainsaws, hand clippers, pruners, etc. shall be washed before and after entering all Project work areas. All washing shall take place where rinse water is collected and disposed of in either a sanitary sewer or landfill, unless otherwise approved by the FS. A written daily log shall be kept for all vehicle/equipment/tool washing that states the date, time, location, type of equipment washed, methods used, and staff present. The log shall include the signature of a responsible staff member. Logs shall be available to the CPUC and FS for inspection at any time and shall be submitted to the CPUC and FS on a monthly basis.

- During Project operation and maintenance activities, clear and dispose of weeds in assembly yards, helicopter landing areas, tower pads, spur roads, staging areas, and any other disturbance areas in a FS-approved method.

- **MM B-3b Remove weed seed sources from construction access routes.** Prior to construction, SCE shall initiate invasive species eradication identified in the following Table. These populations were identified as small and isolated but having the potential to spread aggressively during construction. Post construction, these isolated populations will be included and treated according to the restoration plan. Per the FSM 2080 BMP guideline, SCE shall also remove or reduce sources of weed seed along the travel routes associated with Project construction identified in Figures A-2 through A-4 of Appendix A of the *Biological Specialist Report* (Aspen and H.T. Harvey & Associates, 2009) to prevent the introduction or control the spread of noxious weeds by mowing or other control methods to substantially reduce seed production in these infestations during Project construction. Following Project approval and during the time of year when weed species can be observed and identified, SCE shall identify, using a qualified plant ecologist, any other weed seed sources that could contribute to Project-related weed spread on the ANF. The following weed populations, and any other target infestations identified by Project surveys, should be controlled prior to construction. SCE shall initiate eradication of the following weed populations and any other isolated, target infestations discovered during pre-construction surveys along construction routes.

Weed Populations Along Construction Routes*

ANF Road Location	Noxious Weeds Identified
4N41	Isolated patch of Spanish broom
3N20	Isolated patches of Spanish broom, Scotch broom, and rockrose
3N23	Giant reed population in creek adjacent to road
2N23	Scattered Spanish broom infestations of a range of population sizes and densities. Some of the large populations along these routes observed during project surveys had been recently brushed for weed control by SCE contractors, but these populations should be rechecked and control efforts reapplied as necessary. Also isolated patches of tree tobacco, rockrose, horehound, and tocalote.
2N24	Scattered, isolated patches of Spanish broom and rockrose
2N25.2	Scattered, isolated patches of Spanish broom, rosemary, rockrose, and horehound
2N30.1	One isolated patch of Spanish broom
2N30.2	Scattered Spanish broom, bull thistle, tree of heaven, black locust, tocalote, rockrose, eupatory, horehound, smilo grass, and tree tobacco infestations of a range of population sizes and densities.
3N27 north of Big Tujunga Creek to Mt. Gleason Rd	Scattered, isolated patches of Spanish broom
2N45	Moderate patch of giant reed and tree of heaven
2N65.1	Moderate infestation of tree spurge
2N65.2	Moderate infestation of Spanish broom and thoroughwort
2N66	Moderate patch of Spanish broom and tree of heaven
2N75	Moderate patch of Spanish broom
2N79	Isolated patch of Spanish broom
1N36	Scattered Spanish broom, bull thistle, tree of heaven, black locust, tocalote, rockrose, Canadian thistle, hairy vetch, smilo grass, and tree tobacco infestations of a range of population sizes and densities.
Road west out of Shortcut Station	Isolated patches of Spanish broom

*Specific locations are found in Figures A-2 through A-4 of Appendix A of the Biological Specialist Report Noxious Weed Assessment. [Aspen and H.T. Harvey & Associates, 2009]

- **MM B-3c Remove weed seed sources from assembly yards, staging areas, tower pads, pull sites, landing zones, and spur roads.** Prior to construction and during each year of use for construction at all assembly yards, staging areas, tower pads, pull sites, landing zones, and spur roads within the ANF, weed infested areas should be mowed and/or treated as appropriate for the individual weed species under the guidance of a qualified plant ecologist or restoration ecologist, where concurrence on the ecologist has been provided by the FS. Unless otherwise authorized by the FS, weed control efforts in these areas shall be timed annually to reduce shortpod mustard, tocalote, and other noxious weed seed production, by mowing or weed-whacking infestations when flowering has just started, but before seeds have been produced. All plant debris shall be disposed of at a FS/CPUC-approved location. Weed control efforts shall commence in early spring (February – March), as indicated annually by a qualified plant ecologist or restoration ecologist in coordination with a FS botanist or Forest Weed Specialist.

Rationale for Finding. Restoration of disturbed areas with native vegetation will limit the introduction of nonnative and invasive weeds. The implementation of an RCA Treatment Plan will ensure that activities conducted within RCAs are approved by the USDA Forest Service prior to implementation and are conducted in such a way as to minimize disturbance to sensitive resources. The implementation of a Weed Control Plan will ensure that the spread and establishment of weeds due to Project activities is minimized. Controlling known populations of nonnative and invasive weeds along construction access routes and from within assembly yards, staging areas, tower pads, pull sites, landing zones, and spur roads within the ANF will minimize the potential for spread of these species into and through work areas, as outlined in the USDA Forest Service Land Management Plan (2005). Together these measures will reduce Project impacts related to the establishment and spread of nonnative and invasive weeds to a less-than-significant level.

Reference. Final EIR Section 3.4; Table ES-3

Impact B-4: Construction activities, including the use of access roads and helicopter construction, would result in disturbance to wildlife and may result in wildlife mortality.

Direct impacts to wildlife associated with construction of the Project could include mortality from trampling or crushing; increased noise levels due to heavy equipment and helicopter use; light impacts from construction during low-light periods; increased vehicular and human presence along existing access roads and riparian areas; displacement due to habitat modifications, including vegetation removal; alterations of existing soil conditions; fugitive dust; and increased erosion and sediment transport. Indirect effects to wildlife as a result of construction of the Project include the introduction of non-native, invasive plant species, alterations to existing hydrological conditions, and exposure to contaminants.

APM BIO-1, included as part of the Project, requires SCE to conduct pre-construction clearance surveys for wildlife. Project-related effects on common species will be further minimized through the implementation of mitigation measures designed to educate workers of the presence and sensitivity of wildlife that may occur in the Project area; limitations on the work that may occur in RCAs; reducing the effect of fugitive dust on adjacent areas through dust control and reduced vehicle speeds; the restoration of habitat at the conclusion of construction; and the control of noxious weeds. The implementation of erosion control measures will also reduce the potential off-site transport of sediment to both aquatic and upland habitats. Mitigation Measures B-1a, B-1b, B-2, B-3a, H-1a, and AQ-1a will reduce construction-related impacts to wildlife to a less-than-significant level.

Finding. The CPUC finds that changes or alterations have been incorporated into the Project which avoid or substantially lessen the significant effects on the environment from Impact B-4. Specifically, the following

mitigation measures are feasible and are hereby adopted to mitigate significant effects from Impact B-4 to a less-than-significant level.

- **MM B-1a Provide restoration/compensation for impacts to native vegetation communities.** (*See above for full text*)
- **MM B-1b Implement a Worker Environmental Awareness Program.** (*See above for full text*)
- **MM B-2 Implement RCA Treatment Plan.** (*See above for full text*)
- **MM B-3a Prepare and implement a Weed Control Plan.** (*See above for full text*)
- **MM AQ-1a Implement Construction Fugitive Dust Control Plan.** (*See above for full text*)
- **MM H-1a Implement an Erosion Control Plan and demonstrate compliance with water quality permits.** (*See above for full text*)

Rationale for Finding. The preparation and implementation of a Habitat Restoration and Revegetation Plan will compensate for impacts to habitat by restoring areas temporarily disturbed during construction. Where impacts are permanent, compensation for the loss of habitats will occur through the preservation, enhancement, or restoration of comparable off-site lands, or through funding for land purchase for inclusion into the Angeles National Forest, mitigation banking, removing existing structures, or comparable restoration efforts. The implementation of a Worker Environmental Awareness Program will ensure that all construction personnel are familiar with applicable regulations and laws regarding sensitive species that could be encountered in the Project area, the consequences of non-compliance with these laws and regulations, identification and values of plant and wildlife species and significant natural plant community habitats, fire protection measures, sensitivities of working on NFS lands and identification of USDA Forest Service sensitive species, hazardous substance spill prevention and containment measures, a contact person in the event of the discovery of dead or injured wildlife, and review of mitigation requirements. The implementation of an RCA Treatment Plan will ensure that activities conducted within RCAs are approved by the USDA Forest Service prior to implementation and are conducted in such a way as to minimize disturbance to sensitive resources. The implementation of a Weed Control Plan will ensure that the spread and establishment of weeds due to Project activities is minimized. Implementation of a Construction Fugitive Dust Control Plan will minimize impacts to wildlife associated with fugitive dust generated during construction. Implementation of an Erosion Control Plan and compliance with water quality permits will minimize impacts associated with erosion and water quality. Together these measures will reduce Project impacts to wildlife to a less-than-significant level.

Reference. Final EIR Section 3.4; Table ES-3

Impact B-5: Construction activities conducted during the breeding season would result in the loss of nesting birds or raptors.

The Project area contains several vegetation communities that are known to support nesting for many bird species. Direct impacts to nesting birds or raptors as a result of construction activities for the Project could include the removal or disturbance of vegetation that supports nesting birds, increased noise levels from heavy equipment and helicopter operations, increased human presence, and exposure to fugitive dust. Indirect impacts could include the loss of habitat due to the colonization of noxious weeds and a disruption of breeding or foraging activity due to facilitated use of new or improved spur and access roads by the public. Operational impacts include increased human presence from maintenance personnel and collisions with transmission lines.

APMs BIO-1 and BIO-8 have been incorporated into the Project to reduce impacts to nesting birds and raptors. These APMs include conducting clearance surveys for wildlife and completing Project-wide raptor surveys. However, these APMs will not reduce Impact B-5 to a less-than-significant level. Therefore, SCE shall implement Mitigation Measures B-1a, B-, B-3a, B-5, and AQ-1a to reduce impacts to nesting birds and raptors to a less-than-significant level.

Finding. The CPUC finds that changes or alterations have been incorporated into the Project which avoid or substantially lessen the significant effects on the environment from Impact B-5. Specifically, the following mitigation measures are feasible and are hereby adopted to mitigate significant effects from Impact B-5 to a less-than-significant level.

- **MM B-1a Provide restoration/compensation for impacts to native vegetation communities.** (*See above for full text*)
- **MM B-1b Implement a Worker Environmental Awareness Program.** (*See above for full text*)
- **MM B-3a Prepare and implement a Weed Control Plan.** (*See above for full text*)
- **MM B-5 Conduct pre-construction surveys and monitoring for breeding birds.** SCE shall conduct pre-construction surveys for nesting birds if construction and removal activities are scheduled to occur during the breeding season. Surveys shall be conducted in areas within 500 feet of tower sites, laydown/staging areas, substation sites, and access/spur road locations. Surveys for birds shall be conducted for all areas from February 1 to August 15. The required survey dates may be modified based on local conditions (i.e., high altitude locations) with the approval of the CPUC, California Department of Fish and Game (CDFG), USACE, and/or FS. SCE shall be responsible for designating qualified biologists who can conduct pre-construction surveys and monitoring for breeding birds. The resume of the proposed biologists will be provided to the CPUC, USACE, and FS for concurrence prior to ground disturbance. On NFS lands, the FS shall apply the FS Land Management Plan Standard S18 (Part 3 of the Land Management Plan), which states "Protect known active and inactive raptor nest areas. Extent of protection will be based on proposed management activities, human activities existing at the onset of nesting initiation, species, topography, vegetative cover, and other factors. When appropriate, a no-disturbance buffer around active nest sites will be required from nest-site selection to fledging." On both NFS and non-NFS lands, if breeding birds with active nests are found, a biological monitor shall establish a 300-foot buffer around the nest for ground-based construction activities and a one-mile buffer for helicopter use if helicopters are flying below 300 feet, and no activities will be allowed within the buffer(s) until the young have fledged from the nest or the nest fails. If nesting bald or golden eagles are identified, a 660-foot no activity buffer will be implemented. The 300-foot (660-foot eagle and one-mile helicopter) buffer may be adjusted to reflect existing conditions including ambient noise, topography, and disturbance with the approval of the U.S. Fish and Wildlife Service (FWS), CPUC, USACE, CDFG, or FS, as appropriate. On NFS lands, the FS shall have the authority to define/redefine such buffers. The biological monitors shall conduct regular monitoring of the nest to determine success/failure and to ensure that Project activities are not conducted within the buffer(s) until the nesting cycle is complete or the nest fails. The biological monitors shall be responsible for documenting the results of the surveys and the ongoing monitoring and will provide a copy of the monitoring reports for impact areas to the respective agencies (e.g., On NFS lands documentation will be provided to the Forest Biologist). If for any reason a bird nest must be removed during the nesting season, SCE shall provide written documentation providing concurrence from the FWS and CDFG authorizing the nest relocation. On NFS lands, this will include coordination and written approval from the FS. On USACE lands, this will include coordination and written approval by the USACE. SCE shall provide a written report documenting the relocation efforts. The report shall

include what actions were taken to avoid moving the nest, the location of the nest, what species is being relocated, the number and condition of the eggs taken from the nest, the location of where the eggs are incubated, the survival rate, the location of the nests where the chicks are relocated, and whether the birds were accepted by the adopted parent.

- **MM AQ-1a Implement Construction Fugitive Dust Control Plan.** (*See above for full text*)

Rationale for Finding. The preparation and implementation of a Habitat Restoration and Revegetation Plan will compensate for impacts to habitat by restoring areas temporarily disturbed during construction. Where impacts are permanent, compensation for the loss of habitats will occur through the preservation, enhancement, or restoration of comparable off-site lands, or through funding for land purchase for inclusion into the Angeles National Forest, mitigation banking, removing existing structures, or comparable restoration efforts. The implementation of a Worker Environmental Awareness Program will ensure that all construction personnel are familiar with applicable regulations and laws regarding sensitive species that could be encountered in the Project area, the consequences of non-compliance with these laws and regulations, identification and values of plant and wildlife species and significant natural plant community habitats, fire protection measures, sensitivities of working on NFS lands and identification of USDA Forest Service sensitive species, hazardous substance spill prevention and containment measures, a contact person in the event of the discovery of dead or injured wildlife, and review of mitigation requirements. The implementation of a Weed Control Plan will ensure that the spread and establishment of weeds due to Project activities is minimized. Pre-construction surveys and monitoring for breeding birds by a qualified biologist, and protective buffers established around active nests, will ensure that impacts to breeding birds are minimized. Implementation of a Construction Fugitive Dust Control Plan will minimize impacts to breeding birds associated with fugitive dust generated during construction. Together these measures will reduce Project impacts to breeding birds, including raptors, to a less-than-significant level.

Reference. Final EIR Section 3.4; Table ES-3

Impact B-6: The Project would cause the loss of foraging habitat for wildlife.

Direct impacts as a result of construction activities associated with the Project include the permanent removal and temporary disturbance of rare and non-rare vegetation communities utilized as foraging habitat for both common and rare wildlife, fugitive dust, and increased noise levels due to heavy equipment and helicopter operations occurring in these areas. These impacts will primarily occur during tower pad preparation; grading for helicopter staging areas; and construction, grading, and widening of new spur roads or existing access roads. Indirect impacts to foraging habitat could include alterations to existing topographical and hydrological conditions, increased erosion and sediment transport, and the establishment of noxious weed colonies. Operational impacts include increased human presence and the spread of noxious weeds due to public use of new or improved spur and access roads.

Implementation of Mitigation Measures B-1a, B-1b, B-2, B-3a, AQ-1a, and H-1a will facilitate the restoration of native vegetation communities following disturbance, minimize impacts to important riparian areas on NFS lands, minimize the spread or colonization of noxious weeds which can severely degrade habitat for common wildlife, and educate workers to avoid wildlife and their habitat.

Finding. The CPUC finds that changes or alterations have been incorporated into the Project which avoid or substantially lessen the significant effects on the environment from Impact B-6. Specifically, the following mitigation measures are feasible and are hereby adopted to mitigate significant effects from Impact B-6 to a less-than-significant level.

- **MM B-1a Provide restoration/compensation for impacts to native vegetation communities.** (*See above for full text*)
- **MMB-1b Implement a Worker Environmental Awareness Program.** (*See above for full text*)
- **MM B-2 Implement RCA Treatment Plan.** (*See above for full text*)
- **MM B-3a Prepare and implement a Weed Control Plan.** (*See above for full text*)
- **MM AQ-1a Implement Construction Fugitive Dust Control Plan.** (*See above for full text*)
- **MM H-1a Implement an Erosion Control Plan and demonstrate compliance with water quality permits.** (*See above for full text*)

Rationale for Finding. The preparation and implementation of a Habitat Restoration and Revegetation Plan will compensate for impacts to habitat by restoring areas temporarily disturbed during construction. Where impacts are permanent, compensation for the loss of habitats will occur through the preservation, enhancement, or restoration of comparable off-site lands, or through funding for land purchase for inclusion into the Angeles National Forest, mitigation banking, removing existing structures, or comparable restoration efforts. The implementation of a Worker Environmental Awareness Program will ensure that all construction personnel are familiar with applicable regulations and laws regarding sensitive species that could be encountered in the Project area, the consequences of non-compliance with these laws and regulations, identification and values of plant and wildlife species and significant natural plant community habitats, fire protection measures, sensitivities of working on NFS lands and identification of USDA Forest Service sensitive species, hazardous substance spill prevention and containment measures, a contact person in the event of the discovery of dead or injured wildlife, and review of mitigation requirements. The implementation of an RCA Treatment Plan will ensure that activities conducted within RCAs are approved by the USDA Forest Service prior to implementation and are conducted in such a way as to minimize disturbance to sensitive resources. The implementation of a Weed Control Plan will ensure that the spread and establishment of weeds due to Project activities is minimized. Implementation of a Construction Fugitive Dust Control Plan will minimize impacts to wildlife foraging habitat associated with fugitive dust generated during construction. Implementation of an Erosion Control Plan and compliance with water quality permits will minimize impacts associated with erosion and water quality. Together these measures will reduce Project impacts to foraging habitat for wildlife to a less-than-significant level.

Reference. Final EIR Section 3.4; Table ES-3

Impact B-7: The Project could disturb endangered, threatened, or proposed plant species or their habitat.

Protocol and focused botanical surveys of the Project alignment, helicopter staging areas, stringing and pulling locations, and all other areas of known disturbance were conducted in the summer and fall of 2007, spring and summer of 2008, and spring of 2009. Natural occurrences of listed plant species were not observed in or adjacent to the Project area or along any of the proposed access roads. However, if present, direct impacts to listed plant species could occur from construction activities that remove vegetation, grade soils, or cause sedimentation, including tower pad preparation, clearing helicopter staging areas, and the construction, grading, and widening of new spur roads and existing access roads. Indirect impacts could include the disruption of native seed banks through soil alterations, the accumulation of fugitive dust, increased erosion and sediment transport, and the colonization of non-native, invasive plant species. Operational impacts could include trampling or crushing due to public use of new or improved spur roads and access roads, increased erosion, and the spread and colonization of noxious weeds.

APMs BIO-1 through BIO-7, which are included as part of the Project, will help to avoid or minimize impacts to biological resources. These APMs include avoiding or compensating for impacts to vegetation communities, training personnel, restricting work to within predetermined limits of construction, implementing Best Management Practices (BMPs), construction monitoring, flagging vegetation for avoidance, and revegetation with appropriate seed mixes. As proposed, the APMs do not provide sufficient mitigation to reduce Project impacts to endangered, threatened, or proposed plant species to a less-than-significant level. Because the APMs are not considered to be adequate protection for listed plants, the following Mitigation Measures will be implemented to further reduce impacts of the Project on listed plants to a less-than-significant level: Mitigation Measures B-1a, B-1b, B-3a, B-7, AQ-1a, and H-1a.

Finding. The CPUC finds that changes or alterations have been incorporated into the Project which avoid or substantially lessen the significant effects on the environment from Impact B-7. Specifically, the following mitigation measures are feasible and are hereby adopted to mitigate significant effects from Impact B-7 to a less-than-significant level.

- **MM B-1a Provide restoration/compensation for impacts to native vegetation communities.** (*See above for full text*)
- **MM B-1b Implement a Worker Environmental Awareness Program.** (*See above for full text*)
- **MM B-3a Prepare and implement a Weed Control Plan.** (*See above for full text*)
- **MM B-7 Conduct preconstruction surveys for State and federally Threatened, Endangered, Proposed, Petitioned, and Candidate plants and avoid any located occurrences of listed plants.** SCE shall conduct pre-construction surveys for State and federally listed Threatened and Endangered, Proposed, Petitioned, and Candidate plants in all areas subject to ground-disturbing activity, including, but not limited to, tower pad preparation and construction areas, tower removal sites, pulling and tensioning sites, assembly yards, and areas subject to grading for new access roads. The surveys shall be conducted during the appropriate blooming period(s) by a qualified plant ecologist/biologist according to protocols established by the FWS, CDFG, FS, and California Native Plant Society (CNPS). The resume of the proposed biologists will be provided to the CPUC and FS for concurrence prior to ground disturbance. All listed plant species found shall be marked and avoided. If a federally listed plant species cannot be avoided on private land, consultation with FWS will occur.

  Prior to site grading, any populations of listed plant species identified during the surveys shall be protected by a buffer zone. The buffer zone shall be established around these areas and shall be of sufficient size to eliminate potential disturbance to the plants from human activity and any other potential sources of disturbance including human trampling, erosion, and dust. The size of the buffer depends upon the proposed use of the immediately adjacent lands, and includes consideration of the plant's ecological requirements (e.g., sunlight, moisture, shade tolerance, edaphic physical and chemical characteristics) that are identified by a qualified plant ecologist and/or Forest botanist. At minimum, the buffer shrub species shall be equal to twice the drip line (i.e., two times the distance from the trunk to the canopy edge) in order to protect and preserve the root systems of the plant. The buffer for herbaceous species shall be, at minimum, 50 feet from the perimeter of the population or the individual. A smaller buffer may be established, provided there are adequate measures in place to avoid the take of the species, with the approval of the FWS, CDFG, FS, USACE, and CPUC. If impacts to listed plants are determined to be unavoidable, the FWS shall be consulted for authorization, through the context of a Biological Opinion. Additional mitigation measures to protect or restore listed plant species or their habitat may be required by the FWS before impacts are authorized, whichever is appropriate.

- **MM AQ-1a Implement Construction Fugitive Dust Control Plan.** (*See above for full text*)
- **MM H-1a Implement an Erosion Control Plan and demonstrate compliance with water quality permits.** (*See above for full text*)

Rationale for Finding. The preparation and implementation of a Habitat Restoration and Revegetation Plan will compensate for impacts to habitat by restoring areas temporarily disturbed during construction. Where impacts are permanent, compensation for the loss of habitats will occur through the preservation, enhancement, or restoration of comparable off-site lands, or through funding for land purchase for inclusion into the Angeles National Forest, mitigation banking, removing existing structures, or comparable restoration efforts. The implementation of a Worker Environmental Awareness Program will ensure that all construction personnel are familiar with applicable regulations and laws regarding sensitive species that could be encountered in the Project area, the consequences of non-compliance with these laws and regulations, identification and values of plant species and significant natural plant community habitats, fire protection measures, sensitivities of working on NFS lands and identification of USDA Forest Service sensitive species, hazardous substance spill prevention and containment measures, and review of mitigation requirements. The implementation of a Weed Control Plan will ensure that the spread and establishment of weeds due to Project activities is minimized. Natural occurrences of listed plant species were not detected during multiple years of surveys for the Project. However, preconstruction surveys and avoidance of any listed plant species will ensure that effects to these species will be minimized. Implementation of a Construction Fugitive Dust Control Plan will minimize impacts to listed plant species associated with fugitive dust generated during construction. Implementation of an Erosion Control Plan and compliance with water quality permits will minimize impacts associated with erosion and water quality. Together these measures will reduce Project impacts to listed plant species to a less-than-significant level.

Reference. Final EIR Section 3.4; Table ES-3

Impact B-8: The Project could result in the loss of California red-legged frogs and mountain yellow-legged frogs.

The California red-legged frog is known to occur in a stockpond adjacent to Amargosa Creek in the Leona Valley and has the potential to occur within the Project area at the Segment 5 Amargosa Creek crossing within the Northern Region. The closest known record of the mountain yellow-legged frog occurs in the upper reaches of Devil's Canyon approximately six miles from the closest section of the ROW. Focused and protocol surveys conducted in 2007, 2008, and 2009 did not detect either of these species in the Project area.

Although not detected in the Project area, direct impacts to the California red-legged frog and mountain yellow-legged frog, if present, could occur from construction activities as a result of mechanical crushing, loss of breeding or basking sites, fugitive dust, and human trampling. Disturbance will be associated with the removal of vegetation and alterations of existing topographical and hydrological conditions, particularly along or downstream of drainage crossings and within RCAs. Indirect impacts to these species could include the degradation of water quality, changes in water runoff due to spur road and access road construction or upgrades, increased erosion and sediment transport, and the spread of noxious weeds along riparian areas. Operational impacts include increased risk of mortality on access or spur roads through collision with vehicles and disturbance from increased public access along new or improved access and spur roads. Another operational impact could result from corona noise, which could potentially interfere with breeding and predator detection.

APMs BIO-1 through BIO-7, which are included as part of the Project, will help to reduce impacts to biological resources. These APMs include conducting clearance surveys for wildlife, minimizing vegetation

removal at construction sites, avoiding streambeds to the extent practicable, implementation of best management practices, biological monitoring, personnel training, and coordinating and compensating for impacts to wildlife with the regulatory agencies. However, these APMs will not reduce Project Impact B-8 to a less-than-significant level. Therefore, to reduce impacts to California red-legged frogs and mountain yellow-legged frogs to a less-than-significant level, the following mitigation measures shall be implemented: Mitigation Measures B-1a, B-1b, B-2, B-3a, B-8a, B-8b, AQ-1a, H-1a, and H-1b.

Finding. The CPUC finds that changes or alterations have been incorporated into the Project which avoid or substantially lessen the significant effects on the environment from Impact B-8. Specifically, the following mitigation measures are feasible and are hereby adopted to mitigate significant effects from Impact B-8 to a less-than-significant level.

- **MM B-1a Provide restoration/compensation for impacts to native vegetation communities.** (*See above for full text*)
- **MM B-1b Implement a Worker Environmental Awareness Program.** (*See above for full text*)
- **MM B-2 Implement RCA Treatment Plan.** (*See above for full text*)
- **MM B-3a Prepare and implement a Weed Control Plan.** (*See above for full text*)
- **MM B-8a Conduct protocol surveys for California red-legged frogs and implement avoidance measures.** SCE shall conduct Fish and Wildlife Service (FWS)-approved protocol surveys for California red-legged frogs if suitable habitat is present near the proposed construction sites at the Amargosa Creek, Aliso Canyon (Segment 11), Monte Cristo Creek, Alder Creek, Big Tujunga Creek (Segment 6), and West Fork San Gabriel River within the Central Region. If surveys have been conducted to protocol within two years of start of construction and no red-legged frogs were identified, surveys would not need to be repeated prior to start of construction. Surveys will continue at least every two years until construction is complete in the identified potential habitat. The resumes of the proposed biologists will be provided to the CPUC and FS for concurrence prior to conducting the surveys.
    - Prior to the onset of construction activities, SCE shall provide the following information to all personnel who will be present within work areas or adjacent to the project area:
        - A detailed description of the red-legged frog including color photographs;
        - The protection the red-legged frog receives under the Endangered Species Act and possible legal action that may be incurred for violation of the Act;
        - The protective measures being implemented to conserve red-legged frogs and other species during construction activities associated with the Project; and
        - A point of contact if red-legged frogs are observed.
    - All trash that may attract predators of the red-legged frogs will be removed from work sites or completely secured at the end of each work day. At the Project crossing in Aliso Canyon, and anywhere California red-legged frogs are detected in or adjacent to the Project, the following shall apply:
        - A full-time monitor shall be present at the access road crossing when in use near the newly discovered population of California red-legged frog in Aliso Canyon, while water is present. Use of the road will be restricted to daylight hours, except during an emergency, in order to avoid nighttime activities when red-legged frogs may be present on the access road. Traffic speed shall be maintained at 15 mph or less in the work area. Use of this roadway during rain events shall not occur during the activity period for California red-legged frogs.

- Between 1 November and 31 March, no work will be authorized within 0.5-mile of occupied habitat and no vehicular crossings at wet fords of those channels will be authorized without an authorized monitor. The 0.5-mile buffer distance may be reduced based on the topography of the site with the approval of the FS and CPUC. Use of paved public access roads will not be restricted (i.e. Aliso Canyon Road).
- Between April 1 to 31 October, no access road work will be authorized within 500 feet of occupied habitat and no vehicular crossings at wet fords of those channels will be authorized without an authorized monitor. Use of paved public access roads will not be restricted (i.e. Aliso Canyon Road).
- If present, SCE shall monitor all related construction activities and develop and implement a monitoring plan that includes the following measures in consultation with the FWS and FS.
- Prior to the onset of any construction activities, SCE shall meet on-site with the CPUC/FS-approved biologist (authorized biologist). The authorized biologist shall hold a current red-legged frog permit from FWS. SCE shall provide information on the general location of construction activities within habitat of the red-legged frog and the actions taken to reduce impacts to this species. Because red-legged frogs may occur in various locations during different seasons of the year, SCE, FS, and authorized biologists will, at this preliminary meeting, determine the seasons when specific construction activities would have the least adverse effect on red-legged frogs.
- Where construction can occur in habitat where red-legged frogs are widely distributed, work areas will be fenced in a manner that prevents equipment and vehicles from straying from the designated work area into adjacent habitat. The authorized biologist will assist in determining the boundaries of the area to be fenced in consultation with the FWS/CDFG/FS/CPUC. All workers will be advised that equipment and vehicles must remain within the fenced work areas.
- The authorized biologist will direct the installation of the fence and conduct a minimum of three nocturnal surveys to move any red-legged frogs from within the fenced area to suitable habitat outside of the fence. If red-legged frogs are observed on the final survey or during subsequent checks, the authorized biologist will conduct additional nocturnal surveys if he or she determines that they are necessary in concurrence with the FWS/CDFG/FS/CPUC.
- Fencing to exclude red-legged frogs will be at least 24 inches in height.
- Construction activities that may occur immediately adjacent to breeding pools or other areas where large numbers of red-legged frogs may congregate will be conducted during times of the year (winter) when individuals have dispersed from these areas or the species is dormant, unless otherwise authorized by CPUC, FS, and FWS. The authorized biologist will assist SCE in scheduling its work activities accordingly.
- If red-legged frogs are found within an area that has been fenced to exclude red-legged frogs, activities will cease until the authorized biologist moves the red-legged frogs.
- If red-legged frogs are found in a construction area where fencing was deemed unnecessary, work will cease until the authorized biologist moves the red-legged frogs. The authorized biologist in consultation with FWS/CDFG/ FS/CPUC will then determine whether additional surveys or fencing are needed. Work may resume while this determination is being made, if deemed appropriate by the authorized biologist.

- Any red-legged frogs found during clearance surveys or otherwise removed from work areas will be placed in nearby suitable, undisturbed habitat. The authorized biologist will determine the best location for their release, based on the condition of the vegetation, soil, and other habitat features and the proximity to human activities. Clearance surveys shall occur on a daily basis in the work area.
- The authorized biologist will have the authority to stop all activities until appropriate corrective measures have been completed.
- SCE shall restrict work to daylight hours, except during an emergency, in order to avoid nighttime activities when red-legged frogs may be present on the access road. Traffic speed should be maintained at 15 mph or less in the work area.
- A qualified biologist must permanently remove, from within the Project area, any individuals of exotic species, such as bullfrogs, crayfish, and centrarchid fishes, to the maximum extent possible and ensure that activities are in compliance with the California Fish and Game Code.
- No stockpiles of materials will occur in areas occupied by California red-legged frogs.
- To ensure that diseases are not conveyed between work sites by the authorized biologist or his or her assistants, the fieldwork code of practice developed by the Declining Amphibian Populations Task Force will be followed at all times.
- Any spills of any fluids that may be hazardous to aquatic fauna (gasoline, hydraulic fluid, motor oil, etc) in areas that may contain California red-legged or mountain yellow-legged frogs will be reported to the FS, FWS, and CPUC within one hour.

- **MM B-8b Conduct biological monitoring.** SCE shall provide a qualified biologist with demonstrated expertise with the listed wildlife species likely to occur in the Project area. This person(s) shall monitor all construction activities daily within suitable habitat for listed or sensitive wildlife. The resumes of the proposed biologists will be provided to the CPUC, USACE, and FS for concurrence prior to the onset of ground-disturbing activities.
- **MM AQ-1a Implement Construction Fugitive Dust Control Plan.** (*See above for full text*)
- **MM H-1a Implement an Erosion Control Plan and demonstrate compliance with water quality permits.** (*See above for full text*)
- **MM H-1b Dry weather construction.** Any construction activities within the ANF shall be scheduled to avoid anticipated precipitation events that are predicted to produce more than one-half inch of precipitation over a 24-hour period, unless expressly authorized by the FS. If an unexpected precipitation event occurs while construction activities are already underway, SCE shall contact the FS for guidance. The FS may require cessation of construction activities within their jurisdiction during any precipitation event in order to prevent excessive erosion and to protect aquatic resources. On NFS lands, SCE shall also observe any criteria promulgated by the FS regarding construction during precipitation events. SCE shall provide documentation to the CPUC monitor of all wet-weather coordination with the FS.

Rationale for Finding. The preparation and implementation of a Habitat Restoration and Revegetation Plan will compensate for impacts to habitat by restoring areas temporarily disturbed during construction. Where impacts are permanent, compensation for the loss of habitats will occur through the preservation, enhancement, or restoration of comparable off-site lands, or through funding for land purchase for inclusion into the Angeles National Forest, mitigation banking, removing existing structures, or comparable restoration efforts. The implementation of a Worker Environmental Awareness Program will ensure that all construction personnel are familiar with applicable regulations and laws regarding sensitive species that

could be encountered in the Project area (including California red-legged frogs and mountain yellow-legged frogs), the consequences of non-compliance with these laws and regulations, identification and values of plant and wildlife species and significant natural plant community habitats, fire protection measures, sensitivities of working on NFS lands and identification of USDA Forest Service sensitive species, hazardous substance spill prevention and containment measures, a contact person in the event of the discovery of dead or injured wildlife, and review of mitigation requirements. The implementation of an RCA Treatment Plan will ensure that activities conducted within RCAs are approved by the USDA Forest Service prior to implementation and are conducted in such a way as to minimize disturbance to sensitive resources. The implementation of a Weed Control Plan will ensure that the spread and establishment of weeds due to Project activities is minimized. Protocol surveys for California red-legged frogs in suitable habitat, and , if found, the implementation of avoidance measures such as seasonal restrictions on Project activities within occupied habitat, exclusion fencing, restricting work to daytime hours, and relocation of individuals out of work areas will minimize effects to the species. Monitoring conducted by a qualified biologist will minimize the potential for direct effects to listed wildlife. Implementation of a Construction Fugitive Dust Control Plan will minimize impacts to California red-legged frogs and mountain yellow-legged frogs associated with fugitive dust generated during construction. Implementation of an Erosion Control Plan and compliance with water quality permits will minimize impacts associated with erosion and water quality. Avoiding construction during rain events will minimize the potential for Project activities to occur during the period when these species are most likely to be active. Together these measures will reduce Project impacts to California red-legged frogs and mountain yellow-legged frogs to a less-than-significant level.

Reference. Final EIR Section 3.4; Table ES-3

Impact B-9: The Project would result in the loss of arroyo toads.

The arroyo toad is federally endangered and a California Species of Special Concern. It is known to occur in the Project area within portions of the ANF, including Big Tujunga Creek, Mill Creek, Monte Cristo Creek, Alder Creek, and Lynx Gulch, a tributary to Big Tujunga Creek. This species also has the potential to occur at several other drainages within the Project area, including Kentucky Wash, Aliso Canyon, and Falls Creek. This species was detected by SCE biologists during surveys conducted on May 29, 2007 at Alder Creek. In addition, surveys conducted by SCE in June, 2008 detected this species at Lynx Gulch and Forest Service biologists located a crushed toad on the Lynx Gulch access road the same month.

Direct impacts to the arroyo toad could occur as a result of crushing from mechanized equipment, temporary disruption of foraging or thermoregulation sites in adjacent upland areas, fugitive dust, or the disruption of egg masses from impacts to water quality. Indirect effects to this species may be caused by the diversion or modification of water flows, increased downstream sediment transport, increased noise, attraction of predators to trash left by Project construction personnel, or the establishment of noxious weeds. Operational impacts to arroyo toad are similar to many of the construction impacts, and include increased sedimentation and dust due to use of access roads by the public and maintenance personnel and the spread of exotic weeds.

APMs BIO-1 through BIO-7, which are included as part of the Project, will help to reduce impacts to biological resources. These APMs include conducting clearance surveys for wildlife, minimizing vegetation removal at construction sites, avoiding streambeds to the extent practicable, implementation of best management practices, biological monitoring, personnel training, and coordinating and compensating for impacts to wildlife with the regulatory agencies. However, these APMs will not reduce Project Impact B-9 to a less-than-significant level. Therefore, to reduce impacts to arroyo toads to a less-than-significant level, the following mitigation measures shall be implemented: Mitigation Measures B-1a, B-1b, B-2, B-3a, B-8b, B-9, AQ-1a, H-1a, and H-1b.

Finding. The CPUC finds that changes or alterations have been incorporated into the Project which avoid or substantially lessen the significant effects on the environment from Impact B-9. Specifically, the following mitigation measures are feasible and are hereby adopted to mitigate significant effects from Impact B-9 to a less-than-significant level.

- **MM B-1a Provide restoration/compensation for impacts to native vegetation communities.** (*See above for full text*)
- **MM B-1b Implement a Worker Environmental Awareness Program.** (*See above for full text*)
- **MM B-2 Implement RCA Treatment Plan.** (*See above for full text*)
- **MM B-3a Prepare and implement a Weed Control Plan.** (*See above for full text*)
- **MM B-8b Conduct biological monitoring.** (*See above for full text*)
- **MM B-9 Conduct protocol surveys for arroyo toads and implement avoidance measures in occupied areas.** In areas known to support arroyo toads (Lynx Gulch, Monte Cristo Creek, and Alder Creek) the following avoidance measures shall be implemented.
    - SCE shall avoid ground disturbing activities (i.e. grading, stream crossing upgrades, parking) along access roads within the one mile buffer for arroyo toads during the activity period for arroyo toads (March-November). This date and buffer may be modified based on the existing temperature regime and habitat conditions with FS and FWS approval. An exception to this restriction may occur if the Forest Service determines that increased road maintenance or reconstruction would need to occur based upon dry ravel or debris torrents resulting from the Station Fire of 2009.
    - SCE shall limit use of the access roads in this area within the one-mile arroyo toad buffer area to daylight hours only during the activity period for arroyo toads (generally March-November), unless otherwise approved by the FS (on NFS land), FWS, and/or the CPUC (on private land). Use of these roadways during rain events shall not occur during the activity period for arroyo toads. Vehicle speeds shall be limited to 15 MPH and no parking or loitering shall occur along the access roads.
    - SCE shall retain a qualified biologist with demonstrated expertise with arroyo toads to monitor all construction activities full time in occupied arroyo toad habitat. The monitor shall inspect the roadway, all Arizona crossings, and work sites throughout the day and log the time and weather conditions in the area. If adult or juvenile arroyo toads are found on the roadway, vehicle access shall be restricted until the animal has moved off the road or is relocated by a permitted arroyo toad biologist in accordance with the Biological Opinion.

    SCE shall conduct Fish and Wildlife Service-approved protocol surveys for arroyo toad at the following locations if suitable habitat is present near the proposed construction sites: Kentucky Wash, Aliso Canyon, and Big Tujunga Creek (Segment 6/11) within two years of the start of construction. If arroyo toads are detected, further surveys within the area will not be required and the avoidance measures detailed below will be followed. If no arroyo toads are detected, habitat assessments will be conducted every year until construction is completed. If the habitat assessment determines that suitable habitat exists, protocol surveys shall be conducted.

    - Prior to the onset of construction activities, SCE shall provide all personnel who will be present on work areas within or adjacent to the Project area the following information:
        a. A detailed description of the arroyo toad including color photographs;
        b. The protection the arroyo toad receives under the Endangered Species Act and possible legal action that may be incurred for violation of the Act;

c. The protective measures being implemented to conserve the arroyo toad and other species during construction activities associated with the Project; and

d. A point of contact if arroyo toads are observed.

- For all areas in which this species has been documented SCE shall develop and implement a monitoring plan that includes the following measures in consultation with the FWS and Forest Service.
    - SCE shall retain a qualified biologist with demonstrated expertise with arroyo toads to monitor all construction activities in occupied arroyo toad habitat and assist SCE in the implementation of the monitoring program. The resumes of the proposed biologists will be provided to the CPUC and FS for concurrence. This biologist will be referred to as the authorized biologist hereafter. The authorized biologist will be present during all activities immediately adjacent to or within habitat that supports populations of arroyo toad.
    - All trash that may attract predators of the arroyo toad will be removed from work sites or completely secured at the end of each work day. Prior to the onset of any construction activities, SCE shall meet on-site with staff from the FS and the authorized biologist. SCE shall provide information on the general location of construction activities within habitat of the arroyo toad and the actions taken to reduce impacts to this species. Because arroyo toads may occur in various locations during different seasons of the year, SCE, FS, and authorized biologists will, at this preliminary meeting, determine the seasons when specific construction activities would have the least adverse effect on arroyo toads.
    - Any arroyo toads found during clearance surveys or otherwise removed from work areas will be placed in nearby suitable, undisturbed habitat. The authorized biologist will determine the best location for their release, based on the condition of the vegetation, soil, and other habitat features and the proximity to human activities. Clearance surveys shall occur on a daily basis in the work area.
    - The authorized biologist will have the authority to stop all activities until appropriate corrective measures have been completed.
    - To ensure that diseases are not conveyed between work sites by the authorized biologist or his or her assistants, the fieldwork code of practice developed by the Declining Amphibian Populations Task Force will be followed at all times.
    - SCE shall restrict work to daylight hours, except during an emergency, or unless otherwise authorized by the FS (on NFS land) or the CPUC (on private land) in order to avoid nighttime activities when arroyo toads may be present on the access roads. Traffic speed shall be maintained at 15 mph or less in the work area.
    - A qualified biologist must permanently remove, from within the Project area, any individuals of exotic species, such as bullfrogs, crayfish, and centrarchid fishes, to the maximum extent possible and ensure that activities are in compliance with the California Fish and Game Code.
    - No stockpiles of materials will occur in areas occupied by arroyo toads.
    - Any spills of any fluids that may be hazardous to aquatic fauna (gasoline, hydraulic fluid, motor oil, etc) in areas that may contain arroyo toads will be reported to the FS, FWS, and CPUC within one hour.

- **MM AQ-1a Implement Construction Fugitive Dust Control Plan.** (*See above for full text*)
- **MM H-1a Implement an Erosion Control Plan and demonstrate compliance with water quality permits.** (*See above for full text*)

- **MM H-1b Dry weather construction.** (*See above for full text*)

Rationale for Finding. The preparation and implementation of a Habitat Restoration and Revegetation Plan will compensate for impacts to habitat by restoring areas temporarily disturbed during construction. Where impacts are permanent, compensation for the loss of habitats will occur through the preservation, enhancement, or restoration of comparable off-site lands, or through funding for land purchase for inclusion into the Angeles National Forest, mitigation banking, removing existing structures, or comparable restoration efforts. The implementation of a Worker Environmental Awareness Program will ensure that all construction personnel are familiar with applicable regulations and laws regarding sensitive species that could be encountered in the Project area (including arroyo toads), the consequences of non-compliance with these laws and regulations, identification and values of plant and wildlife species and significant natural plant community habitats, fire protection measures, sensitivities of working on NFS lands and identification of FS sensitive species, hazardous substance spill prevention and containment measures, a contact person in the event of the discovery of dead or injured wildlife, and review of mitigation requirements. The implementation of an RCA Treatment Plan will ensure that activities conducted within RCAs are approved by the USDA Forest Service prior to implementation and are conducted in such a way as to minimize disturbance to sensitive resources. The implementation of a Weed Control Plan will ensure that the spread and establishment of weeds due to Project activities is minimized. Monitoring conducted by a qualified biologist will minimize the potential for direct effects to listed wildlife. Protocol surveys for arroyo toad in suitable habitat and the implementation of avoidance measures such as seasonal restrictions on Project activities within occupied habitat, restricting work to daytime hours, and relocation of individuals out of work areas will minimize effects to the species. Implementation of a Construction Fugitive Dust Control Plan will minimize impacts to arroyo toads associated with fugitive dust generated during construction. Implementation of an Erosion Control Plan and compliance with water quality permits will minimize impacts associated with erosion and water quality. Avoiding construction during rain events will minimize the potential for Project activities to occur during the period when this species is most likely to be active. Together these measures will reduce Project impacts to arroyo toads to a less-than-significant level.

Reference. Final EIR Section 3.4; Table ES-3

Impact B-10: The Project could result in the loss of desert tortoises.

The desert tortoise is believed to be present in low densities within the Northern Region of the Project (Segments 4 and 10) based on recent information from the FWS. Direct impacts associated with construction of the Project could include mortality due to collisions with vehicles or heavy equipment, fugitive dust, crushing of burrows, and increased noise levels. Indirect impacts could include loss of habitat; the introduction of non-native, invasive plant species; and increased human presence.

APMs BIO-1 through BIO-7, which are included as part of the Project, will help to reduce impacts to biological resources. These APMs include conducting clearance surveys for wildlife, minimizing vegetation removal at construction sites, avoiding streambeds to the extent practicable, implementation of best management practices, biological monitoring, personnel training, and coordinating and compensating for impacts to wildlife with the regulatory agencies. However, these APMs will not reduce Project Impact B-10 to a less-than-significant level. Therefore, to reduce impacts to desert tortoises to a less-than-significant level, the following mitigation measures shall be implemented: Mitigation Measures B-1a, B-1b, B-3a, B-10, and AQ-1a.

Finding. The CPUC finds that changes or alterations have been incorporated into the Project which avoid or substantially lessen the significant effects on the environment from Impact B-10. Specifically, the following

mitigation measures are feasible and are hereby adopted to mitigate significant effects from Impact B-10 to a less-than-significant level.

- **MM B-1a Provide restoration/compensation for impacts to native vegetation communities.** (*See above for full text*)
- **MM B-1b Implement a Worker Environmental Awareness Program.** (*See above for full text*)
- **MM B-3a Prepare and implement a Weed Control Plan.** (*See above for full text*)
- **MM B-10 Conduct presence or absence surveys for desert tortoise, preserve habitat, and implement avoidance measures.** SCE shall contract with a Fish and Wildlife (FWS)-authorized biologist to conduct FWS protocol-surveys for desert tortoise in the vicinity of the proposed Windhub Substation site at the northern terminus of Segment 10, where historic tortoise burrows were documented and habitat is suitable. The resumes of the FWS-authorized biologists will be provided to the CPUC for concurrence prior to conducting the surveys. This biologist will be referred to as the "authorized biologist" hereafter. Additionally, a qualified biologist shall conduct focused clearance surveys for desert tortoise prior to construction activities within Segment 10 and Segment 4 between the Cottonwind and Whirlwind substations. Clearance surveys shall be conducted 100 m into agricultural areas that are adjacent to suitable habitat. Clearance surveys shall follow the FWS's desert tortoise survey protocol.

  To mitigate potential permanent impacts to occupied desert tortoise habitat from Project construction, SCE will acquire habitat occupied by desert tortoises. Disturbance occurring along Segment 10 and along Segment 4 between the Cottonwind and Whirlwind substations shall be mitigated through acquisition of occupied habitat at a ratio of 3:1 (acres of habitat acquired:acres of land permanently disturbed). Mitigation acquisition shall occur at a FWS- and CDFG-approved location and shall be coordinated through a FWS- and CDFG-approved entity. SCE shall enter into a binding legal agreement regarding the preservation of off-site lands describing the terms of the acquisition, enhancement, and management of those lands. Fee title acquisition of habitat lands or a conservation easement over these lands will be transferred to an entity approved by FWS and CDFG, along with funding for enhancement of the land and an endowment for permanent management of the lands. SCE will provide verification to the CPUC that FWS- and CDFG-approved lands have been acquired.

  SCE shall develop and implement a mitigation and monitoring plan that includes the following measures in consultation with the FWS and CDFG.

  - Prior to the onset of construction activities, SCE shall provide all personnel who will be present on work areas within or adjacent to the Project area the following information:
    a. A detailed description of the desert tortoise including color photographs;
    b. The protection the desert tortoise receives under the Endangered Species Act and possible legal action that may be incurred for violation of the Act;
    c. The protective measures being implemented to conserve the desert tortoise and other species during construction activities associated with the Project; and
    d. A point of contact if desert tortoises are observed.
  - All trash that may attract predators of desert tortoises will be removed from work sites or completely secured at the end of each work day.
  - In construction areas in occupied desert tortoise areas, work and staging areas will be fenced with approved desert tortoise fencing in a manner that prevents equipment and vehicles from straying from the designated work area into adjacent habitat. The authorized

biologist will assist in determining the boundaries of the area to be fenced in consultation with the FWS/CDFG/CPUC. All workers will be advised that equipment and vehicles must remain within the fenced work areas. Installation of the fencing and any necessary surveys will be directed and/or conducted by the authorized biologist in concurrence with the FWS/CDFG/CPUC.

- If desert tortoises are found within an area that has been fenced to exclude the species, activities will cease until the authorized biologist moves the desert tortoises within 500 m of their original location.
- If desert tortoises are found in a construction area where fencing was deemed unnecessary, work will cease until the authorized biologist moves the individual(s) within 500 m of their original location. The authorized biologist in consultation with FWS/CDFG/CPUC will then determine whether additional surveys or fencing are needed. Work may resume while this determination is being made, if deemed appropriate by the authorized biologist.
- Any desert tortoises found during clearance surveys or otherwise removed from work areas will be placed in nearby suitable, undisturbed habitat within 500 m of their original location. The authorized biologist will determine the best location for their release, based on the condition of the vegetation, soil, and other habitat features and the proximity to human activities. Clearance surveys shall occur on a daily basis in the work area if the area is not fenced. If the area is fenced, only monitoring will need to be conducted.
- SCE shall follow the tortoise Handling Guidelines at all times if handling tortoises is required.
- The authorized biologist will have the authority to stop all activities until appropriate corrective measures have been completed.
- SCE shall restrict work to daylight hours, except during an emergency, in order to avoid nighttime activities when desert tortoise may be present on the access road. Traffic speed shall be maintained at 15 mph or less in the work area.

- **MM AQ-1a Implement Construction Fugitive Dust Control Plan.** (*See above for full text*)

Rationale for Finding. The preparation and implementation of a Habitat Restoration and Revegetation Plan will compensate for impacts to habitat by restoring areas temporarily disturbed during construction. Where impacts are permanent, compensation for the loss of habitats will occur through the preservation, enhancement, or restoration of comparable off-site lands, or through funding for land purchase for inclusion into the Angeles National Forest, mitigation banking, removing existing structures, or comparable restoration efforts. The implementation of a Worker Environmental Awareness Program will ensure that all construction personnel are familiar with applicable regulations and laws regarding sensitive species that could be encountered in the Project area (including desert tortoise), the consequences of non-compliance with these laws and regulations, identification and values of plant and wildlife species and significant natural plant community habitats, fire protection measures, hazardous substance spill prevention and containment measures, a contact person in the event of the discovery of dead or injured wildlife, and review of mitigation requirements. The implementation of a Weed Control Plan will ensure that the spread and establishment of weeds due to Project activities is minimized. Surveys for desert tortoise in suitable habitat and the implementation of avoidance measures such as exclusion fencing, restricting work to daytime hours, and relocation of individuals out of work areas will minimize effects to the species. Permanent impacts to occupied desert tortoise habitat will be mitigated through the acquisition of occupied habitat at a 3:1 ratio (habitat acquired: habitat permanently disturbed). Implementation of a Construction Fugitive Dust Control Plan will

minimize impacts to desert tortoises associated with fugitive dust generated during construction. Together these measures will reduce Project impacts to desert tortoises to a less-than-significant level.

Reference. Final EIR Section 3.4; Table ES-3

Impact B-12: The Project could result in the loss of special-status fish.

Four special-status fish species have the potential to occur in the Project area. These include the federally listed Santa Ana sucker (*Catostomus santaanae*); the State and federally listed unarmored threespine stickleback (*Gasterosteus aculeatus williamsoni*); and two Forest Service sensitive species and California Species of Special Concern, the arroyo chub (*Gila orcuttii*) and Santa Ana speckled dace (*Rhinichthys osculus* ssp. 8). The unarmored threespine stickleback is also a State designated fully protected species.

Unarmored threespine sticklebacks are not expected to occur within the Project area but do occur approximately 6 miles downstream of the Project. The Santa Ana sucker is known to occur in Big Tujunga Creek, the San Gabriel River, and the Santa Ana River. In the Project area the arroyo chub is known to occur in Big Tujunga Creek and the west, east, and north forks of the San Gabriel River. The Santa Ana speckled dace's range has diminished dramatically to the headwaters of the San Gabriel and Santa Ana Rivers. If special-status fish species are present in the Project area, direct impacts could include mortality due to crushing by heavy equipment and vehicles, and water quality degradation caused by increased sedimentation, erosion, or accidental chemical spills. Indirect impacts could include loss of suitable breeding and spawning habitat, removal of riparian and aquatic vegetation, and decreased water quality due to sedimentation and erosion. Operational impacts will be similar due to an increase in human presence as a result of facilitated public use of new and improved spur roads and access roads.

APMs BIO-1 through BIO-7, which are included as part of the Project, will help to reduce impacts to biological resources. These APMs include conducting clearance surveys for wildlife, minimizing vegetation removal at construction sites, avoiding streambeds to the extent practicable, implementation of best management practices, biological monitoring, personnel training, and coordinating and compensating for impacts to wildlife with the regulatory agencies. However, these APMs will not reduce Project Impact B-12 to a less-than-significant level. Therefore, to reduce impacts to special-status fish to a less-than-significant level, the following mitigation measures shall be implemented: Mitigation Measures B-1a, B-1b, B-2, B-3a, B-8b, B-12, H-1a, and H-1b.

Finding. The CPUC finds that changes or alterations have been incorporated into the Project which avoid or substantially lessen the significant effects on the environment from Impact B-12. Specifically, the following mitigation measures are feasible and are hereby adopted to mitigate significant effects from Impact B-12 to a less-than-significant level.

- **MM B-1a Provide restoration/compensation for impacts to native vegetation communities.** (*See above for full text*)
- **MM B-1b Implement a Worker Environmental Awareness Program.** (*See above for full text*)
- **MM B-2 Implement RCA Treatment Plan.** (*See above for full text*)
- **MM B-3a Prepare and implement a Weed Control Plan.** (*See above for full text*)
- **MM B-8b Conduct biological monitoring.** (*See above for full text*)
- **MM B-12 Implement avoidance and minimization measures for Santa Ana sucker and other aquatic organisms.** On or near the West Fork Cogswell road, SCE shall pre-stage a complete Hazardous Material Spill kit(s) capable of containing the largest potential vehicle spill of gasoline,

diesel, or other hazardous materials. The kit(s) shall be located and maintained in areas accessible to crews in the event a bridge or other road blockage has occurred. Contents of the kit(s) shall be approved by the FS. A biological monitor with knowledge of the special-status fishes known to occur in the area shall inspect the roadway a minimum of three times a day from October 1 to April 30 and one time a day from May 1 through September 30 (unless otherwise approved by the FS) during construction to inspect for leaks, spills, or other debris that may enter the San Gabriel River. Spills on the roadway will be logged and reported to the FS and CPUC monitor weekly and cleaned up immediately. Any spills along this road will be reported to the FS and CPUC within one hour.

No loitering, maintenance, refueling, or equipment staging shall occur on the West Fork Cogswell road. Prior to vehicle access, metal plates, bridges, or other FS-approved structures shall be placed above all wet crossings, if deemed necessary by the FWS or the FS.

Prior to any work in the San Gabriel River, Big Tujunga River, or their tributaries where flowing or ponded water is present SCE shall conduct surveys for fish and other special-status aquatic organisms. The species noted in the project area shall be reported to the FS. No work shall be conducted in the flowing portion of the stream and water shall be diverted around the work area in a manner that does not restrict the movement of aquatic organisms unless authorized by the FS. Block nets or other barriers may be required, if deemed necessary by the FWS or the FS, and if fish or other special-status species are present. Block nets will not be used in areas supporting Santa Ana suckers. All activities that occur within ponded or flowing water shall be coordinated with the FS on NFS lands. Quarterly for duration of construction work in the San Gabriel and Big Tujunga Rivers, SCE shall prepare a report documenting the type and number of species located and any actions taken to relocate or exclude the species. This shall be reported to the FS and CPUC no later than 30 days following the completion of work at the San Gabriel or Big Tujunga Rivers.

If Santa Ana suckers occur in portions of the creek where construction activities are scheduled to occur, SCE shall retain a qualified biologist with a FWS permit for the Santa Ana sucker to monitor all construction activities in occupied Santa Ana sucker habitat and assist SCE in the implementation of the monitoring program. The resumes of the proposed biologists will be provided to the CPUC and FS for concurrence. This biologist will be referred to as the authorized biologist hereafter. The authorized biologist will have the authority to stop all activities until appropriate corrective measures have been completed.

- **MM H-1a Implement an Erosion Control Plan and demonstrate compliance with water quality permits.** (*See above for full text*)
- **MM H-1b Dry weather construction.** (*See above for full text*)

Rationale for Finding. The preparation and implementation of a Habitat Restoration and Revegetation Plan will compensate for impacts to habitat by restoring areas temporarily disturbed during construction. Where impacts are permanent, compensation for the loss of habitats will occur through the preservation, enhancement, or restoration of comparable off-site lands, or through funding for land purchase for inclusion into the Angeles National Forest, mitigation banking, removing existing structures, or comparable restoration efforts. The implementation of a Worker Environmental Awareness Program will ensure that all construction personnel are familiar with applicable regulations and laws regarding sensitive species that could be encountered in the Project area, the consequences of non-compliance with these laws and regulations, identification and values of plant and wildlife species and significant natural plant community habitats, fire protection measures, sensitivities of working on NFS lands and identification of USDA Forest Service sensitive species, hazardous substance spill prevention and containment measures, a contact person in the event of the discovery of dead or injured wildlife, and review of mitigation requirements. The implementation of an RCA Treatment Plan will ensure that activities conducted within RCAs are approved by the USDA Forest Service prior to implementation and are conducted in such a way as to minimize disturbance

to sensitive resources. The implementation of a Weed Control Plan will ensure that the spread and establishment of weeds due to Project activities is minimized. Monitoring conducted by a qualified biologist will minimize the potential for direct effects to listed wildlife. Avoidance and minimization measures such as the staging of Hazardous Material Spill Kit(s) along the West Fork Cogswell Road, daily inspection of the West Fork Cogswell Road by a qualified biological monitor, pre-construction fish surveys prior to any work where flowing or ponded water is present, and block nets in select areas will minimize effects to special-status fish. Implementation of an Erosion Control Plan and compliance with water quality permits will minimize impacts associated with erosion and water quality. Avoiding construction during rain events will minimize the potential for Project activities to occur during the period when these species are most likely to be present. Together these measures will reduce Project impacts to special-status fish to a less-than-significant level.

Reference. Final EIR Section 3.4; Table ES-3

Impact B-13: The Project could result in the loss of Critical Habitat for the Santa Ana sucker.

Critical habitat for the Santa Ana sucker exists downstream of Cogswell Reservoir, in an area that includes a potential access road for heavy equipment. This access road is paved and runs for approximately 7.4 miles adjacent to the West Fork San Gabriel River (West Fork Cogswell Road). West Fork Cogswell Road is proposed for use under Alternative 2, but not under Alternative 6. With the combination of Alternatives 2 and 6 under the Project, the ultimate decision on whether SCE will be allowed to use this road during Project construction will be made by the USDA Forest Service in their Record of Decision (ROD). For the purposes of this Findings of Fact, it is assumed that West Fork Cogswell Road will be used to some extent. Use of this access road could result in accidental spills, increased turbidity due to vehicles using wet crossings, and potentially alter light and temperature regimes from the trimming and/or removal of some riparian vegetation.

Direct loss of critical habitat for this species will not occur from the Project, but degradation of critical habitat may occur from the accidental release of mud, petroleum products, heavy metals, or other construction materials. However, through the implementation of mitigation measures these effects will be minimized or avoided. With the implementation of these measures the Project will not appreciably diminish the value of the critical habitat or affect the constituent elements required for occupancy by this species. Operational effects will not occur because once the Project has been completed use of the West Fork Cogswell Road will not occur.

To reduce impacts to critical habitat for the Santa Ana sucker to a less-than-significant level, the following mitigation measures shall be implemented: Mitigation Measures B-1a, B-1b, B-2, B-3a, B-8b, B-12, H-1a, and H-1b.

Finding. The CPUC finds that changes or alterations have been incorporated into the Project which avoid or substantially lessen the significant effects on the environment from Impact B-13. Specifically, the following mitigation measures are feasible and are hereby adopted to mitigate significant effects from Impact B-13 to a less-than-significant level.

- **MM B-1a Provide restoration/compensation for impacts to native vegetation communities.** (*See above for full text*)
- **MM B-1b Implement a Worker Environmental Awareness Program.** (*See above for full text*)
- **MM B-2 Implement RCA Treatment Plan.** (*See above for full text*)
- **MM B-3a Prepare and implement a Weed Control Plan.** (*See above for full text*)

- **MM B-8b Conduct biological monitoring.** (*See above for full text*)
- **MM B-12 Implement avoidance and minimization measures for fish and aquatic organisms.** (*See above for full text*)
- **MM H-1a Implement an Erosion Control Plan and demonstrate compliance with water quality permits.** (*See above for full text*)
- **MM H-1b Dry weather construction.** (*See above for full text*)

Rationale for Finding. The preparation and implementation of a Habitat Restoration and Revegetation Plan will compensate for impacts to habitat by restoring areas temporarily disturbed during construction. Where impacts are permanent, compensation for the loss of habitats will occur through the preservation, enhancement, or restoration of comparable off-site lands, or through funding for land purchase for inclusion into the Angeles National Forest, mitigation banking, removing existing structures, or comparable restoration efforts. The implementation of a Worker Environmental Awareness Program will ensure that all construction personnel are familiar with applicable regulations and laws regarding sensitive species that could be encountered in the Project area (including Santa Ana sucker), the consequences of non-compliance with these laws and regulations, identification and values of plant and wildlife species and significant natural plant community habitats, fire protection measures, sensitivities of working on NFS lands and identification of USDA Forest Service sensitive species, hazardous substance spill prevention and containment measures, a contact person in the event of the discovery of dead or injured wildlife, and review of mitigation requirements. The implementation of an RCA Treatment Plan will ensure that activities conducted within RCAs are approved by the USDA Forest Service prior to implementation and are conducted in such a way as to minimize disturbance to sensitive resources. The implementation of a Weed Control Plan will ensure that the spread and establishment of weeds due to Project activities is minimized. Monitoring conducted by a qualified biologist will minimize the potential for direct effects to listed wildlife, including the Santa Ana sucker. Avoidance and minimization measures such as the staging of Hazardous Material Spill Kit(s) along the West Fork Cogswell Road will minimize effects to Santa Ana sucker critical habitat. Implementation of an Erosion Control Plan and compliance with water quality permits will minimize impacts associated with erosion and water quality. Avoiding construction during rain events will minimize the potential for Project activities to occur during the period when this species is most likely to be present. Together these measures will reduce Project impacts to Santa Ana sucker critical habitat to a less-than-significant level.

Reference. Final EIR Section 3.4; Table ES-3

Impact B-14: The Project could result in the loss of California condors.

The California condor is considered present within the Northern and Central Regions and may soar over portions of the Southern Region of the Project. Although condors are not known to regularly use any particular site within the Project area, they likely occur broadly over the Project area during foraging trips. Direct impacts to condors, if present, could occur through the loss of or disruption of foraging habitat, noise from helicopter operation and ground-based construction activities, the introduction of micro-trash, and exposure to ethylene glycol antifreeze. Indirect effects could result from a disruption of normal foraging activity through the use of the new or improved access and spur roads and subsequent increase in human activities. Degradation and alteration of habitat due to construction activities could preclude use by condors. Operational effects could include collision or electrocution with the transmission line and increased human presence and microtrash due to new or improved access and spur roads.

APMs BIO-1 through BIO-7, which are included as part of the Project, will help to reduce impacts to biological resources. These APMs include conducting clearance surveys for wildlife, minimizing vegetation

removal at construction sites, avoiding streambeds to the extent practicable, implementation of best management practices, biological monitoring, personnel training, and coordinating and compensating for impacts to wildlife with the regulatory agencies. However, these APMs will not reduce Project Impact B-14 to a less-than-significant level. Therefore, to reduce impacts to California condors to a less-than-significant level, the following mitigation measures shall be implemented: Mitigation Measures B-1a, B-1b, B-2, B-3a, B-8b, and B-14.

Finding. The CPUC finds that changes or alterations have been incorporated into the Project which avoid or substantially lessen the significant effects on the environment from Impact B-14. Specifically, the following mitigation measures are feasible and are hereby adopted to mitigate significant effects from Impact B-14 to a less-than-significant level.

- **MM B-1a Provide restoration/compensation for impacts to native vegetation communities.** (*See above for full text*)
- **MM B-1b Implement a Worker Environmental Awareness Program.** (*See above for full text*)
- **MM B-2 Implement RCA Treatment Plan.** (*See above for full text*)
- **MM B-3a Prepare and implement a Weed Control Plan.** (*See above for full text*)
- **MM B-8b Conduct biological monitoring.** (*See above for full text*)
- **MM B-14 Monitor construction in condor habitat and remove trash and micro-trash from the work area daily.** SCE shall retain a qualified biologist with demonstrated knowledge of California condor identification to monitor all construction activities within the Project area and assist SCE in the implementation of the monitoring program. The resumes of the proposed biologist(s) will be provided to the CPUC and FS for concurrence. This biologist(s) will be referred to as the authorized biologist hereafter. The authorized biologist will be present during all activities immediately adjacent to or within known condor-occupied areas. The authorized biologist will have the authority to stop all activities until appropriate corrective measures have been completed. If condors are observed in helicopter construction areas, SCE shall avoid further helicopter use until the animals have left the area. The authorized biologist will have radio contact with the project foreman, who will be in radio contact with the helicopter pilot. The biologist will provide information to SCE to avoid conflicts with condors. All condor sightings in the Project area will be reported to the FWS and FS (on NFS lands). SCE will coordinate with FWS on the construction schedule and helicopter work areas to determine if any condors have been tracked or observed in the vicinity of the Project area. If condors are observed in helicopter construction areas, then SCE shall avoid further helicopter use until the animals have left the area and the FWS will be notified immediately. Should condors be found roosting within 0.5 miles of the construction area, no construction activity shall occur between 1 hour before sunset to 1 hour after sunrise, or until the condors leave the area. Should condors be found nesting within 1.5 miles of the construction area, no construction activity will occur until further authorization from the FWS and FS on NFS lands.

  Microtrash. All trash is required to be disposed of as written in the Proper Disposal of Construction Waste Plan for the Project. Additional language has been added to this Plan to address the disposal of microtrash. Workers will be trained on the issue of microtrash – what it is, its potential effects to California condors, and how to avoid the deposition of microtrash. In addition, daily sweeps of the work area will occur to collect and remove trash in locations with the potential for California condors to occur.

  Worker Education. SCE will develop a flier that will be distributed to all workers on the project concerning information on the California condor. Information to be included consists of the

following: species description with photos and/or drawings indicating how to identify the California condor and how to distinguish condors from turkey vultures and golden eagles; protective status and penalties for violation of the ESA; avoidance measures being implemented on the Project; and contact information for communicating condor sightings.

Reporting. All California condor sightings in the Project area will be reported directly to the FWS, FS, and CPUC. Prior to the commencement of helicopter activity, SCE will coordinate with a FWS condor biologist to determine if any condors have been tracked or observed in the vicinity of the Project area.

Rationale for Finding. The preparation and implementation of a Habitat Restoration and Revegetation Plan will compensate for impacts to habitat by restoring areas temporarily disturbed during construction. Where impacts are permanent, compensation for the loss of habitats will occur through the preservation, enhancement, or restoration of comparable off-site lands, or through funding for land purchase for inclusion into the Angeles National Forest, mitigation banking, removing existing structures, or comparable restoration efforts. The implementation of a Worker Environmental Awareness Program will ensure that all construction personnel are familiar with applicable regulations and laws regarding sensitive species that could be encountered in the Project area (including California condor), the consequences of non-compliance with these laws and regulations, identification and values of plant and wildlife species and significant natural plant community habitats, fire protection measures, sensitivities of working on NFS lands and identification of USDA Forest Service sensitive species, hazardous substance spill prevention and containment measures, a contact person in the event of the discovery of dead or injured wildlife, and review of mitigation requirements. The implementation of an RCA Treatment Plan will ensure that activities conducted within RCAs are approved by the USDA Forest Service prior to implementation and are conducted in such a way as to minimize disturbance to sensitive resources. The implementation of a Weed Control Plan will ensure that the spread and establishment of weeds due to Project activities is minimized. Monitoring conducted by a qualified biologist will minimize the potential for direct effects to listed wildlife, including the California condor. Monitoring by an authorized biologist and avoidance of helicopter use if condors are present, daily clean-up of microtrash, worker education, and reporting of all condor sightings to the appropriate resource agencies will minimize effects to California condors. Together these measures will reduce Project impacts to California condors to a less-than-significant level.

Reference. Final EIR Section 3.4; Table ES-3

Impact B-15: The Project would disturb nesting southwestern willow flycatchers, least Bell's vireos, yellow-billed cuckoos, or their habitat.

Southwestern willow flycatchers have been documented within the Project area in Whittier Narrows, and in Upper Big Tujunga Canyon and Aliso Canyon on the ANF. The least Bell's vireo is known to nest along portions of Segment 8 and directly adjacent to Segment 7. Nesting Least Bell's vireos have been confirmed at the Whittier Narrows, Puente Hills Landfill Native Habitat Preservation Authority lands, and the Santa Fe Flood Control Basin. The yellow-billed cuckoo is not currently known to nest within the Project area; however, one individual yellow-billed cuckoo was observed at the Rio Hondo, just south of Segments 7 and 8, in 2009.

The overhead 66-kV subtransmission line re-route to Segment 8A associated with the Alternative 7 portion of the Project will reduce impacts to least Bell's vireos in the Whittier Narrows area because the re-route will place the line in marginal habitat primarily along an existing paved access road.

Direct impacts to southwestern willow flycatchers, least Bell's vireos, or yellow-billed cuckoos could include disruption of breeding activity due to increased dust, noise, and human presence associated with

construction activities, and the loss of habitat due to improvement of access roads and altered hydrology. Indirect impacts include the loss of habitat due to the establishment of noxious weeds and a disruption of breeding activity or the flushing of adult or fledging birds through the use of the new or improved access and spur roads by the public. Operational impacts include collision with transmission lines, loss of habitat due to vegetation trimming and removal during maintenance activities, and disturbance of birds due to the presence of maintenance personnel.

APMs BIO-1 through BIO-7, which are included as part of the Project, will help to reduce impacts to biological resources. These APMs include conducting clearance surveys for wildlife, minimizing vegetation removal at construction sites, avoiding streambeds to the extent practicable, implementation of best management practices, biological monitoring, personnel training, and coordinating and compensating for impacts to wildlife with the regulatory agencies. However, these APMs will not reduce Project Impact B-15 to a less-than-significant level. Therefore, to reduce impacts to nesting southwestern willow flycatchers, least Bell's vireos, and western yellow-billed cuckoos to a less-than-significant level, the following mitigation measures shall be implemented: Mitigation Measures B-1a, B-1b, B-2, B-3a, B-5, B-15, AQ-1a, and H-1a.

Finding. The CPUC finds that changes or alterations have been incorporated into the Project which avoid or substantially lessen the significant effects on the environment from Impact B-15. Specifically, the following mitigation measures are feasible and are hereby adopted to mitigate significant effects from Impact B-15 to a less-than-significant level.

- **MM B-1a Provide restoration/compensation for impacts to native vegetation communities**. (*See above for full text*)
- **MM B-1b Implement a Worker Environmental Awareness Program.** (*See above for full text*)
- **MM B-2 Implement RCA Treatment Plan.** (*See above for full text*)
- **MM B-3a Prepare and implement a Weed Control Plan.** (*See above for full text*)
- **MM B-5 Conduct pre-construction surveys and monitoring for breeding birds.** (*See above for full text*)
- **MM B-15 Conduct protocol or focused surveys for listed riparian birds and avoid occupied habitat.** If construction activities occur during the breeding season at the Whittier Narrows Recreation Area, Whittier Narrows Nature Center, Puente Hills Landfill Native Habitat Preservation Authority lands, and/or the Rio Hondo, or other areas including the ANF that have the potential to support listed riparian species, a qualified ornithologist shall conduct protocol surveys of the Project and adjacent areas within 500 feet. Fish and Wildlife Service (FWS) protocol surveys will be conducted for southwestern willow flycatcher and least Bell's vireo. In known occupied habitat for listed riparian birds, SCE shall only conduct focused surveys of the Project and adjacent areas within 500 feet. The surveys shall be of adequate duration to verify potential nest sites if work is scheduled to occur during the breeding season.

  Protocol or focused surveys, as appropriate, should be conducted within one year of start of construction and will continue annually until completion of construction activities. However, on NFS lands, annual surveys in suitable habitat may be required during construction. These surveys may be modified through the coordination with the FWS, CDFG, FS, USACE, and the CPUC based on the condition of habitat, the observation of the species, or avoidance of riparian areas during the breeding season.

If a territory or nest is confirmed in a previously unoccupied area, the FWS and CDFG shall be notified immediately. On NFS lands, USACE lands, or State Park (under Alternative 4) lands, these agencies would be notified immediately. In coordination with the FWS and CDFG, a 500-foot disturbance-free buffer shall be established and demarcated by fencing or flagging. This buffer may be adjusted provided noise levels do not exceed 60 dB(A)hourly Leq at the edge of the nest site as determined by a qualified biologist in coordination with a qualified acoustician. If the noise meets or exceeds the 60 dB(A) Leq threshold, or if the biologist determines that the construction activities are disturbing nesting activities, the biologist shall have the authority to halt the construction and shall devise methods to reduce the noise and/or disturbance in the vicinity. This may include methods such as, but not limited to, turning off vehicle engines and other equipment whenever possible to reduce noise, installing a protective noise barrier between the nest site and the construction activities, and working in other areas until the young have fledged. If noise levels still exceed 60 dB(A) Leq hourly at the edge of nesting territories and/or a no-construction buffer cannot be maintained, construction shall be deferred in that area until the nestlings have fledged. All active nests shall be monitored on a weekly basis until the nestlings fledge. No construction or vehicle traffic shall occur within this buffer during the breeding season for these species.

- **MM AQ-1a Implement Construction Fugitive Dust Control Plan.** (*See above for full text*)
- **MM H-1a Implement an Erosion Control Plan and demonstrate compliance with water quality permits.** (*See above for full text*)

Rationale for Finding. The preparation and implementation of a Habitat Restoration and Revegetation Plan will compensate for impacts to habitat by restoring areas temporarily disturbed during construction. Where impacts are permanent, compensation for the loss of habitats will occur through the preservation, enhancement, or restoration of comparable off-site lands, or through funding for land purchase for inclusion into the Angeles National Forest, mitigation banking, removing existing structures, or comparable restoration efforts. The implementation of a Worker Environmental Awareness Program will ensure that all construction personnel are familiar with applicable regulations and laws regarding sensitive species that could be encountered in the Project area, the consequences of non-compliance with these laws and regulations, identification and values of plant and wildlife species and significant natural plant community habitats, fire protection measures, sensitivities of working on NFS lands and identification of USDA Forest Service sensitive species, hazardous substance spill prevention and containment measures, a contact person in the event of the discovery of dead or injured wildlife, and review of mitigation requirements. The implementation of an RCA Treatment Plan will ensure that activities conducted within RCAs are approved by the USDA Forest Service prior to implementation and are conducted in such a way as to minimize disturbance to sensitive resources. The implementation of a Weed Control Plan will ensure that the spread and establishment of weeds due to Project activities is minimized. Pre-construction surveys and monitoring for breeding birds by a qualified biologist, and protective buffers established around active nests, will ensure that impacts to breeding birds are minimized. Protocol and focused surveys conducted for listed riparian birds and the implementation of avoidance measures such as a disturbance-free buffer around active nests or territories will minimize impacts to southwestern willow flycatchers, least Bell's vireos, and western yellow-billed cuckoos. Implementation of a Construction Fugitive Dust Control Plan will minimize impacts to breeding birds associated with fugitive dust generated during construction. Implementation of an Erosion Control Plan and compliance with water quality permits will minimize impacts associated with erosion and water quality. Together these measures will reduce Project impacts to southwestern willow flycatchers, least Bell's vireos, and western yellow-billed cuckoos to a less-than-significant level.

Reference. Final EIR Section 3.4; Table ES-3

Impact B-16: The Project would result in the loss of coastal California gnatcatchers.

The coastal California gnatcatcher is known to nest within the Southern Region along Segments 7 and 8 in the Montebello Hills, Santa Fe Dam Recreation Area east of Interstate 605, and the Puente-Chino Hills. Direct impacts to coastal California gnatcatcher could include disruption of breeding activity due to increased dust, noise, and human presence associated with construction activities, and the loss of habitat due to improvement of access roads. Additional loss of habitat could occur through the construction of towers, crane pads, staging areas, pulling/splicing locations, and concrete batch plants. Indirect impacts include the loss of habitat due to the establishment of noxious weeds and a disruption of breeding activity or the flushing of adult or fledging birds through the use of the new or improved access and spur roads by the public. Operational impacts include collision with transmission lines, loss of habitat due to vegetation trimming and removal during maintenance activities, and disturbance of birds due to the presence of maintenance personnel.

APMs BIO-1, BIO-2, and BIO-4 through BIO-7, which are included as part of the Project, will help to reduce impacts to biological resources. These APMs include conducting clearance surveys for wildlife, minimizing vegetation removal at construction sites, implementation of best management practices, biological monitoring, personnel training, and coordinating and compensating for impacts to wildlife with the regulatory agencies. However, these APMs will not reduce Project Impact B-16 to a less-than-significant level. Therefore, to reduce impacts to coastal California gnatcatchers to a less-than-significant level, the following mitigation measures shall be implemented: Mitigation Measures B-1b, B-16, and AQ-1a.

Finding. The CPUC finds that changes or alterations have been incorporated into the Project which avoid or substantially lessen the significant effects on the environment from Impact B-16. Specifically, the following mitigation measures are feasible and are hereby adopted to mitigate significant effects from Impact B-16 to a less-than-significant level.

- **MM B-1b Implement a Worker Environmental Awareness Program.** (*See above for full text*)
- **MM B-16 Conduct protocol or focused surveys for coastal California gnatcatcher and implement avoidance measures.** SCE shall conduct protocol surveys for coastal California gnatcatchers in areas supporting coastal sage scrub habitat that may be affected by the Project. In known occupied habitat for the California gnatcatcher, SCE shall only conduct focused surveys for coastal California gnatcatchers to determine the locations of nests and territories. Survey areas shall include a 500-foot buffer around Project disturbance areas.

  If a territory or nest is confirmed, the FWS shall be notified immediately. In coordination with the FWS a 300-foot disturbance-free buffer shall be established and demarcated by fencing or flagging. This buffer may be adjusted provided noise levels do not exceed 60 dB(A)hourly Leq at the edge of the nest site as determined by a qualified biologist in coordination with a qualified acoustician. If the noise meets or exceeds the 60 dB(A) Leq threshold, or if the biologist determines that the construction activities are disturbing nesting activities, the biologist shall have the authority to halt the construction and shall devise methods to reduce the noise and/or disturbance in the vicinity. This may include methods such as, but not limited to, turning off vehicle engines and other equipment whenever possible to reduce noise, installing a protective noise barrier between the nest site and the construction activities, and working in other areas until the young have fledged. If noise levels still exceed 60 dB(A) Leq hourly at the edge of nesting territories and/or a no-construction buffer cannot be maintained, construction shall be deferred in that area until the nestlings have fledged. All active nests shall be monitored on a weekly basis until the nestlings fledge. No Project activities may occur in these areas unless otherwise authorized by FWS. SCE shall obtain incidental take authorization from the FWS prior to further activities.

Protocol or focused surveys, as appropriate, shall be conducted, at a minimum, within one year of start of construction and can stop at commencement of construction activities. These surveys may be modified through the coordination with the FS on NFS lands, USACE on USACE lands, and the CPUC based on the condition of habitat, the observation of the species, or avoidance of nesting areas during the breeding season. Non-protocol nesting bird surveys for California gnatcatcher shall also occur in the Aliso Canyon in chaparral communities. This area shall also require a qualified gnatcatcher biologist to be present during any construction activities conducted during the breeding season.

Construction activities in occupied gnatcatcher habitat will be monitored by a full-time qualified biologist. The monitoring shall be of a sufficient intensity to ensure that the biologist could detect the presence of a bird in the construction area. At a minimum one full-time monitor shall be present for every two miles of active construction within occupied habitat.

SCE shall retain a FWS-permitted biologist to monitor construction activities within 100 feet of an active California gnatcatcher nests in the Montebello Hills area only and assist SCE in the implementation of the monitoring program. In the Montebello Hills, grading and vegetation management, including activities conducted during Project operations and maintenance, shall be conducted outside of the breeding season (March – August) unless otherwise authorized by the FWS. A 300-foot buffer is required for all other areas. A biologist with applicable avian experience with the California gnatcatcher will monitor all construction activities within 300 feet of occupied California gnatcatcher habitat. The resumes of the permitted biologists will be provided to the CPUC for concurrence. This biologist will be referred to as the authorized biologist hereafter. The authorized biologist will have the authority to stop all activities until appropriate corrective measures have been completed.

- **MM AQ-1a Implement Construction Fugitive Dust Control Plan.** (*See above for full text*)

Rationale for Finding. The implementation of a Worker Environmental Awareness Program will ensure that all construction personnel are familiar with applicable regulations and laws regarding sensitive species that could be encountered in the Project area (including coastal California gnatcatcher), the consequences of non-compliance with these laws and regulations, identification and values of plant and wildlife species and significant natural plant community habitats, fire protection measures, sensitivities of working on NFS lands and identification of USDA Forest Service sensitive species, hazardous substance spill prevention and containment measures, a contact person in the event of the discovery of dead or injured wildlife, and review of mitigation requirements. Surveys for coastal California gnatcatchers and avoidance measures such as disturbance-free buffers around active nests or territories, full-time monitoring by a qualified biologist, and conducting vegetation removal and management activities outside of the breeding season in the Montebello Hills will minimize impacts to this species. Implementation of a Construction Fugitive Dust Control Plan will minimize impacts to coastal California gnatcatchers associated with fugitive dust generated during construction. Together these measures will reduce Project impacts to coastal California gnatcatchers to a less-than-significant level.

Reference. Final EIR Section 3.4; Table ES-3

Impact B-17: The Project would result in the loss of critical and/or occupied habitat of the coastal California gnatcatcher.

The Project area contains designated critical habitat for the coastal California gnatcatcher, including two areas along Segment 7 (Montebello Hills and Whittier Narrows Recreation Area) and several portions along Segment 8A in the Montebello, Puente, and Chino Hills including the Puente Hills Native Habitat

Preservation Authority lands. The proposed transmission line traverses 0.5 mile of designated critical habitat in Segment 7 and 8 miles of critical habitat in Segment 8.

Direct impacts to occupied and/or critical habitat of the coastal California gnatcatcher include loss of habitat due to grading and clearing for road improvements, staging areas, helicopter landing sites, pulling/splicing locations, etc. Indirect impacts to habitat include the accumulation of dust and the spread of noxious weeds. Operational impacts include the degradation of habitat due to increased human presence associated with use of new or improved access and spur roads by the public, and loss of habitat due to vegetation trimming and removal during maintenance activities. Construction activities, including the installation of permanent structures and/or roads, will result in the loss of an estimated 2.4 acres (<0.001 acre permanent and 2.4 acres temporary) of gnatcatcher critical habitat on Segment 7 and 44.8 acres (4.4 acres permanent and 40.5 acres temporary) on Segment 8. The overall loss of critical habitat will be small and is not expected to diminish the value or remove essential constituent elements of occupied critical habitat for this species.

APMs BIO-2 and BIO-4 through BIO-7, which are included as part of the Project, will help to reduce impacts to biological resources. These APMs include minimizing vegetation removal at construction sites, implementation of best management practices, biological monitoring, personnel training, and coordinating and compensating for impacts to wildlife with the regulatory agencies. However, these APMs will not reduce Project Impact B-17 to a less-than-significant level. Therefore, to reduce impacts to coastal California gnatcatcher critical and/or occupied habitat to a less-than-significant level, the following mitigation measures shall be implemented: Mitigation Measures B-1a, B-3a, B-16, B-17, and AQ-1a.

Finding. The CPUC finds that changes or alterations have been incorporated into the Project which avoid or substantially lessen the significant effects on the environment from Impact B-17. Specifically, the following mitigation measures are feasible and are hereby adopted to mitigate significant effects from Impact B-17 to a less-than-significant level.

- **MM B-1a Provide restoration/compensation for impacts to native vegetation communities.** (*See above for full text*)
- **MM B-3a Prepare and implement a Weed Control Plan.** (*See above for full text*)
- **MM B-16 Conduct protocol or focused surveys for coastal California gnatcatcher and implement avoidance measures.** (*See above for full text*)
- **MM B-17 Preserve off-site habitat and/or habitat restoration for the coastal California gnatcatcher.** To mitigate effects from Project construction, SCE shall acquire habitat occupied by the coastal California gnatcatcher and/or restore unoccupied coastal sage scrub. Mitigation acquisition shall occur at a 3:1 ratio for permanent effects unless otherwise approved by the FWS upon consultation. Temporary impacts will be mitigated at a 1:1 ratio on site. For lands located within the Montebello Hills HCP a 1:1 ratio for permanent effects will be implemented unless otherwise approved by the FWS. SCE shall enter into a binding legal agreement regarding the preservation of off-site lands describing the terms of the acquisition, enhancement, and management of those lands. Management of coastal California gnatcatcher mitigation areas will be necessary to maintain habitat suitability over time. Activities that need to be addressed in the management plan include disturbances that reduce shrub cover, such as frequent fire, mechanical disruption, livestock grazing, off-highway vehicle use, and military training activities. Fee title acquisition of these habitat lands or a conservation easement shall be transferred to an entity approved by the FWS and the CPUC, along with funding for enhancement of the land and an endowment for management of the land in perpetuity.
- **MM AQ-1a Implement Construction Fugitive Dust Control Plan.** (*See above for full text*)

Rationale for Finding. The preparation and implementation of a Habitat Restoration and Revegetation Plan will compensate for impacts to habitat by restoring areas temporarily disturbed during construction. Where impacts are permanent, compensation for the loss of habitats will occur through the preservation, enhancement, or restoration of comparable off-site lands, or through funding for land purchase for inclusion into the Angeles National Forest, mitigation banking, removing existing structures, or comparable restoration efforts. The implementation of a Weed Control Plan will ensure that the spread and establishment of weeds due to Project activities is minimized. Surveys for coastal California gnatcatchers and avoidance measures such as disturbance-free buffers around active nests or territories, full-time monitoring by a qualified biologist, and conducting vegetation removal and management activities outside of the breeding season in the Montebello Hills will minimize impacts to this species. Permanent impacts to occupied gnatcatcher habitat will be mitigated through the acquisition of occupied habitat and/or the restoration of unoccupied coastal sage scrub at a 3:1 ratio (1:1 for impacts in the Montebello Hills), and the ongoing management of those lands to ensure suitability for the species. Implementation of a Construction Fugitive Dust Control Plan will minimize impacts to coastal California gnatcatcher habitat associated with fugitive dust generated during construction. Together these measures will reduce Project impacts to coastal California gnatcatcher critical and/or occupied habitat to a less-than-significant level.

Reference. Final EIR Section 3.4; Table ES-3

Impact B-18: The Project could disturb nesting Swainson's hawks.

There are five CNDDB records of Swainson's hawk in the vicinity of the Project in the Northern Region, including two recent nest records within 10 miles. In addition, five active nests were observed during construction of the Antelope Transmission Project within four miles of the Project in spring of 2009. Direct impacts to Swainson's hawks could include disruption of breeding activity due to increased dust, noise, and human presence associated with construction activities, and the loss of habitat due to improvement of access roads. Additional loss of habitat could occur through the construction of towers, crane pads, staging areas, and pulling/splicing locations. Indirect impacts include the loss of habitat due to the establishment of noxious weeds and a disruption of breeding activity or the flushing of adult or fledging birds through the use of the new or improved access and spur roads by the public. Operational impacts include collision with transmission lines and disturbance of birds due to the presence of maintenance personnel.

APMs BIO-1, BIO-2, and BIO-4 through BIO-9, which are included as part of the Project, will help to reduce impacts to biological resources. These APMs include conducting clearance surveys for wildlife, minimizing vegetation removal at construction sites, implementation of best management practices, biological monitoring, personnel training, coordinating and compensating for impacts to wildlife with the regulatory agencies, raptor surveys and coordination with the Regulatory Agencies before moving nests, and design of the transmission and sub-transmission structures to be raptor-safe. However, these APMs alone will not reduce Project Impact B-18 to a less-than-significant level. Therefore, to reduce impacts to nesting Swainson's hawks to a less-than-significant level, the following mitigation measures shall be implemented: Mitigation Measures B-1b, B-18a, B-18b, and AQ-1a.

Finding. The CPUC finds that changes or alterations have been incorporated into the Project which avoid or substantially lessen the significant effects on the environment from Impact B-18. Specifically, the following mitigation measures are feasible and are hereby adopted to mitigate significant effects from Impact B-18 to a less-than-significant level.

- **MM B-1b Implement a Worker Environmental Awareness Program.** (*See above for full text*)

- **MM B-18a Conduct pre-construction surveys for Swainson's hawks.** To assure that nesting Swainson's hawks are not disturbed by construction activities, a qualified ornithologist shall conduct pre-construction surveys within one mile of the Project in regions with suitable nesting habitat for Swainson's hawks. The survey periods follow a specified schedule: Period I occurs from 1 January to 20 March, Period II occurs from 20 March to 5 April, Period III occurs from 5 April to 20 April, Period IV occurs from 21 April to 10 June, and Period V occurs from June 10 to July 30. Surveys are not recommended during Period IV because identification is difficult, as the adults tend to remain within the nest for longer periods of time. No fewer than three surveys per period in at least two survey periods shall be completed immediately prior to the start of Project construction. If a nest site is found, consultation with CDFG shall be required to ensure Project construction will not result in nest disturbance. CDFG recommends that no new disturbances or other Project-related activities that may cause nest abandonment or forced fledging be initiated within 0.25 mile of an active nest between 1 March and 15 September, or until 15 August if a Management Authorization is obtained for the Project from the CDFG (CDFG, 1994). These buffer zones may be adjusted as appropriate in consultation with a qualified ornithologist and CDFG.
- **MM B-18b Removal of nest trees for Swainson's hawks.** Nest trees for Swainson's hawks along the Project shall not be removed unless avoidance measures are determined to be infeasible. If a nest tree for a Swainson's hawk must be removed, a Management Authorization (including conditions to offset the loss of the nest tree) must be obtained from the CDFG. The Management Authorization will specify the tree removal period, generally between 1 October and 1 February. If construction or other Project-related activities that may cause nest abandonment by a Swainson's hawk or forced fledging are necessary within the specified buffer zone, monitoring of the nest site (funded by SCE) by a qualified biologist shall be required to determine if the nest is abandoned. If the nest is abandoned and if the nestlings are still alive, SCE shall fund the recovery and hacking (controlled release of captive reared young) of the nestling(s).
- **MM AQ-1a Implement Construction Fugitive Dust Control Plan.** (*See above for full text*)

Rationale for Finding. The implementation of a Worker Environmental Awareness Program will ensure that all construction personnel are familiar with applicable regulations and laws regarding sensitive species that could be encountered in the Project area (including Swainson's hawks), the consequences of non-compliance with these laws and regulations, identification and values of plant and wildlife species and significant natural plant community habitats, fire protection measures, sensitivities of working on NFS lands and identification of USDA Forest Service sensitive species, hazardous substance spill prevention and containment measures, a contact person in the event of the discovery of dead or injured wildlife, and review of mitigation requirements. Pre-construction nest surveys and a 0.25-mile disturbance-free buffer around active nests will minimize impacts to nesting Swainson's hawks. If nest trees for Swainson's hawks must be removed, a Management Authorization must be obtained from CDFG. Implementation of a Construction Fugitive Dust Control Plan will minimize impacts to nesting Swainson's hawks associated with fugitive dust generated during construction. Together these measures will reduce Project impacts to Swainson's hawks to a less-than-significant level.

Reference. Final EIR Section 3.4; Table ES-3

Impact B-19: The Project would result in the loss of foraging habitat for Swainson's hawks.

Direct impacts to potential Swainson's hawk foraging habitat include the temporary and permanent loss of habitat due to grading and clearing for road improvements, staging areas, helicopter landing sites, pulling/splicing locations, tower locations, etc. Indirect impacts to habitat include the accumulation of dust and the spread of noxious weeds. Operational impacts include the potential loss of habitat due to vegetation trimming and removal during maintenance activities.

APMs BIO-2 and BIO-4 through BIO-7, which are included as part of the Project, will help to reduce impacts to biological resources. These APMs include minimizing vegetation removal at construction sites, implementation of best management practices, biological monitoring, personnel training, and coordinating and compensating for impacts to wildlife with the regulatory agencies. However, these APMs will not reduce Project Impact B-19 to less than significant. To reduce impacts to Swainson's hawk habitat to a less-than-significant level, the following mitigation measures shall be implemented: Mitigation Measures B-1a, B-3a, B-18a, B-19, and AQ-1a.

Finding. The CPUC finds that changes or alterations have been incorporated into the Project which avoid or substantially lessen the significant effects on the environment from Impact B-19. Specifically, the following mitigation measures are feasible and are hereby adopted to mitigate significant effects from Impact B-19 to a less-than-significant level.

- **MM B-1a Provide restoration/compensation for impacts to native vegetation communities.** (*See above for full text*)
- **MM B-3a Prepare and implement a Weed Control Plan.** (*See above for full text*)
- **MM B-18a Conduct pre-construction surveys for Swainson's hawks.** (*See above for full text*)
- **MM B-19 Compensate for loss of foraging habitat for Swainson's hawks.** Loss of foraging habitat for Swainson's hawks shall be mitigated by providing Habitat Management (HM) lands as described in the CDFG's *Staff Report Regarding Mitigation for Impacts to Swainson's Hawks (*Buteo swainsoni*) in the Central Valley of California* (CDFG, 1994) because the site is known foraging habitat for Swainson's hawks. The final acreage of HM lands to be provided on site shall depend on the distance between the Project area and the nearest active nest site (CDFG, 1994), as determined by nest surveys conducted in the spring prior to Project construction. Guidance on the acreage of HM lands to be acquired by SCE can be found in the 1994 CDFG staff report.

  Management Authorization holders/Project sponsors shall provide for the long-term management of the HM lands by funding a management endowment (the interest on which shall be used for managing the HM lands).
- **MM AQ-1a Implement Construction Fugitive Dust Control Plan.** (*See above for full text*)

Rationale for Finding. The preparation and implementation of a Habitat Restoration and Revegetation Plan will compensate for impacts to habitat by restoring areas temporarily disturbed during construction. Where impacts are permanent, compensation for the loss of habitats will occur through the preservation, enhancement, or restoration of comparable off-site lands, or through funding for land purchase for inclusion into the Angeles National Forest, mitigation banking, removing existing structures, or comparable restoration efforts. The implementation of a Weed Control Plan will ensure that the spread and establishment of weeds due to Project activities is minimized. Pre-construction nest surveys and a 0.25-mile disturbance-free buffer around active nests will minimize impacts to nesting Swainson's hawks. Loss of foraging habitat for Swainson's hawks shall be mitigated through the acquisition of Habitat Management lands. Implementation of a Construction Fugitive Dust Control Plan will minimize impacts to Swainson's hawk foraging habitat associated with fugitive dust generated during construction. Together these measures will reduce Project impacts to Swainson's hawk foraging habitat to a less-than-significant level.

Reference. Final EIR Section 3.4; Table ES-3

Impact B-22: The Project could result in disturbance to Mohave ground squirrels.

In 2006, two potential observations of the Mohave ground squirrel were recorded near Oak Creek Road close to the proposed Windhub site at the northern terminus of Segment 10. In 2008 SCE conducted protocol surveys for this species near Oak Creek Road. Mohave ground squirrels were not observed or trapped during this event. While this area is generally outside the known range of the Mohave ground squirrel and habitat conditions do not meet the accepted criteria for this species, there remains a potential for this species to be present based on the observations and known presence of this species in the region. Direct impacts to Mohave ground squirrels, if present, include crushing of burrows, mortality due to road kill, and loss of habitat. Indirect impacts include degradation of habitat due to the spread of noxious weeds and dust. Operational impacts include increased risk of road kill and disturbance due to increased use of access roads by the public and maintenance personnel.

APMs BIO-1, BIO-2, and BIO-4 through BIO-7, which are included as part of the Project, will help to reduce impacts to biological resources. These APMs include conducting clearance surveys for wildlife, minimizing vegetation removal at construction sites, implementation of best management practices, biological monitoring, personnel training, and coordinating and compensating for impacts to wildlife with the regulatory agencies. However, these APMs will not reduce Project Impact B-22 to a less-than-significant level. Therefore, to reduce impacts to Mohave ground squirrels to a less-than-significant level, the following mitigation measures shall be implemented: Mitigation Measures B-1a, B-1b, B-3a, B-22a through B-22c, and AQ-1a.

Finding. The CPUC finds that changes or alterations have been incorporated into the Project which avoid or substantially lessen the significant effects on the environment from Impact B-22. Specifically, the following mitigation measures are feasible and are hereby adopted to mitigate significant effects from Impact B-22 to a less-than-significant level.

- **MM B-1a Provide restoration/compensation for impacts to native vegetation communities.** (*See above for full text*)
- **MM B-1b Implement a Worker Environmental Awareness Program.** (*See above for full text*)
- **MM B-3a Prepare and implement a Weed Control Plan.** (*See above for full text*)
- **MM B-22a Conduct protocol surveys for Mohave ground squirrels.** Protocol-level surveys for Mohave ground squirrels shall be performed in the portion of the Project containing suitable habitat for Mohave ground squirrel unless further consultation with the CDFG determines the surveys are not required. A qualified biologist will perform these surveys according to CDFG's (2003b) *Mohave Ground Squirrel Survey Guidelines*. The resumes of the proposed biologists will be provided to the CDFG and CPUC for concurrence prior to conducting the surveys.

  If at any time a Mohave ground squirrel is detected, trapping will cease. If these surveys obtain positive results for Mohave ground squirrel, or if Mohave ground squirrel presence is assumed within potential habitat, SCE shall obtain incidental take authorization from CDFG. If these surveys determine that the Mohave ground squirrel is absent, then no further action is necessary.
- **MM B-22b Implement construction monitoring for Mohave ground squirrels.** A qualified biological monitor shall be on the site to survey for Mohave ground squirrel during initial ground-disturbing activities. The resumes of the proposed biologists will be provided to the CDFG and CPUC for concurrence prior to conducting the surveys. The name and phone number of the biological monitor shall be provided to a CDFG regional representative at least 14 days before the

initiation of ground-disturbing activities. If the biological monitor observes a Mohave ground squirrel on the construction site, determines that a Mohave ground squirrel was killed by Project-related activities during construction, or observes a dead Mohave ground squirrel, a written report shall be sent to CDFG within five calendar days. The report will include the date, time of the finding or incident (if known), and location of the carcass and circumstances of its death (if known). Mohave ground squirrel remains shall be collected and frozen as soon as possible, and CDFG shall be contacted regarding ultimate disposal of the remains.

- **MM B-22c Preserve off-site habitat for the Mohave ground squirrel.** To mitigate potential permanent impacts to occupied Mohave ground squirrel habitat from Project construction, SCE will acquire habitat occupied by Mohave ground squirrels. Guidance on Habitat Management (HM) lands to be acquired by SCE can be found in CDFG's (2003b) *Mohave Ground Squirrel Survey Guidelines.*
    - Three acres of off-site habitat supporting Mohave ground squirrels will be preserved for each acre of Mojave creosote bush scrub and Joshua tree woodland outside of the Habitat Conservation Area (HCA) delineated in the WMP.
    - One acre of off-site habitat supporting Mohave ground squirrels will be preserved for each acre of desert saltbush scrub that includes desert wash impacted by the Project outside of the HCA delineated in the WMP.
    - One-half acre of off-site habitat supporting Mohave ground squirrels will be preserved for each acre of desert saltbush scrub impacted by the Project outside of the HCA delineated in the WMP.
    - No mitigation will occur for agricultural, California annual grassland, or barren/developed ground within the Project area north of Vincent Substation.

  Mitigation acquisition shall occur at a CDFG-approved location and shall be coordinated through a CDFG-approved entity. SCE shall enter into a binding legal agreement regarding the preservation of off-site lands describing the terms of the acquisition, enhancement, and management of those lands. Fee title acquisition of habitat lands or a conservation easement over these lands will be transferred to an entity approved by CDFG and CPUC, along with funding for enhancement of the land and an endowment for permanent management of the lands. Management of off-highway vehicles is necessary on Mohave ground squirrel mitigation areas to prevent burrow collapse, especially during the aestivation season. Mitigation areas should be relatively flat with a perennial plant cover ranging from 10 to 20 percent (Zembal and Gall, 1980) and should support several plant species necessary for Mohave ground squirrel survival, including herbaceous annuals, winterfat (*Krascheninnikovia lanata*), spiny hopsage (*Grayia spinosa*), creosote bush (*Larrea tridentata*), and burrobush (*Ambrosia dumosa*) (Best, 1995).

- **MM AQ-1a Implement Construction Fugitive Dust Control Plan.** (*See above for full text*)

Rationale for Finding. The preparation and implementation of a Habitat Restoration and Revegetation Plan will compensate for impacts to habitat by restoring areas temporarily disturbed during construction. Where impacts are permanent, compensation for the loss of habitats will occur through the preservation, enhancement, or restoration of comparable off-site lands, or through funding for land purchase for inclusion into the Angeles National Forest, mitigation banking, removing existing structures, or comparable restoration efforts. The implementation of a Worker Environmental Awareness Program will ensure that all construction personnel are familiar with applicable regulations and laws regarding sensitive species that could be encountered in the Project area (including Mohave ground squirrels), the consequences of non-compliance with these laws and regulations, identification and values of plant and wildlife species and significant natural plant community habitats, fire protection measures, sensitivities of working on NFS lands

and identification of USDA Forest Service sensitive species, hazardous substance spill prevention and containment measures, a contact person in the event of the discovery of dead or injured wildlife, and review of mitigation requirements. The implementation of a Weed Control Plan will ensure that the spread and establishment of weeds due to Project activities is minimized. Protocol surveys for Mohave ground squirrels in the Project area and construction monitoring for Mohave ground squirrels will minimize impacts to the species. In addition, permanent impacts to occupied Mohave ground squirrels habitat will be mitigated through the acquisition and management of occupied lands. Implementation of a Construction Fugitive Dust Control Plan will minimize impacts to Mohave ground squirrels associated with fugitive dust generated during construction. Together these measures will reduce Project impacts to Mohave ground squirrels to a less-than-significant level.

Reference. Final EIR Section 3.4; Table ES-3

Impact B-23: The Project would result in the loss of candidate, Forest Service Sensitive, or special-status plant species.

During the 2007, 2008, and 2009 botanical surveys, several rare plants were identified in the Project alignment and associated staging areas and access and spur roads. Direct impacts to the rare plant species identified in the Project area may occur in a variety of ways, including the direct removal of plants during the course of construction. Clearing and grading associated with the placement of towers or the grading of access or spur roads may also result in the alteration of soil conditions, including the loss of native seed banks and changes to the topography and drainage of a site such that the capability of the habitat to support special-status species is impaired. Indirect impacts include the creation of conditions that are favorable for the invasion of weedy exotic species that prevent the establishment of desirable vegetation and may adversely affect wildlife. Construction on steep hillsides may also result in off-site sediment transport that may bury rare plants in adjacent habitat or alter soil conditions. Dust from road travel, grading, or other construction activities may also reduce photosynthetic capacity in plants over time or inhibit reproduction by physically coating reproductive structures or excluding insect pollinators. Soil disturbance may also result in the spread of invasive plant species. Operational impacts include trampling or crushing due to public use of new or improved spur roads and access roads, increased erosion, and the spread and colonization of noxious weeds. Other operational impacts include removal and trimming of vegetation during maintenance activities.

APMs BIO-1 through BIO-7, which are included as part of the Project, will help to reduce impacts to biological resources. These APMs include minimizing vegetation removal at construction sites, avoiding streambeds to the extent practicable, implementation of best management practices, biological monitoring, personnel training, and coordinating and compensating for impacts to special-status resources with the regulatory agencies. However, these APMs will not reduce Project Impact B-23 to a less-than-significant level. Therefore, to reduce impacts to candidate, Forest Service Sensitive, and special-status plant species to a less-than-significant level, the following mitigation measures shall be implemented: Mitigation Measures B-1a, B-1b, B-3a, B-7, B-23, AQ-1a, and H-1a.

Finding. The CPUC finds that changes or alterations have been incorporated into the Project which avoid or substantially lessen the significant effects on the environment from Impact B-23. Specifically, the following mitigation measures are feasible and are hereby adopted to mitigate significant effects from Impact B-23 to a less-than-significant level.

- **MM B-1a Provide restoration/compensation for impacts to native vegetation communities.** (*See above for full text*)

- **MM B-1b Implement a Worker Environmental Awareness Program.** (*See above for full text*)
- **MM B-3a Prepare and implement a Weed Control Plan.** (*See above for full text*)
- **MM B-7 Conduct preconstruction surveys for State and federally Threatened, Endangered, Proposed, Petitioned, and Candidate plants and avoid any located occurrences of listed plants.** (*See above for full text*)
- **MM B-23 Preserve off-site habitat/management of existing populations of special-status plants.** SCE shall conduct rare plant surveys, and implement avoidance/ minimization/compensation strategies. SCE shall conduct surveys according to established and accepted protocol during the floristic period appropriate for each of the rare plant species identified with the potential to occur within the Project ROW and within 100 feet of all surface-disturbing activities. The completion of these surveys shall be coordinated with the CPUC and federal land manager. Populations of rare plants shall be flagged and mapped prior to construction. If rare plants are located during the focused surveys, then modification of the placement of structures, access roads, laydown areas, and other ground-disturbing activities would be implemented in order to avoid the plants, if feasible. A report of special-status plants observed shall be prepared and submitted to the CPUC and the federal land manager (FS and USACE). Impacts to non-listed plant species (i.e., FS Sensitive, CNPS List 1,2 and 4 species) shall first be avoided where feasible, and, where not feasible, impacts shall be compensated through reseeding (with locally collected seed stock), or other FS, USACE, and CPUC approved methods. If Project activities will result in loss of more than 10 percent of the known individuals within an existing population of FS Sensitive, and/or special-status plant species SCE shall preserve existing off-site occupied habitat that is not already part of the public lands in perpetuity at a 2:1 mitigation ratio (habitat preserved: habitat impacted). On federal lands, this ratio may be reduced at the discretion of the federal land manager. The CPUC may reduce this ratio depending on the sensitivity of the plant on non-federal lands. The preserved habitat shall be occupied by the plant species impacted, and be of superior or similar habitat quality to the impacted areas in terms of soil features, extent of disturbance, habitat structure, and dominant species composition, as determined by a qualified plant ecologist.

  All special-status plant species impacted by Project activities shall be documented in an annual report and submitted to the CPUC and federal land manager (FS and USACE). Where reseeding has occurred, SCE shall track the success of the plants during the course of the annual restoration monitoring. This information shall be submitted as part of the annual report to the CPUC and federal land manager (FS and USACE).
- **MM AQ-1a Implement Construction Fugitive Dust Control Plan.** (*See above for full text*)
- **MM H-1a Implement an Erosion Control Plan and demonstrate compliance with water quality permits.** (*See above for full text*)

Rationale for Finding. The preparation and implementation of a Habitat Restoration and Revegetation Plan will compensate for impacts to habitat by restoring areas temporarily disturbed during construction. Where impacts are permanent, compensation for the loss of habitats will occur through the preservation, enhancement, or restoration of comparable off-site lands, or through funding for land purchase for inclusion into the Angeles National Forest, mitigation banking, removing existing structures, or comparable restoration efforts. The implementation of a Worker Environmental Awareness Program will ensure that all construction personnel are familiar with applicable regulations and laws regarding sensitive species that could be encountered in the Project area, the consequences of non-compliance with these laws and regulations, identification and values of plant and wildlife species and significant natural plant community habitats, fire protection measures, sensitivities of working on NFS lands and identification of USDA Forest

Service sensitive species, hazardous substance spill prevention and containment measures, a contact person in the event of the discovery of dead or injured wildlife, and review of mitigation requirements. The implementation of a Weed Control Plan will ensure that the spread and establishment of weeds due to Project activities is minimized. Preconstruction surveys and avoidance of any listed plant species will ensure that effects to these species will be minimized. Protocol surveys will be conducted to determine the location of all rare plants that could be impacted by construction of the Project. Rare plants will be avoided, or if avoidance is not feasible, will be compensated through reseeding or other approved methods. If Project activities will result in loss of more than 10 percent of the known individuals within an existing population of a rare plant species, SCE shall preserve existing off-site occupied habitat that is not already part of the public lands in perpetuity at a 2:1 mitigation ratio (habitat preserved: habitat impacted). Implementation of a Construction Fugitive Dust Control Plan will minimize impacts to rare plant species associated with fugitive dust generated during construction. Implementation of an Erosion Control Plan and compliance with water quality permits will minimize impacts associated with erosion and water quality. Together these measures will reduce Project impacts to candidate, Forest Service Sensitive, or special-status plant species to a less-than-significant level.

Reference. Final EIR Section 3.4; Table ES-3

Impact B-24: The Project could result in mortality or injury of, and loss of nesting habitat for, southwestern pond turtles.

Construction activities will potentially impact a number of small creeks and drainages, large reservoirs, and other suitable habitat for this species. Direct effects to southwestern pond turtle may occur from construction activity as a result of mechanical crushing; loss of nesting, breeding or basking sites; disruption of basking activity; impacts to water quality; fugitive dust; and human trampling. Indirect impacts to southwestern pond turtle could include alteration of habitat that precludes pond turtle use, degradation of water quality over time due to siltation and sedimentation, and the spread of noxious weeds. Operational impacts include risk of mortality by vehicles and disturbance on access roads due to increased use by the public and maintenance personnel. Other operational impacts include removal and trimming of vegetation during maintenance activities.

APMs BIO-1 through BIO-7, which are included as part of the Project, will help to reduce impacts to biological resources. These APMs include conducting clearance surveys for wildlife, minimizing vegetation removal at construction sites, avoiding streambeds to the extent practicable, implementation of best management practices, biological monitoring, personnel training, and coordinating and compensating for impacts to wildlife with the regulatory agencies. However, these APMs will not reduce Project Impact B-24 to a less-than-significant level. Therefore, to reduce impacts to southwestern pond turtles to a less-than-significant level, the following mitigation measures shall be implemented: Mitigation Measures B-1a, B-1b, B-3a, B-12, B-24, AQ-1a, H-1a, and H-1b.

Finding. The CPUC finds that changes or alterations have been incorporated into the Project which avoid or substantially lessen the significant effects on the environment from Impact B-24. Specifically, the following mitigation measures are feasible and are hereby adopted to mitigate significant effects from Impact B-24 to a less-than-significant level.

- **MM B-1a Provide restoration/compensation for impacts to native vegetation communities.** (*See above for full text*)
- **MM B-1b Implement a Worker Environmental Awareness Program.** (*See above for full text*)
- **MM B-3a Prepare and implement a Weed Control Plan.** (*See above for full text*)

- **MM B-12 Implement avoidance and minimization measures for fish and aquatic organisms.** (*See above for full text*)

- **MM B-24 Conduct focused presence/absence surveys for southwestern pond turtle and implement monitoring, avoidance, and minimization measures.** A qualified biologist shall conduct focused surveys for southwestern pond turtle in the area of Project crossings, including access and spur roads, at Amargosa Creek, Big Tujunga Creek (Segment 6), Alder Creek, Rio Hondo Substation, Whittier Narrows Recreation Area, Aliso Creek, and Tonner Creek. Since Southwestern pond turtles were observed at the San Gabriel River (Segments 6 and 7 and West Fork/Cogswell Road) and Brea Canyon during reconnaissance surveys conducted in September 2007, the species shall be assumed present at these locations. The resume of the proposed biologists will be provided to the CPUC, FS, and USACE (as appropriate) for concurrence prior to conducting the surveys. This biologist will be referred to as the authorized biologist hereafter. Focused surveys shall also occur on access and spur roads where road crossings could affect suitable habitat for this species. Focused surveys shall consist of a minimum of four daytime surveys, to be completed between 1 April and 1 June. The survey schedule may be adjusted in consultation with the CPUC, FS, and/or USACE, as appropriate, to reflect the existing weather or stream conditions. If southwestern pond turtles are detected in or adjacent to the Project, nesting surveys shall be conducted.

  Focused surveys for evidence of southwestern pond turtle nesting shall be conducted in, or adjacent to, the Project when suitable nesting habitat exists within 1,300 feet of occupied habitat in an area where Project-related ground disturbance will occur (i.e., tower sites, access/spur roads, wire setup sites, marshalling yards). If both of those conditions are met, a qualified biologist shall conduct focused, systematic surveys for southwestern pond turtle nesting sites. The survey area shall include all suitable nesting habitat located within 1,300 feet of occupied habitat in which Project-related ground disturbance will occur. This area may be adjusted based on the existing topographical features on a case-by-case basis with the approval of the CPUC, FS, and/or USACE, as appropriate. Surveys will entail searching for evidence of pond turtle nesting, including remnant eggshell fragments, which may be found on the ground following nest depredation.

  If a southwestern pond turtle nesting area would be adversely impacted by construction activities, SCE shall avoid the nesting area. If avoidance of the nesting area is determined to be infeasible, the authorized biologist shall coordinate with CDFG, CPUC, FS (on NFS lands), and USACE (on Army Corps lands) to identify if it is possible to relocate the pond turtles. Eggs or hatchlings shall not be moved without the written authorization from the CDFG and FS (on NFS lands).

  A qualified biologist with demonstrated expertise with southwestern pond turtles shall monitor construction activities where pond turtles are present or assumed present. The resume of the proposed biologist will be provided to the CPUC, FS, and USACE (as appropriate) for concurrence prior to the onset of ground-disturbing activities. This biologist will be referred to as the authorized biologist hereafter. The authorized biologist will be present during all activities immediately adjacent to, or within, habitat that supports populations of southwestern pond turtles. If the installation of fencing is deemed necessary by the authorized biologist, one clearance survey for southwestern pond turtles shall be conducted at the time of the fence installation. Clearance surveys for southwestern pond turtles shall be conducted by the authorized biologist prior to the initiation of construction each day.

- **MM AQ-1a Implement Construction Fugitive Dust Control Plan.** (*See above for full text*)

- **MM H-1a Implement an Erosion Control Plan and demonstrate compliance with water quality permits.** (*See above for full text*)

- **MM H-1b Dry weather construction.** (*See above for full text*)

Rationale for Finding. The preparation and implementation of a Habitat Restoration and Revegetation Plan will compensate for impacts to habitat by restoring areas temporarily disturbed during construction. Where impacts are permanent, compensation for the loss of habitats will occur through the preservation, enhancement, or restoration of comparable off-site lands, or through funding for land purchase for inclusion into the Angeles National Forest, mitigation banking, removing existing structures, or comparable restoration efforts. The implementation of a Worker Environmental Awareness Program will ensure that all construction personnel are familiar with applicable regulations and laws regarding sensitive species that could be encountered in the Project area (including southwestern pond turtles), the consequences of non-compliance with these laws and regulations, identification and values of plant and wildlife species and significant natural plant community habitats, fire protection measures, sensitivities of working on NFS lands and identification of USDA Forest Service sensitive species, hazardous substance spill prevention and containment measures, a contact person in the event of the discovery of dead or injured wildlife, and review of mitigation requirements. The implementation of a Weed Control Plan will ensure that the spread and establishment of weeds due to Project activities is minimized. Avoidance and minimization measures such as the staging of Hazardous Material Spill Kit(s) along the West Fork Cogswell Road, daily inspection of the West Fork Cogswell Road by a qualified biological monitor, and block nets in select areas will minimize effects to southwestern pond turtles. Focused pre-construction surveys and monitoring for southwestern pond turtles, and avoidance and minimization measures such as relocation of individuals and exclusion fencing will also minimize impacts to this species. Implementation of a Construction Fugitive Dust Control Plan will minimize impacts to southwestern pond turtles associated with fugitive dust generated during construction. Implementation of an Erosion Control Plan and compliance with water quality permits will minimize impacts associated with erosion and water quality. Avoiding construction during rain events will minimize the potential for Project activities to occur during the period when this species is most likely to be active. Together these measures will reduce Project impacts to southwestern pond turtles to a less-than-significant level.

Reference. Final EIR Section 3.4; Table ES-3

Impact B-25: The Project could result in injury or mortality of, and loss of habitat for, two-striped garter snakes and south coast garter snakes.

Two-striped garter snakes were observed at various locations on the ANF during surveys in 2008. No south coast garter snakes were detected during surveys conducted for the TRTP. Within the Project area, these species have the potential to occur in the vicinity of perennial or nearly perennial aquatic habitat associated with a number of drainages, including Amargosa Creek, Aliso Creek, Lynx Gulch, Alder Creek, Upper Big Tujunga Creek, North Fork Mill Creek, West Fork San Gabriel River, Rio Hondo, and Tonner Creek. Potential direct impacts due to construction activities include mortality or injury of individual two-striped garter snakes and south coast garter snakes as a result of mechanical crushing; loss of nesting, breeding or basking sites; fugitive dust; and human trampling. Other direct effects to these species include degradation of water quality through siltation caused by vehicles using wet ford stream crossings; removal of vegetation; and grading tower pads, staging areas, helicopter pads, and pulling sites. Indirect effects include compaction of soils and introduction of exotic plant species. Furthermore, Project implementation may result in loss of habitat due to permanent structures and/or roads and temporary loss of habitat from construction activities. Operational impacts include risk of mortality by vehicles and disturbance on access roads due to increased use by the public and maintenance personnel. Other operational impacts include removal and trimming of vegetation during maintenance activities.

APMs BIO-1 through BIO-7, which are included as part of the Project, will help to reduce impacts to biological resources. These APMs include conducting clearance surveys for wildlife, minimizing vegetation

removal at construction sites, avoiding streambeds to the extent practicable, implementation of best management practices, biological monitoring, personnel training, and coordinating and compensating for impacts to wildlife with the regulatory agencies. However, these APMs will not reduce Project Impact B-25 to a less-than-significant level. Therefore, to reduce impacts to two-striped and south coast garter snakes to a less-than-significant level, the following mitigation measures shall be implemented: Mitigation Measures B-1a, B-1b, B-3a, B-12, B-25, AQ-1a, H-1a, and H-1b.

Finding. The CPUC finds that changes or alterations have been incorporated into the Project which avoid or substantially lessen the significant effects on the environment from Impact B-25. Specifically, the following mitigation measures are feasible and are hereby adopted to mitigate significant effects from Impact B-25 to a less-than-significant level.

- **MM B-1a Provide restoration/compensation for impacts to native vegetation communities.** (*See above for full text*)
- **MM B-1b Implement a Worker Environmental Awareness Program.** (*See above for full text*)
- **MM B-3a Prepare and implement a Weed Control Plan.** (*See above for full text*)
- **MM B-12 Implement avoidance and minimization measures for Santa Ana sucker and other aquatic organisms.** (*See above for full text*)
- **MM B-25 Conduct focused surveys for two-striped garter snakes and south coast garter snakes and implement monitoring, avoidance, and minimization measures.** A qualified biologist shall conduct focused surveys for two-striped garter snakes (both on and off NFS lands) and south coast garter snakes (non-NFS lands only) where suitable habitat is present and directly impacted by construction vehicle access, or maintenance. The resume of the proposed biologists will be provided to the CPUC, FS and USACE (as appropriate) for concurrence prior to conducting the surveys. This biologist will be referred to as the authorized biologist hereafter. Focused surveys shall consist of a minimum of four daytime surveys, to be completed between 1 April and 1 September. The survey schedule may be adjusted in consultation with the CPUC, FS, and/or USACE to reflect the existing weather or stream conditions. If either species is detected in or adjacent to the Project or at any wet fords to be traversed by motorized vehicles as part of Project construction activities, the following minimization measures will be required. SCE shall retain a qualified herpetologist with demonstrated expertise with garter snakes to monitor construction activities. The resume of the proposed biologist will be provided to the CPUC, FS, and USACE (as appropriate) for concurrence prior to the onset of ground-disturbing activities or vehicular crossings at wet fords. This biologist will be referred to as the authorized biologist hereafter. The authorized biologist will be present during all activities immediately adjacent to or within habitat that supports populations of the two-striped garter snake and/or south coast garter snake. Clearance surveys for garter snakes shall be conducted by the authorized biologist prior to the initiation of construction each day. Any snakes found within the area of disturbance or potentially affected by the Project will be relocated to the nearest suitable habitat that will not be affected by the Project.
- **MM AQ-1a Implement Construction Fugitive Dust Control Plan.** (*See above for full text*)
- **MM H-1a Implement an Erosion Control Plan and demonstrate compliance with water quality permits**. (*See above for full text*)
- **MM H-1b Dry weather construction.** (*See above for full text*)

Rationale for Finding. The preparation and implementation of a Habitat Restoration and Revegetation Plan will compensate for impacts to habitat by restoring areas temporarily disturbed during construction. Where impacts are permanent, compensation for the loss of habitats will occur through the preservation,

enhancement, or restoration of comparable off-site lands, or through funding for land purchase for inclusion into the Angeles National Forest, mitigation banking, removing existing structures, or comparable restoration efforts. The implementation of a Worker Environmental Awareness Program will ensure that all construction personnel are familiar with applicable regulations and laws regarding sensitive species that could be encountered in the Project area (including garter snakes), the consequences of non-compliance with these laws and regulations, identification and values of plant and wildlife species and significant natural plant community habitats, fire protection measures, sensitivities of working on NFS lands and identification of USDA Forest Service sensitive species, hazardous substance spill prevention and containment measures, a contact person in the event of the discovery of dead or injured wildlife, and review of mitigation requirements. The implementation of a Weed Control Plan will ensure that the spread and establishment of weeds due to Project activities is minimized. Avoidance and minimization measures such as the staging of Hazardous Material Spill Kit(s) along the West Fork Cogswell Road, daily inspection of the West Fork Cogswell Road by a qualified biological monitor, and block nets in select areas will minimize effects to garter snakes. Focused pre-construction surveys and monitoring for two-striped garter snakes and south coast garter snakes, and relocation of individuals found within the construction area, will also minimize impacts to these species. Implementation of a Construction Fugitive Dust Control Plan will minimize impacts to garter snakes associated with fugitive dust generated during construction. Implementation of an Erosion Control Plan and compliance with water quality permits will minimize impacts associated with erosion and water quality. Avoiding construction during rain events will minimize the potential for Project activities to occur during the period when these species are most likely to be active. Together these measures will reduce Project impacts to two-striped garter snakes and south coast garter snakes to a less-than-significant level.

Reference. Final EIR Section 3.4; Table ES-3

Impact B-26: The Project could result in injury or mortality of, and loss of habitat for, Coast Range newts.

Coast range newts have been identified on the ANF in several of the small drainages that cross the access roads on Segment 6 near Monrovia Peak. In addition, this species is likely to occur in many of the perennial or nearly perennial aquatic habitats on the south slopes of the San Gabriel Mountains. Direct impacts to Coast Range newts include mechanical crushing or road kill during construction, human trampling, loss of breeding sites due to water quality degradation, fugitive dust, and loss of foraging habitat. Indirect impacts include degradation of water quality through siltation caused by vehicles using wet ford stream crossings; removal of vegetation; and grading tower pads, staging areas, helicopter pads, roads, and pulling sites. Other indirect effects include compaction of soils and introduction of exotic plant species. Operational impacts include risk of mortality by vehicles and disturbance on access roads due to increased use by the public and maintenance personnel. Other operational impacts include removal and trimming of vegetation during maintenance activities.

APMs BIO-1 through BIO-7, which are included as part of the Project, will help to reduce impacts to biological resources. These APMs include conducting clearance surveys for wildlife, minimizing vegetation removal at construction sites, avoiding streambeds to the extent practicable, implementation of best management practices, biological monitoring, personnel training, and coordinating and compensating for impacts to wildlife with the regulatory agencies. However, these APMs will not reduce Project Impact B-26 to a less-than-significant level. Therefore, to reduce impacts to coast range newts to a less-than-significant level, the following mitigation measures shall be implemented: Mitigation Measures B-1a, B-1b, B-3a, B-26, AQ-1a, H-1a, and H-1b.

Finding. The CPUC finds that changes or alterations have been incorporated into the Project which avoid or substantially lessen the significant effects on the environment from Impact B-26. Specifically, the following mitigation measures are feasible and are hereby adopted to mitigate significant effects from Impact B-26 to a less-than-significant level.

- **MM B-1a Provide restoration/compensation for impacts to native vegetation communities.** (*See above for full text*)
- **MM B-1b Implement a Worker Environmental Awareness Program.** (*See above for full text*)
- **MM B-3a Prepare and implement a Weed Control Plan.** (*See above for full text*)
- **MM B-26 Conduct focused surveys for coast range newts and implement monitoring, avoidance, and minimization measures.** A qualified biologist shall conduct focused surveys for Coast Range newt in suitable habitat on non-NFS lands, including Eaton Wash, Brea Canyon, and Tonner Creek. In addition, all tributary drainages that support habitat for this species shall be inspected if they are subject to Project disturbance. Focused surveys shall consist of a minimum of four daytime surveys, to be completed between 1 April and 1 September. If Coast Range newts are detected in or adjacent to the Project or at any wet fords to be traversed by motorized vehicles as part of Project construction activities, no work shall be authorized within 0.5 mile of the occupied active drainage channel and no vehicular crossings at fords of those channels shall be authorized until the biologist has inspected and cleared these areas.

  SCE shall retain a qualified biologist with demonstrated expertise with amphibians to monitor construction activities and assist SCE in the implementation of the monitoring program. The resume of the proposed biologist will be provided to the CPUC for concurrence prior to the onset of ground-disturbing activities or vehicular crossings at wet fords. This biologist will be referred to as the authorized biologist hereafter. The authorized biologist will be present during ground-disturbing activities immediately adjacent to or within habitat that supports populations of Coast Range newt. Clearance surveys for Coast Range newts shall be conducted by the authorized biologist prior to the initiation of construction each day. If individuals are found within the proposed area of disturbance they will be relocated to an area that will not be affected by construction activities.
- **MM AQ-1a Implement Construction Fugitive Dust Control Plan.** (*See above for full text*)
- **MM H-1a Implement an Erosion Control Plan and demonstrate compliance with water quality permits**. (*See above for full text*)
- **MM H-1b Dry weather construction.** (*See above for full text*)

Rationale for Finding. The preparation and implementation of a Habitat Restoration and Revegetation Plan will compensate for impacts to habitat by restoring areas temporarily disturbed during construction. Where impacts are permanent, compensation for the loss of habitats will occur through the preservation, enhancement, or restoration of comparable off-site lands, or through funding for land purchase for inclusion into the Angeles National Forest, mitigation banking, removing existing structures, or comparable restoration efforts. The implementation of a Worker Environmental Awareness Program will ensure that all construction personnel are familiar with applicable regulations and laws regarding sensitive species that could be encountered in the Project area (including Coast Range newts), the consequences of non-compliance with these laws and regulations, identification and values of plant and wildlife species and significant natural plant community habitats, fire protection measures, sensitivities of working on NFS lands and identification of USDA Forest Service sensitive species, hazardous substance spill prevention and containment measures, a contact person in the event of the discovery of dead or injured wildlife, and review of mitigation requirements. The implementation of a Weed Control Plan will ensure that the spread and

establishment of weeds due to Project activities is minimized. Focused pre-construction surveys and monitoring for Coast Range newts, and relocation of individuals found within the construction area, will minimize impacts to this species. Implementation of a Construction Fugitive Dust Control Plan will minimize impacts to Coast Range newts associated with fugitive dust generated during construction. Implementation of an Erosion Control Plan and compliance with water quality permits will minimize impacts associated with erosion and water quality. Avoiding construction during rain events will minimize the potential for Project activities to occur during the period when this species is most likely to be active. Together these measures will reduce Project impacts to Coast Range newts to a less-than-significant level.

Reference. Final EIR Section 3.4; Table ES-3

Impact B-27: The Project could result in injury or mortality of, and loss of habitat for, terrestrial California Species of Special Concern and Forest Service Sensitive amphibian and reptile species.

Several special-status reptiles and amphibians (herpetofauna) could be affected by the Project. These include the following terrestrial California Species of Special Concern and USDA Forest Service Sensitive species: San Gabriel Mountains slender salamander (*Batrachoseps gabrieli*), western spadefoot (*Spea hammondii*), San Diego horned lizard (*Phrynosoma coronatum blainvillii*), California horned lizard (*Phrynosoma coronatum frontale*), silvery legless lizard (*Anniella pulchra pulchra*), orange-throated whiptail (*Aspidoscelis hyperythra*), coastal rosy boa (*Charina trivergata)*,San Bernardino ringneck snake (*Diaophis punctatus modestus*), San Bernardino mountain kingsnake (*Lampropeltis zonata parvirubra*), coast patch-nosed snake (*Salvadora hexalepis virgultea*), and northern red diamond rattlesnake (*Crotalus ruber ruber*). Several of these species, including the San Bernardino mountain kingsnake and an undetermined subspecies of the coast horned lizard, were detected during surveys in 2008 on the ANF. The San Bernardino ringneck snake, northern red diamond rattlesnake, and western spadefoot toad are known to occur within the Puente Hills Landfill Native Habitat Preservation Authority lands. Given the ecology of these species, and their cryptic nature it is likely that some or all of the species identified above may occur in the Project area. The special-status terrestrial herpetofauna potentially present in the Project area will all be subject to similar types of potential impacts.

Direct impacts to special-status terrestrial herpetofauna include being hit by vehicles on access roads; mechanical crushing during tower site preparation, grading of spur roads, and preparation of staging and stringing/pulling locations; fugitive dust; and general disturbance due to increased human activity. Furthermore, Project implementation may result in permanent loss of habitat due to permanent structures and/or roads and temporary loss of habitat from construction activities. Individuals of one or more of the special-status terrestrial herpetofauna could be injured or killed during ground-disturbing Project activities in undeveloped upland habitats and in some developed areas throughout the Project. Indirect impacts to these species include compaction of soils and the introduction of exotic plant species. Operational impacts include risk of mortality by vehicles and disturbance on access roads due to increased use by the public and maintenance personnel. Other operational impacts include removal and trimming of vegetation during maintenance activities.

APMs BIO-1 through BIO-7, which are included as part of the Project, will help to reduce impacts to biological resources. These APMs include conducting clearance surveys for wildlife, minimizing vegetation removal at construction sites, avoiding streambeds to the extent practicable, implementation of best management practices, biological monitoring, personnel training, and coordinating and compensating for impacts to wildlife with the regulatory agencies. However, these APMs will not reduce Project Impact B-27 to a less-than-significant level. Therefore, to reduce impacts to special-status terrestrial herpetofauna to a

less-than-significant level, the following mitigation measures shall be implemented: Mitigation Measures B-1a, B-1b, B-3a, B-27, and AQ-1a.

Finding. The CPUC finds that changes or alterations have been incorporated into the Project which avoid or substantially lessen the significant effects on the environment from Impact B-27. Specifically, the following mitigation measures are feasible and are hereby adopted to mitigate significant effects from Impact B-27 to a less-than-significant level.

- **MM B-1a Provide restoration/compensation for impacts to native vegetation communities.** (*See above for full text*)
- **MM B-1b Implement a Worker Environmental Awareness Program.** (*See above for full text*)
- **MM B-3a Prepare and implement a Weed Control Plan.** (*See above for full text*)
- **MM B-27 Monitoring, avoidance, and minimization measures for special-status terrestrial herpetofauna.** A qualified biologist with demonstrated expertise with special-status terrestrial herpetofauna shall monitor all construction activities and assist SCE in the implementation of the monitoring efforts. The resume of the proposed biologist will be provided to the CPUC, USACE, and FS (as appropriate) for concurrence prior to the onset of ground-disturbing activities. This biologist will be referred to as the authorized biologist hereafter. The authorized biologist will be present during ground-disturbing activities immediately adjacent to or within habitat that supports populations of the special-status terrestrial herpetofauna. Any special-status terrestrial herpetofauna found within a Project impact area shall be salvaged by the authorized biologist and relocated to suitable habitat outside the impact area. If the installation of exclusion fencing is deemed necessary by the authorized biologist, the authorized biologist will direct the installation of the fence. Clearance surveys for special-status herpetofauna shall be conducted by the authorized biologist prior to the initiation of construction each day.
- **MM AQ-1a Implement Construction Fugitive Dust Control Plan.** (*See above for full text*)

Rationale for Finding. The preparation and implementation of a Habitat Restoration and Revegetation Plan will compensate for impacts to habitat by restoring areas temporarily disturbed during construction. Where impacts are permanent, compensation for the loss of habitats will occur through the preservation, enhancement, or restoration of comparable off-site lands, or through funding for land purchase for inclusion into the Angeles National Forest, mitigation banking, removing existing structures, or comparable restoration efforts. The implementation of a Worker Environmental Awareness Program will ensure that all construction personnel are familiar with applicable regulations and laws regarding sensitive species that could be encountered in the Project area, the consequences of non-compliance with these laws and regulations, identification and values of plant and wildlife species and significant natural plant community habitats, fire protection measures, sensitivities of working on NFS lands and identification of USDA Forest Service sensitive species, hazardous substance spill prevention and containment measures, a contact person in the event of the discovery of dead or injured wildlife, and review of mitigation requirements. The implementation of a Weed Control Plan will ensure that the spread and establishment of weeds due to Project activities is minimized. Monitoring by a qualified biologist, exclusion fencing in select areas, and relocation of individuals found within the construction area will minimize impacts to special-status terrestrial herpetofauna. Implementation of a Construction Fugitive Dust Control Plan will minimize impacts to these species associated with fugitive dust generated during construction. Together these measures will reduce Project impacts to special-status terrestrial herpetofauna to a less-than-significant level.

Reference. Final EIR Section 3.4; Table ES-3

Impact B-29: The Project would result in the loss of occupied burrowing owl habitat.

The burrowing owl, a CDFG Species of Special Concern, has been observed within the Project area during reconnaissance-level surveys. Burrowing owls are known from the Puente Hills Landfill Native Habitat Preservation Authority, and there are several CNDDB records within, or in the vicinity of, the Project. Burrow surveys conducted by SCE in March and August through November 2007 identified one burrowing owl and occupied habitat in the northern portion of Segment 6, as well as occupied habitat along Segment 8 near Cucamonga Creek. Suitable habitat exists along Segments 10, 4, 5, 6, 7, and 8.

Direct impacts to burrowing owls as a result of construction activities for the Project could include the crushing of burrows, removal or disturbance of vegetation, increased noise levels from heavy equipment and helicopter operations, increased human presence, and exposure to fugitive dust. Indirect impacts could include the loss of habitat due to the colonization of noxious weeds and a disruption of breeding activity due to facilitated use of new or improved spur and access roads by the public. Operational impacts include increased human presence from maintenance personnel that will flush or otherwise disturb burrowing owls.

APMs BIO-1, BIO-2, and BIO-4 through BIO-9, which are included as part of the Project, will help to reduce impacts to biological resources. These APMs include conducting clearance surveys for wildlife, minimizing vegetation removal at construction sites, implementation of best management practices, biological monitoring, personnel training, coordinating and compensating for impacts to wildlife with the regulatory agencies, raptor surveys and coordination with the Regulatory Agencies before moving nests, and design of the transmission and sub-transmission structures to be raptor-safe. However, these APMs will not reduce Project Impact B-29 to a less-than-significant level. Therefore, to reduce impacts to occupied burrowing owl habitat to a less-than-significant level, the following mitigation measures shall be implemented: Mitigation Measures B-1a, B-1b, B-3a, B-29, and AQ-1a.

Finding. The CPUC finds that changes or alterations have been incorporated into the Project which avoid or substantially lessen the significant effects on the environment from Impact B-29. Specifically, the following mitigation measures are feasible and are hereby adopted to mitigate significant effects from Impact B-29 to a less-than-significant level.

- **MM B-1a Provide restoration/compensation for impacts to native vegetation communities.** (*See above for full text*)
- **MM B-1b Implement a Worker Environmental Awareness Program.** (*See above for full text*)
- **MM B-3a Prepare and implement a Weed Control Plan.** (*See above for full text*)
- **MM B-29 Implement CDFG protocol for burrowing owls.** In conformance with federal and State regulations regarding the protection of raptors, a habitat assessment in accordance with CDFG protocol for burrowing owls (CBOC, 1993) shall be completed on non-NFS lands prior to the start of construction. Burrowing owl habitat within the Project area and within a 500-foot buffer zone shall be assessed ("Assessment Area"). If the habitat assessment concludes that the Assessment Area lacks suitable burrowing owl habitat, no additional action is required. However, if suitable habitat is located on the Assessment Area, all ground squirrel colonies or potential burrow locations shall be mapped at an appropriate scale, and the following mitigation measures shall be implemented:
    - In conformance with federal and State regulations regarding the protection of raptors, a pre-construction survey for burrowing owls, in conformance with CDFG protocol, consisting of three site visits, shall be completed no more than 30 days prior to the start of construction within suitable habitat at the Project site(s) and buffer zone(s).

- Occupied burrows shall not be disturbed during the nesting season (1 February through 31 August) unless a qualified biologist approved by CDFG verifies through non-invasive methods that either the birds have not begun egg-laying and incubation or that juveniles from the occupied burrows are foraging independently and are capable of independent survival. Eviction outside the nesting season may be permitted pending evaluation of eviction plans and receipt of formal written approval from the CDFG authorizing the eviction.
- Any damaged or collapsed burrows will be enhanced or replaced with artificial burrows in suitable habitat within the right of way consistent with CDFG guidelines.
- Unless otherwise authorized by CDFG, a 250-foot buffer, within which no activity will be permissible, will be maintained between Project activities and nesting burrowing owls during the nesting season. This protected area will remain in effect until 31 August or at CDFG's discretion and based upon monitoring evidence, until the young owls are foraging independently.
- If accidental take (disturbance, injury, or death of owls) occurs, the CDFG/CPUC/FS/USACE lead monitor will be notified immediately.

- **AQ-1a Implement Construction Fugitive Dust Control Plan.** *(See above for full text)*

Rationale for Finding. The preparation and implementation of a Habitat Restoration and Revegetation Plan will compensate for impacts to habitat by restoring areas temporarily disturbed during construction. Where impacts are permanent, compensation for the loss of habitats will occur through the preservation, enhancement, or restoration of comparable off-site lands, or through funding for land purchase for inclusion into the Angeles National Forest, mitigation banking, removing existing structures, or comparable restoration efforts. The implementation of a Worker Environmental Awareness Program will ensure that all construction personnel are familiar with applicable regulations and laws regarding sensitive species that could be encountered in the Project area (including burrowing owls), the consequences of non-compliance with these laws and regulations, identification and values of plant and wildlife species and significant natural plant community habitats, fire protection measures, sensitivities of working on NFS lands and identification of USDA Forest Service sensitive species, hazardous substance spill prevention and containment measures, a contact person in the event of the discovery of dead or injured wildlife, and review of mitigation requirements. The implementation of a Weed Control Plan will ensure that the spread and establishment of weeds due to Project activities is minimized. A Habitat Assessment, pre-construction protocol surveys, avoidance of occupied burrows during the nesting season, replacement of damaged burrows with artificial burrows in adjacent habitat, and a 250-foot disturbance-free buffer during the nesting season will minimize impacts to burrowing owls. Implementation of a Construction Fugitive Dust Control Plan will minimize impacts to this species associated with fugitive dust generated during construction. Together these measures will reduce Project impacts to burrowing owls and their habitat to a less-than-significant level.

Reference. Final EIR Section 3.4; Table ES-3

Impact B-30: The Project would result in the loss of occupied California spotted owl habitat.

The California spotted owl is a USDA Forest Service Sensitive species and is known to be present on the ANF within portions of Segments 6 and 11 of the Project, where they primarily utilize bigcone Douglas fir-canyon oak forest and canyon oak forest. Specifically, spotted owl Protected Activity Centers (PACs) have been identified near Mount Gleason Road near one of the proposed helicopter staging areas; south of Big Tujunga Creek along Big Tujunga Road; and at numerous locations along the primary access road (Shortcut Trail 2N23). Direct effects to California spotted owls include the direct removal of habitat including possible nest trees and foraging areas; noise from human disturbance and construction equipment; fugitive

dust; and vehicle travel along the access and spur roads that occur in the Project area. Indirect effects could include the degradation of foraging or nesting habitat, the spread of invasive weeds, and increased human disturbance as new areas of the forest will be accessible to recreationists.

APMs BIO-1, BIO-2, and BIO-4 through BIO-7, which are included as part of the Project, will help to reduce impacts to biological resources. These APMs include conducting clearance surveys for wildlife, minimizing vegetation removal at construction sites, implementation of best management practices, biological monitoring, personnel training, and coordinating and compensating for impacts to wildlife with the regulatory agencies. However, these APMs will not reduce Project Impact B-30 to a less-than-significant level. Therefore, to reduce impacts to occupied California spotted owl habitat to a less-than-significant level, the following mitigation measures shall be implemented: Mitigation Measures B-1a, B-3a, B-30, and AQ-1a.

Finding. The CPUC finds that changes or alterations have been incorporated into the Project which avoid or substantially lessen the significant effects on the environment from Impact B-30. Specifically, the following mitigation measures are feasible and are hereby adopted to mitigate significant effects from Impact B-30 to a less-than-significant level.

- **MM B-1a Provide restoration/compensation for impacts to native vegetation communities.** (*See above for full text*)
- **MM B-3a Prepare and implement a Weed Control Plan.** (*See above for full text*)
- **MM B-30 Conduct pre- and during construction nest surveys for spotted owls.** Prior to tree removal or construction activities within suitable habitat, SCE shall have a qualified biologist conduct FS protocol surveys for the California spotted owl to establish or confirm the location of nests within the Project. The resumes of the proposed biologists shall be provided to the FS and CPUC for concurrence. If nests or breeding pairs are found during the surveys, the limited operating period (LOP) will be applied according to the Forest Plan (Standard 20 – Part 3). No project-related activities will be allowed within these dates (February 1-August 15) or until chicks have fledged. Where a biological evaluation by a qualified ornithologist determines that a nest site would be shielded from planned activities by topographic or other features that would minimize disturbance, the buffer distance may be reduced upon approval of the FS on NFS lands. In addition, no helicopter construction will be allowed within 0.5 mile of breeding spotted owl territories. No helicopter overflights shall be authorized without FS approval. If approved minimum altitudes will be 300 feet above a territory at an altitude designated by the FS. This buffer may be adjusted through consultation with the FS and CPUC.
- **MM AQ-1a Implement Construction Fugitive Dust Control Plan.** (*See above for full text*)

Rationale for Finding. The preparation and implementation of a Habitat Restoration and Revegetation Plan will compensate for impacts to habitat by restoring areas temporarily disturbed during construction. Where impacts are permanent, compensation for the loss of habitats will occur through the preservation, enhancement, or restoration of comparable off-site lands, or through funding for land purchase for inclusion into the Angeles National Forest, mitigation banking, removing existing structures, or comparable restoration efforts. The implementation of a Weed Control Plan will ensure that the spread and establishment of weeds due to Project activities is minimized. Nest surveys, Limited Operating Periods (LOPs), no helicopter construction within 0.5 mile of breeding spotted owl territories, and a buffer between territories and helicopter overflights will minimize impacts to California spotted owls. Implementation of a Construction Fugitive Dust Control Plan will minimize impacts to California spotted owl habitat associated with fugitive dust generated during construction. Together these measures will reduce Project impacts to California spotted owls and their habitat to a less-than-significant level.

Reference. Final EIR Section 3.4; Table ES-3

Impact B-31: The Project could disturb nesting California spotted owls.

California spotted owls are known to nest within the ANF in Segments 6 and 11 of the Project. In many areas, both access roads and tower locations cross occupied habitat including known nesting areas. Direct impacts to nesting California spotted owls could include lower reproductive success, nest abandonment, predation, and increased stress levels due to chronic noise levels, fugitive dust, vibration, and air turbulence associated with heavy equipment and helicopter operations. Other direct impacts include the loss of suitable nest trees as a result of vegetation clearing for tower pads, tower removal sites, pulling and tensioning sites, and construction, grading, and widening of new spur roads and existing access roads. Operational impacts could include collisions with transmission lines and disturbance due to increased human presence as a result of public use of new or improved spur and access roads.

Biological Resources APMs BIO-1, BIO-2, and BIO-4 through BIO-9, which are included as part of the Project, will help to reduce impacts to biological resources. These APMs include conducting clearance surveys for wildlife, minimizing vegetation removal at construction sites, implementation of best management practices, biological monitoring, personnel training, coordinating and compensating for impacts to wildlife with the regulatory agencies, raptor surveys and coordination with the Regulatory Agencies before moving nests, and design of the transmission and sub-transmission structures to be raptor-safe. However, these APMs will not reduce Project Impact B-31 to a less-than-significant level. Therefore, to reduce impacts to nesting California spotted owls to a less-than-significant level, the following mitigation measures shall be implemented: Mitigation Measures B-1b, B-30, and AQ-1a.

Finding. The CPUC finds that changes or alterations have been incorporated into the Project which avoid or substantially lessen the significant effects on the environment from Impact B-31. Specifically, the following mitigation measures are feasible and are hereby adopted to mitigate significant effects from Impact B-31 to a less-than-significant level.

- **MM B-1b Implement a Worker Environmental Awareness Program.** (*See above for full text*)
- **MM B-30 Conduct pre- and during construction nest surveys for spotted owls.** (*See above for full text*)
- **MM AQ-1a Implement Construction Fugitive Dust Control Plan.** (*See above for full text*)

Rationale for Finding. The implementation of a Worker Environmental Awareness Program will ensure that all construction personnel are familiar with applicable regulations and laws regarding sensitive species that could be encountered in the Project area (including California spotted owls), the consequences of non-compliance with these laws and regulations, identification and values of plant and wildlife species and significant natural plant community habitats, fire protection measures, sensitivities of working on NFS lands and identification of USDA Forest Service sensitive species, hazardous substance spill prevention and containment measures, a contact person in the event of the discovery of dead or injured wildlife, and review of mitigation requirements. Nest surveys, Limited Operating Periods (LOPs), no helicopter construction within 0.5 mile of breeding spotted owl territories, and a buffer between territories and helicopter overflights will minimize impacts to California spotted owls. Implementation of a Construction Fugitive Dust Control Plan will minimize impacts to California spotted owls associated with fugitive dust generated during construction. Together these measures will reduce Project impacts to nesting California spotted owls to a less-than-significant level.

Reference. Final EIR Section 3.4; Table ES-3

Impact B-32: The Project could disturb nesting avian "species of special concern."

Several passerine bird species listed as Species of Special Concern by the CDFG, including loggerhead shrike, yellow warbler, yellow-breasted chat, and tricolored blackbird, have been identified as either nesting or potentially nesting within the Project area.

Ground-disturbing activity, including tower pad preparation, stringing and pulling locations, and the grading of access roads, has the potential to disturb vegetation utilized by nesting birds. The construction and use of access roads could also disturb nesting birds. Noise and human disturbance could result in the displacement from territories, interference with breeding, and abandonment of nests. The removal of habitat during the breeding season will likely result in the displacement of breeding birds and the abandonment of active nests. Increased noise from helicopter construction could also adversely impact nesting birds, particularly where helicopters are required to hover in or adjacent to riparian areas for extended periods of time. Breeding birds and other wildlife may temporarily or permanently leave their territories to avoid construction activity, which could lead to reduced reproductive success and increased mortality.

Biological Resources APMs BIO-1 through BIO-7, which are included as part of the Project, will help to reduce impacts to biological resources. These APMs include conducting clearance surveys for wildlife, minimizing vegetation removal at construction sites, avoiding streambeds to the extent practicable, implementation of best management practices, biological monitoring, personnel training, and coordinating and compensating for impacts to wildlife with the regulatory agencies. However, these APMs will not reduce Project Impact B-31 to a less-than-significant level. Therefore, to reduce impacts to nesting avian Species of Special Concern to a less-than-significant level, the following mitigation measures shall be implemented: Mitigation Measures B-1a, B-1b, B-2, B-3a, B-5, B-15, and AQ-1a.

Finding. The CPUC finds that changes or alterations have been incorporated into the Project which avoid or substantially lessen the significant effects on the environment from Impact B-32. Specifically, the following mitigation measures are feasible and are hereby adopted to mitigate significant effects from Impact B-32 to a less-than-significant level.

- **MM B-1a Provide restoration/compensation for impacts to native vegetation communities.** (*See above for full text*)
- **MM B-1b Implement a Worker Environmental Awareness Program**. (*See above for full text*)
- **MM B-2 Implement RCA Treatment Plan.** (*See above for full text*)
- **MM B-3a Prepare and implement a Weed Control Plan.** (*See above for full text*)
- **MM B-5 Conduct pre-construction surveys and monitoring for breeding birds.** (*See above for full text*)
- **MM AQ-1a Implement Construction Fugitive Dust Control Plan.** (*See above for full text*)

Rationale for Finding. The preparation and implementation of a Habitat Restoration and Revegetation Plan will compensate for impacts to habitat by restoring areas temporarily disturbed during construction. Where impacts are permanent, compensation for the loss of habitats will occur through the preservation, enhancement, or restoration of comparable off-site lands, or through funding for land purchase for inclusion into the Angeles National Forest, mitigation banking, removing existing structures, or comparable restoration efforts. The implementation of a Worker Environmental Awareness Program will ensure that all construction personnel are familiar with applicable regulations and laws regarding sensitive species that

could be encountered in the Project area, the consequences of non-compliance with these laws and regulations, identification and values of plant and wildlife species and significant natural plant community habitats, fire protection measures, sensitivities of working on NFS lands and identification of USDA Forest Service sensitive species, hazardous substance spill prevention and containment measures, a contact person in the event of the discovery of dead or injured wildlife, and review of mitigation requirements. The implementation of an RCA Treatment Plan will ensure that activities conducted within RCAs are approved by the USDA Forest Service prior to implementation and are conducted in such a way as to minimize disturbance to sensitive resources. The implementation of a Weed Control Plan will ensure that the spread and establishment of weeds due to Project activities is minimized. Pre-construction surveys and monitoring for breeding birds by a qualified biologist, and protective buffers established around active nests, will ensure that impacts to breeding birds are minimized. Implementation of a Construction Fugitive Dust Control Plan will minimize impacts to breeding birds associated with fugitive dust generated during construction. Together these measures will reduce Project impacts to nesting avian "species of special concern" to a less-than-significant level.

Reference. Final EIR Section 3.4; Table ES-3

Impact B-33: The Project could result in mortality of, and loss of habitat for, special-status bat species.

Pallid bat, Townsend's big-eared bat, western red bat, hoary bat, spotted bat, western mastiff bat, big free-tailed bat, and pocketed free-tailed bat are all California Species of Special Concern that have the potential to occur within the Project area. Pallid bat, Townsend's big-eared bat, and western red bat are also USDA Forest Service Sensitive species. Several of these species, most notably the pallid bat, have CNDDB and other records of occurrence within the Project. Five pallid bats were located in artificial "bat houses" under a bridge about 325 yards northwest of Alternative 6 helicopter site 3 near Aliso Canyon. Furthermore, the Western red bat, pallid bat, pocketed free-tailed bat and Western mastiff bat are known to occur within the Puente Hills Landfill Native Habitat Preservation Authority lands. The Project area includes numerous locations that constitute suitable bat foraging and roosting habitat, including rock outcroppings, mine shafts, hollow trees, dense forests, and abandoned water tanks. The steep rocky canyon and dense riparian forest at the West Fork of the San Gabriel River located along the West Fork Cogswell Road provides many opportunities for both foraging and roosting.

Direct impacts to these species include mortality of individuals during construction activities, permanent loss of habitat due to construction of permanent structures (e.g., new towers or access roads) or other construction activities (removal of roosting habitat at pulling and assembly sites), and temporary disturbance during construction (noise, air turbulence, dust, and ground vibrations from helicopters and construction equipment). Bats that forage near the ground, such as the pallid bat, could also be subject to crushing or disturbance by vehicles driving at dusk, dawn, or during the night. Construction-related activities, which will generate noise, traffic, dust, and diesel fumes, could result in the direct loss of roosting habitat and subsequent mortality to adult bats or pups if any bats were present in the Project area. Indirect effects could include increased traffic, dust, and human presence in the Project area that could result in bats abandoning their roosts or maternal colonies. Impacts to bats during operation of the Project include disturbance by vehicles and individuals utilizing new or improved access and spur roads, and the spread of noxious weeds.

APMs BIO-1 through BIO-7, which are included as part of the Project, will help to reduce impacts to biological resources. These APMs include conducting clearance surveys for wildlife, minimizing vegetation removal at construction sites, avoiding streambeds to the extent practicable, implementation of best management practices, biological monitoring, personnel training, and coordinating and compensating for impacts to wildlife with the regulatory agencies. However, these APMs do not clearly address impacts to

bats and will not reduce Project Impact B-33 to a less-than-significant level. Therefore, to reduce impacts to special-status bat species to a less-than-significant level, the following mitigation measures shall be implemented: Mitigation Measures B-1a, B-1b, B-2, B-3a, B-33a through B-33c, and AQ-1a.

Finding. The CPUC finds that changes or alterations have been incorporated into the Project which avoid or substantially lessen the significant effects on the environment from Impact B-33. Specifically, the following mitigation measures are feasible and are hereby adopted to mitigate significant effects from Impact B-33 to a less-than-significant level.

- **MM B-1a Provide restoration/compensation for impacts to native vegetation communities.** (*See above for full text*)
- **MM B-1b Implement a Worker Environmental Awareness Program.** (*See above for full text*)
- **MM B-2 Implement RCA Treatment Plan.** (*See above for full text*)
- **MM B-3a Prepare and implement a Weed Control Plan.** (*See above for full text*)
- **MM B-33a Maternity colony or hibernaculum surveys for roosting bats.** SCE shall conduct a pre-activity (e.g., vegetation removal, grading) survey for roosting bats within 200 feet of project activities within 15 days prior to any grading of rocky outcrops or removal of towers or trees (particularly trees 12 inches in diameter or greater at 4.5 feet above grade with loose bark or other cavities).

  SCE shall also conduct surveys for roosting bats during the maternity season (1 March to 31 July) within 300 feet of project activities. Trees and rocky outcrops shall be surveyed by a qualified bat biologist (i.e., a biologist holding a CDFG collection permit and a Memorandum of Understanding with CDFG allowing the biologist to handle bats). Surveys shall include a minimum of one day and one evening. The resume of the biologist shall be provided to the CPUC, FS, and USACE (as appropriate) for concurrence prior to any Project activities.

  If active maternity roosts or hibernacula are found, the rock outcrop or tree occupied by the roost shall be avoided (i.e., not removed) by the Project, if feasible. If avoidance of the maternity roost is not feasible, the bat biologist shall survey (through the use of radio telemetry or other CDFG/FS/USACE approved methods) for nearby alternative maternity colony sites. If the bat biologist determines in consultation with and with the approval of the CDFG, FS, USACE (as appropriate), and CPUC that there are alternative roost sites used by the maternity colony and young are not present then no further action is required, and it will not be necessary to provide alternate roosting habitat (i.e., Mitigation Measure B-33b would not apply although Mitigation Measure B-33c would still apply). However, if there are no alternative roosts sites used by the maternity colony, Mitigation Measure B-33b is required. If no active roosts are found, then no further action is required. If active maternity roosts are absent, but a hibernaculum (i.e., a non-maternity roost) is present, then Mitigation Measure B-33b is not necessary, but Mitigation Measure B-33c is required.
- **MM B-33b Provision of substitute roosting bat habitat.** If a maternity roost will be impacted by the Project, and no alternative maternity roosts are in use near the site, substitute roosting habitat for the maternity colony shall be provided on, or in close proximity to, the Project site no less than three months prior to the eviction of the colony. Alternative roost sites will be constructed in accordance with the specific bats requirements in coordination with CDFG and the FS. By making the roosting habitat available prior to eviction (Mitigation Measure B-33c), the colony will have a better chance of finding and using the roost. Large concrete walls (e.g., on bridges) on south or southwestern slopes that are retrofitted with slots and cavities are an example of structures that may provide alternative roosting habitat appropriate for maternity colonies. Alternative roost sites must

be of comparable size and proximal in location to the impacted colony. The CDFG shall also be notified of any hibernacula or active nurseries within the construction zone.

- **MM B-33c Exclude bats prior to demolition of roosts.** If non-breeding bat hibernacula are found in towers or trees scheduled to be removed or in crevices in rock outcrops within the grading footprint, the individuals shall be safely evicted, under the direction of a qualified bat biologist, by opening the roosting area to allow airflow through the cavity or other means determined appropriate by the bat biologist (e.g., installation of one-way doors). The resume of the bat biologist shall be provided to the CPUC, FS, and USACE (as appropriate) for concurrence prior to any Project activities. In situations requiring one-way doors, a minimum of one week shall pass after doors are installed and temperatures should be sufficiently warm for bats to exit the roost because bats do not typically leave their roost daily during winter months in southern coastal California. This action should allow all bats to leave during the course of one week. Roosts that need to be removed in situations where the use of one-way doors is not necessary in the judgment of the qualified bat biologist shall first be disturbed by various means at the direction of the bat biologist at dusk to allow bats to escape during the darker hours, and the roost tree shall be removed or the grading shall occur the next day (i.e., there shall be no less or more than one night between initial disturbance and the grading or tree removal).

  If an active maternity roost is located in an area to be impacted by the Project, and alternative roosting habitat is available, the demolition of the roost site must commence before maternity colonies form (i.e., prior to 1 March) or after young are flying (i.e., after 31 July) using the exclusion techniques described above.

- **MM AQ-1a Implement Construction Fugitive Dust Control Plan.** (*See above for full text*)

Rationale for Finding. The preparation and implementation of a Habitat Restoration and Revegetation Plan will compensate for impacts to habitat by restoring areas temporarily disturbed during construction. Where impacts are permanent, compensation for the loss of habitats will occur through the preservation, enhancement, or restoration of comparable off-site lands, or through funding for land purchase for inclusion into the Angeles National Forest, mitigation banking, removing existing structures, or comparable restoration efforts. The implementation of a Worker Environmental Awareness Program will ensure that all construction personnel are familiar with applicable regulations and laws regarding sensitive species that could be encountered in the Project area, the consequences of non-compliance with these laws and regulations, identification and values of plant and wildlife species and significant natural plant community habitats, fire protection measures, sensitivities of working on NFS lands and identification of USDA Forest Service sensitive species, hazardous substance spill prevention and containment measures, a contact person in the event of the discovery of dead or injured wildlife, and review of mitigation requirements. The implementation of an RCA Treatment Plan will ensure that activities conducted within RCAs are approved by the USDA Forest Service prior to implementation and are conducted in such a way as to minimize disturbance to sensitive resources. The implementation of a Weed Control Plan will ensure that the spread and establishment of weeds due to Project activities is minimized. Surveys for roosting bats and maternity colonies, provision of substitute roosting bat habitat, and exclusion of bats prior to demolition of roosts will minimize impacts to special-status bat species. Implementation of a Construction Fugitive Dust Control Plan will minimize impacts to bats associated with fugitive dust generated during construction. Together these measures will reduce Project impacts to special-status bats to a less-than-significant level.

Reference. Final EIR Section 3.4; Table ES-3

Impact B-35: The Project could result in mortality of, and loss of habitat for, special-status mammals.

The Los Angeles pocket mouse, Tehachapi pocket mouse, San Joaquin pocket mouse, Northwestern San Diego pocket mouse, Southern grasshopper mouse, Tulare grasshopper mouse, and San Diego black-tailed jackrabbit are all California Species of Special Concern that have the potential to occur within the Project area (the Los Angeles pocket mouse and Tehachapi pocket mouse are also USDA Forest Service Sensitive species). Direct impacts to special-status mammals could include mechanical crushing by vehicles and construction equipment, trampling, dust, and loss of habitat. Construction disturbance can also result in the flushing of small animals from refugia which increases the predation risk for small rodents. Indirect impacts include alteration of soils, such as compaction that could preclude burrowing, and the spread of exotic weeds. Operational impacts include risk of road kill on access and spur roads by the public and maintenance personnel, the spread of noxious weeds, and disturbance due to increased human presence. However, these impacts will not substantially reduce regional populations below self-sustaining levels or restrict the range of these species.

APMs BIO-1, BIO-2, and BIO-5 through BIO-7, which are included as part of the Project, will help to reduce impacts to biological resources. These APMs include conducting clearance surveys for wildlife, minimizing vegetation removal at construction sites, biological monitoring, personnel training, and coordinating and compensating for impacts to wildlife with the regulatory agencies. However, these APMs do not clearly address impacts to special-status mammals and will not reduce Project Impact B-35 to a less-than-significant level. Therefore, to reduce impacts to special-status mammals to a less-than-significant level, the following mitigation measures shall be implemented: Mitigation Measures B-1a, B-1b, B-2, B-3a, and AQ-1a.

Finding. The CPUC finds that changes or alterations have been incorporated into the Project which avoid or substantially lessen the significant effects on the environment from Impact B-35. Specifically, the following mitigation measures are feasible and are hereby adopted to mitigate significant effects from Impact B-35 to a less-than-significant level.

- **MM B-1a Provide restoration/compensation for impacts to native vegetation communities.** (*See above for full text*)
- **MM B-1b Implement a Worker Environmental Awareness Program.** (*See above for full text*)
- **MM B-2 Implement RCA Treatment Plan.** (*See above for full text*)
- **MM B-3a Prepare and implement a Weed Control Plan.** (*See above for full text*)
- **MM AQ-1a Implement Construction Fugitive Dust Control Plan.** (*See above for full text*)

Rationale for Finding. The preparation and implementation of a Habitat Restoration and Revegetation Plan will compensate for impacts to habitat by restoring areas temporarily disturbed during construction. Where impacts are permanent, compensation for the loss of habitats will occur through the preservation, enhancement, or restoration of comparable off-site lands, or through funding for land purchase for inclusion into the Angeles National Forest, mitigation banking, removing existing structures, or comparable restoration efforts. The implementation of a Worker Environmental Awareness Program will ensure that all construction personnel are familiar with applicable regulations and laws regarding sensitive species that could be encountered in the Project area, the consequences of non-compliance with these laws and regulations, identification and values of plant and wildlife species and significant natural plant community habitats, fire protection measures, sensitivities of working on NFS lands and identification of USDA Forest Service sensitive species, hazardous substance spill prevention and containment measures, a contact person in

the event of the discovery of dead or injured wildlife, and review of mitigation requirements. The implementation of an RCA Treatment Plan will ensure that activities conducted within RCAs are approved by the USDA Forest Service prior to implementation and are conducted in such a way as to minimize disturbance to sensitive resources. The implementation of a Weed Control Plan will ensure that the spread and establishment of weeds due to Project activities is minimized. Implementation of a Construction Fugitive Dust Control Plan will minimize impacts to special-status mammals associated with fugitive dust generated during construction. Together these measures will reduce Project impacts to special-status mammals to a less-than-significant level.

Reference. Final EIR Section 3.4; Table ES-3

Impact B-36: The Project could result in mortality of San Diego desert woodrats.

The San Diego desert woodrat is a California Species of Special Concern that has the potential to occur within the Project area. This species is known from the Puente Hills Landfill Native Habitat Preservation Authority lands. Potential San Diego desert woodrat nests were frequently observed during reconnaissance surveys in 2007 and 2008 of the Project in the Puente and Chino Hills and portions of the ANF. Direct impacts from construction activities could include the mortality of individual San Diego desert woodrats or disturbance (noise, air turbulence, dust, and ground vibrations from helicopters and construction equipment) to occupied desert woodrat nests. Construction and use of access roads could also result in impacts to this species. Indirect impacts to San Diego desert woodrats include the spread of noxious weeds that will degrade habitat quality and alteration of soils. Operational impacts could include disturbance to woodrat nests, clearing and trimming of vegetation during maintenance activities, the spread of noxious weeds, and disturbance due to use of new or improved access and spur roads by the public and maintenance personnel.

APMs BIO-1, BIO-2, and BIO-5 through BIO-7, which are included as part of the Project, will help to reduce impacts to biological resources. These APMs include conducting clearance surveys for wildlife, implementation of best management practices, minimizing vegetation removal at construction sites, biological monitoring, personnel training, and coordinating and compensating for impacts to wildlife with the regulatory agencies. However, these APMs do not clearly address impacts to San Diego desert woodrats and will not reduce Project Impact B-36 to a less-than-significant level. Therefore, to reduce impacts to San Diego desert woodrats to a less-than-significant level, the following mitigation measures shall be implemented: Mitigation Measures B-1a, B-1b, B-3a, B-36, and AQ-1a.

Finding. The CPUC finds that changes or alterations have been incorporated into the Project which mitigate significant effects on the environment from Impact B-36. Specifically, the following mitigation measures are feasible and are hereby adopted to mitigate significant effects from Impact B-36 to a less-than-significant level.

- **MM B-1a Provide restoration/compensation for impacts to native vegetation communities.** (*See above for full text*)
- **MM B-1b Implement a Worker Environmental Awareness Program.** (*See above for full text*)
- **MM B-3a Prepare and implement a Weed Control Plan.** (*See above for full text*)
- **MM B-36 Conduct focused surveys for San Diego desert woodrats and passively relocate.** SCE shall implement pre-construction surveys for the San Diego desert woodrat in suitable habitats. If present, active woodrat nests will be flagged and ground-disturbing activities shall be avoided within a minimum of 10 feet surrounding each active nest unless otherwise

authorized by the CDFG and CPUC. If avoidance is not possible, SCE will take the following sequential steps: (1) all understory vegetation will be cleared in the area immediately surrounding active nests followed by a period of one night without further disturbance to allow woodrats to vacate the nest, (2) each occupied nest will then be disturbed by a qualified wildlife biologist until all woodrats leave the nest and seek refuge off-site, and (3) the nest sticks shall be removed from the Project site and piled at the base of a nearby hardwood tree (preferably a coast live oak or California walnut). Relocated nests shall not be spaced closer than 100 feet apart, unless a qualified wildlife biologist has determined that a specific habitat can support a higher density of nests. SCE shall document all woodrat nests moved and provide a written report to the CPUC, USACE (as appropriate), and CDFG. The resumes of the proposed biologists shall be provided to the CPUC, and USACE (as appropriate) for concurrence.

- **MM AQ-1a Implement Construction Fugitive Dust Control Plan.** (*See above for full text*)

Rationale for Finding. The preparation and implementation of a Habitat Restoration and Revegetation Plan will compensate for impacts to habitat by restoring areas temporarily disturbed during construction. Where impacts are permanent, compensation for the loss of habitats will occur through the preservation, enhancement, or restoration of comparable off-site lands, or through funding for land purchase for inclusion into the Angeles National Forest, mitigation banking, removing existing structures, or comparable restoration efforts. The implementation of a Worker Environmental Awareness Program will ensure that all construction personnel are familiar with applicable regulations and laws regarding sensitive species that could be encountered in the Project area (including San Diego desert woodrats), the consequences of non-compliance with these laws and regulations, identification and values of plant and wildlife species and significant natural plant community habitats, fire protection measures, sensitivities of working on NFS lands and identification of USDA Forest Service sensitive species, hazardous substance spill prevention and containment measures, a contact person in the event of the discovery of dead or injured wildlife, and review of mitigation requirements. The implementation of a Weed Control Plan will ensure that the spread and establishment of weeds due to Project activities is minimized. Focused surveys, a 10-foot disturbance-free buffer around active nests, and passive relocation if avoidance is not feasible will minimize impacts to San Diego desert woodrats. Implementation of a Construction Fugitive Dust Control Plan will minimize impacts to San Diego desert woodrats associated with fugitive dust generated during construction. Together these measures will reduce Project impacts to San Diego desert woodrats to a less-than-significant level.

Reference. Final EIR Section 3.4; Table ES-3

Impact B-37: The Project could result in mortality of, and loss of habitat for the ringtail.

The ringtail, a fully protected species in California, has the potential to occur in chaparral, oak woodlands, bigcone Douglas fir and canyon oak forest, or riparian habitats within canyons of the Project area; especially on steeper south or west-facing slopes with oaks or other hardwoods present. Ringtails have been observed in Big Tujunga Canyon and near Mt. Gleason in the vicinity of the Project area. Areas within the Project that contain suitable habitats include Amargosa Creek, Upper Big Tujunga Creek, Santa Anita Canyon, San Gabriel River, Monte Cristo Creek, Mill Creek, Saucer Branch/Millard Canyon, and Tonner Canyon.

Direct impacts due to construction activities could include mortality of individual ringtail or disturbance of ringtail maternity dens during the pup-rearing season (1 May to 1 September). The construction and use of access roads in riparian areas could also disturb denning ringtails. Construction noise, dust, human presence, or ground disturbance could result in the abandonment of nest sites or result in mortality of juvenile animals. Indirect impacts to ringtail could include the spread of noxious weeds that will degrade habitat quality, degradation of water quality due to siltation, and alteration of soils. Operational impacts could include

disturbance to ringtail dens, clearing and trimming of vegetation during maintenance activities, the spread of noxious weeds, and disturbance due to use of new or improved access and spur roads by the public and maintenance personnel.

APMs BIO-1 through BIO-7, which are included as part of the Project, will help to reduce impacts to biological resources. These APMs include conducting clearance surveys for wildlife, minimizing vegetation removal at construction sites, avoiding streambeds to the extent practicable, implementation of best management practices, biological monitoring, personnel training, and coordinating and compensating for impacts to wildlife with the regulatory agencies. However, these APMs do not clearly address impacts to the ringtail and will not reduce Project Impact B-37 to a less-than-significant level. Therefore, to reduce impacts to the ringtail to a less-than-significant level, the following mitigation measures shall be implemented: Mitigation Measures B-1a, B-1b, B-3a, B-37, AQ-1a, and H-1a.

Finding. The CPUC finds that changes or alterations have been incorporated into the Project which avoid or substantially lessen the significant effects on the environment from Impact B-37. Specifically, the following mitigation measures are feasible and are hereby adopted to mitigate significant effects from Impact B-37 to a less-than-significant level.

- **MM B-1a Provide restoration/compensation for impacts to native vegetation communities.** (*See above for full text*)
- **MM B-1b Implement a Worker Environmental Awareness Program.** (*See above for full text*)
- **MM B-3a Prepare and implement a Weed Control Plan.** (*See above for full text*)
- **MM B-37 Conduct focused surveys for ringtail and passively relocate during the non-breeding season.** SCE shall conduct pre-construction ringtail surveys on non-NFS lands at sites with suitable denning habitat within the Project area. This includes at a minimum Amargosa Creek, Santa Anita Canyon, San Gabriel River, and Tonner Canyon within 200 feet of any ground disturbing activity. SCE shall provide a list to the CPUC of the proposed survey areas for approval. Occupied dens will be flagged and ground-disturbing activities within 200 feet will be avoided. If occupied dens are found in the Project area and avoidance is not possible, denning ringtail shall be safely evicted under the direction of a qualified biologist (as determined by a Memorandum of Understanding with CDFG). The qualified biologist shall facilitate the removal of ringtail by delaying construction activity for a minimum 20 days during the early pup-rearing season (1 May to 15 June) and a minimum of 5 days during the rest of the year (16 June to 30 April). If the qualified biologist documents ringtail voluntarily vacating the den site during this period, then construction may begin within 7 days following this observation. If the ringtails do not vacate the den voluntarily within the required period, then the qualified biologist will coordinate with CDFG to passively relocate ringtail (excluding the early pup-rearing season: 1 May to 15 June). All activities that involve the ringtail shall be documented and reported to the CDFG and CPUC within 30 days of the activity.
- **MM AQ-1a Implement Construction Fugitive Dust Control Plan.** (*See above for full text*)
- **MM H-1a Implement an Erosion Control Plan and demonstrate compliance with water quality permits**. (*See above for full text*)

Rationale for Finding. The preparation and implementation of a Habitat Restoration and Revegetation Plan will compensate for impacts to habitat by restoring areas temporarily disturbed during construction. Where impacts are permanent, compensation for the loss of habitats will occur through the preservation, enhancement, or restoration of comparable off-site lands, or through funding for land purchase for inclusion

into the Angeles National Forest, mitigation banking, removing existing structures, or comparable restoration efforts. The implementation of a Worker Environmental Awareness Program will ensure that all construction personnel are familiar with applicable regulations and laws regarding sensitive species that could be encountered in the Project area (including the ringtail), the consequences of non-compliance with these laws and regulations, identification and values of plant and wildlife species and significant natural plant community habitats, fire protection measures, sensitivities of working on NFS lands and identification of USDA Forest Service sensitive species, hazardous substance spill prevention and containment measures, a contact person in the event of the discovery of dead or injured wildlife, and review of mitigation requirements. The implementation of a Weed Control Plan will ensure that the spread and establishment of weeds due to Project activities is minimized. Focused surveys, a 200-foot disturbance-free buffer around occupied dens, and passive relocation in consultation with the CDFG if avoidance is not feasible, will minimize impacts to the ringtail. Implementation of a Construction Fugitive Dust Control Plan will minimize impacts to the ringtail associated with fugitive dust generated during construction. Implementation of an Erosion Control Plan and compliance with water quality permits will minimize impacts associated with erosion and water quality. Together these measures will reduce Project impacts to the ringtail to a less-than-significant level.

Reference. Final EIR Section 3.4; Table ES-3

Impact B-38: The Project could result in mortality of American badgers.

Areas within the Project that contain suitable habitats for American badgers include the Antelope Valley and Chino and Puente Hills. American badgers have been observed within the Puente Hills Landfill Native Habitat Preservation Authority lands. Foothill sections of the ANF may also support this species. Direct impacts to American badger could include mechanical crushing of individuals or burrows by vehicles and construction equipment, noise, dust, and loss of habitat. Indirect impacts could include alteration of soils, such as compaction that could preclude burrowing, and the spread of exotic weeds. Operational impacts could include risk of road kill on access and spur roads by the public and maintenance personnel, the spread of noxious weeds, and disturbance due to increased human presence. Construction activities including clearing and grading of tower sites, staging areas, and access roads could result in mortality of individual badgers or disturbance of badger maternity dens during the pup-rearing season (15 February to 1 July).

APMs BIO-1, BIO-2, and BIO-5 through BIO-7, which are included as part of the Project, will help to reduce impacts to biological resources. These APMs include conducting clearance surveys for wildlife, minimizing vegetation removal at construction sites, biological monitoring, personnel training, and coordinating and compensating for impacts to wildlife with the regulatory agencies. However, these APMs do not clearly address impacts to the American badger and will not reduce Project Impact B-38 to a less-than-significant level. Therefore, to reduce impacts to the American badger to a less-than-significant level, the following mitigation measures shall be implemented: Mitigation Measures B-1a, B-1b, B-3a, B-38, and AQ-1a.

Finding. The CPUC finds that changes or alterations have been incorporated into the Project which mitigate significant effects on the environment from Impact B-38. Specifically, the following mitigation measures are feasible and are hereby adopted to mitigate significant effects from Impact B-38 to a less-than-significant level.

- **MM B-1a Provide restoration/compensation for impacts to native vegetation communities.** (*See above for full text*)
- **MM B-1b Implement a Worker Environmental Awareness Program.** (*See above for full text*)

- **MM B-3a Prepare and implement a Weed Control Plan.** (*See above for full text*)
- **MM B-38 Conduct focused surveys for American badgers and passively relocate during the non-Breeding season.** SCE shall implement pre-construction surveys for American badger within suitable habitat on non-NFS lands. If present, occupied badger dens shall be flagged and ground-disturbing activities avoided within 50 feet of the occupied den avoided. Maternity dens shall be avoided during pup-rearing season (15 February through 1 July) and a minimum 200-foot buffer established. Buffers may be modified with the concurrence of CDFG and CPUC. Maternity dens shall be flagged for avoidance, identified on construction maps, and a biological monitor shall be present during construction.

  If avoidance of a non-maternity den is not feasible, badgers shall be relocated by slowly excavating the burrow (either by hand or mechanized equipment under the direct supervision of the biologist, removing no more that 4 inches at a time) before or after the rearing season (15 February through 1 July). Any relocation of badgers shall occur only after consultation with the CDFG, USACE (as appropriate), and CPUC monitor. A written report documenting the badger removal shall be provided to the CDFG, USACE (as appropriate), and CPUC within 30 days of relocation.
- **MM AQ-1a Implement Construction Fugitive Dust Control Plan.** (*See above for full text*)

Rationale for Finding. The preparation and implementation of a Habitat Restoration and Revegetation Plan will compensate for impacts to habitat by restoring areas temporarily disturbed during construction. Where impacts are permanent, compensation for the loss of habitats will occur through the preservation, enhancement, or restoration of comparable off-site lands, or through funding for land purchase for inclusion into the Angeles National Forest, mitigation banking, removing existing structures, or comparable restoration efforts. The implementation of a Worker Environmental Awareness Program will ensure that all construction personnel are familiar with applicable regulations and laws regarding sensitive species that could be encountered in the Project area (including the American badger), the consequences of non-compliance with these laws and regulations, identification and values of plant and wildlife species and significant natural plant community habitats, fire protection measures, sensitivities of working on NFS lands and identification of USDA Forest Service sensitive species, hazardous substance spill prevention and containment measures, a contact person in the event of the discovery of dead or injured wildlife, and review of mitigation requirements. The implementation of a Weed Control Plan will ensure that the spread and establishment of weeds due to Project activities is minimized. Focused surveys, a 50-foot disturbance-free buffer around occupied dens (200-foot buffer around active maternity dens), and passive relocation (outside of the pup-rearing season and in consultation with the CDFG) if avoidance is not feasible, will minimize impacts to the American badger. Implementation of a Construction Fugitive Dust Control Plan will minimize impacts to the American badger associated with fugitive dust generated during construction. Together these measures will reduce Project impacts to the American badger to a less-than-significant level.

Reference. Final EIR Section 3.4; Table ES-3

Impact B-39: The Project could result in the loss of wetland habitats.

Some of the creeks and drainages that occur in the Project area include Amargosa Creek, Oak Creek, and Cottonwood Creek in the Northern Region; Big Tujunga Creek, the San Gabriel River, and Mill Creek in the Central Region; and the San Gabriel River, the Rio Hondo, and Walnut Creek in the Southern Region. In addition to these and other perennial, ephemeral, and intermittent drainages are numerous other tributaries, unnamed drainages, gullies, and rills that are crossed by the Project. In some areas these crossings will be subject to improvement or grading to ensure the safe passage of vehicles and equipment. This may involve the placement of rock or the construction of culverts. At two locations, SCE has proposed major stream

crossing repairs or upgrades. This includes repairing the washed-out Falls Creek crossing at Big Tujunga, a span of over 200 feet, and major upgrades to the San Gabriel River crossing, an existing damaged concrete Arizona crossing. In addition, the maintenance of existing access roads, which includes grading the road to a minimum of 16 feet in many areas; the construction of new access and spur roads in areas above jurisdictional waters such as Mill Creek, Tujunga Reservoir, and the San Gabriel River; and the installation or replacement of culverts in and adjacent creeks and drainages could result in the discharge of fill into drainages under the jurisdiction of the USACE. Alteration of jurisdictional waters in turn could result in adverse impacts to plant and wildlife species that are dependent on these areas.

Direct impacts to wetland habitats could include the removal of native riparian vegetation, the discharge of fill, degradation of water quality, and increased erosion and sediment transport. Most of these impacts will occur during access road improvements and heavy equipment and vehicle passage where jurisdictional waters cross access roads. Indirect impacts could include alterations to the existing topographical and hydrological conditions and the introduction of non-native, invasive plant species. Operational impacts to wetland habitats will be similar to indirect impacts and will primarily occur as a result of facilitated use of new or improved spur roads and access roads.

As required by law SCE will comply with the regulations regarding conducting Project activities in water bodies under the jurisdiction of the State and federal government. As such SCE will obtain required permits pursuant to Section 401 and 404 of the CWA and the State Porter-Cologne Act and CDFG Code 1602. On NFS lands SCE will comply with the Forest Service requirements regarding RCAs. In accordance with the Clean Water Act, there will be no net loss of wetlands from the implementation of the Project. As such, SCE will mitigate permanent and temporary impacts at a minimum 1:1 ratio for riparian vegetation (Mitigation Measure B-1a). Mitigation will include restoration, enhancement, and/or compensation, as appropriate.

APMs BIO-1 through BIO-7, which are included as part of the Project, will help to reduce impacts to biological resources. These APMs include conducting clearance surveys for wildlife, minimizing vegetation removal at construction sites, avoiding streambeds to the extent practicable, implementation of best management practices, biological monitoring, personnel training, and coordinating and compensating for impacts to wildlife with the regulatory agencies. However, these APMs do not clearly address impacts to wetland habitats and will not reduce Project Impact B-39 to a less-than-significant level. Therefore, to reduce impacts to wetland habitats to a less-than-significant level, the following mitigation measures shall be implemented: Mitigation Measures B-1a, B-1b, B-2, B-3a, B-12, AQ-1a, and H-1a.

Finding. The CPUC finds that changes or alterations have been incorporated into the Project which avoid or substantially lessen the significant effects on the environment from Impact B-39. Specifically, the following mitigation measures are feasible and are hereby adopted to mitigate significant effects from Impact B-39 to a less-than-significant level.

- **MM B-1a Provide restoration/compensation for impacts to native vegetation communities.** (*See above for full text*)
- **MM B-1b Implement a Worker Environmental Awareness Program.** (*See above for full text*)
- **MM B-2 Implement RCA Treatment Plan.** (*See above for full text*)
- **MM B-3a Prepare and implement a Weed Control Plan.** (*See above for full text*)
- **MM B-12 Implement avoidance and minimization measures for fish and aquatic organisms.** (*See above for full text*)
- **MM AQ-1a Implement Construction Fugitive Dust Control Plan.** (*See above for full text*)

- **MM H-1a Implement an Erosion Control Plan and demonstrate compliance with water quality permits.** (*See above for full text*)

Rationale for Finding. The preparation and implementation of a Habitat Restoration and Revegetation Plan will compensate for impacts to habitat by restoring areas temporarily disturbed during construction. Where impacts are permanent, compensation for the loss of habitats will occur through the preservation, enhancement, or restoration of comparable off-site lands, or through funding for land purchase for inclusion into the Angeles National Forest, mitigation banking, removing existing structures, or comparable restoration efforts. The implementation of a Worker Environmental Awareness Program will ensure that all construction personnel are familiar with applicable regulations and laws regarding sensitive species that could be encountered in the Project area, the consequences of non-compliance with these laws and regulations, identification and values of plant and wildlife species and significant natural plant community habitats, fire protection measures, sensitivities of working on NFS lands and identification of USDA Forest Service sensitive species, hazardous substance spill prevention and containment measures, and review of mitigation requirements. The implementation of an RCA Treatment Plan will ensure that activities conducted within RCAs are approved by the USDA Forest Service prior to implementation and are conducted in such a way as to minimize disturbance to sensitive resources. The implementation of a Weed Control Plan will ensure that the spread and establishment of weeds due to Project activities is minimized. Avoidance and minimization measures such as the staging of Hazardous Material Spill Kit(s) along the West Fork Cogswell Road and daily inspection of the West Fork Cogswell Road by a qualified biological monitor will minimize effects to wetland habitats. Implementation of a Construction Fugitive Dust Control Plan will minimize impacts to wetland habitats associated with fugitive dust generated during construction. Implementation of an Erosion Control Plan and compliance with water quality permits will minimize impacts associated with erosion and water quality. Together these measures will reduce Project impacts to wetland habitats to a less-than-significant level.

Reference. Final EIR Section 3.4; Table ES-3

Impact B-42: The Project would result in effects to Management Indicator Species.

The ANF NF Land Resources Management Plan (USDA, 2005) requires forest scale monitoring of habitat status and trend for select Management Indicator Species (MIS) on the ANF. MIS (and their associated habitat) potentially located in the Project area on the ANF include: mule deer (Healthy Diverse Habitats); mountain lion (Fragmentation); California spotted owl (Montane Conifer Forest); song sparrow (Riparian Habitat); arroyo toad (Aquatic Habitat); blue oak, Englemann oak, and valley oak (Oak Regeneration); bigcone Douglas-fir (Bigcone Douglas-fir Forest); and Coulter pine (Coulter Pine Forest). Of these MIS, impacts to the mule deer and mountain lion will be less than significant. Project-related impacts to the California spotted owl are described under Impacts B-30 and B-31, above. Impacts to the song sparrow will be similar those described for other nesting birds under Impacts B-5, B-15, and B-32 above. Project-related impacts to the arroyo toad are described under Impact B-9, above. Blue oak, valley oak, and Engelmann's oak were not identified in the utility corridor and will not be impacted by Project construction. Implementation of the Project will impact approximately 7 acres of bigcone Douglas fir habitat, and approximately 8 acres of Coulter pine habitat will be impacted by the Project.

APMs BIO-1 through BIO-7, which are included as part of the Project, will help to reduce impacts to biological resources. These APMs include conducting clearance surveys for wildlife, minimizing vegetation removal at construction sites, avoiding streambeds to the extent practicable, implementation of best management practices, biological monitoring, personnel training, and coordinating and compensating for impacts to wildlife with the regulatory agencies. However, these APMs do not clearly address impacts to

MIS and will not reduce Project Impact B-42 to a less-than-significant level. Therefore, to reduce impacts to MIS to a less-than-significant level, the following mitigation measures shall be implemented: Mitigation Measures B-1a through B-1c, B-2, B-3a through B-3c, B-5, B-8b, B-9, B-30, AQ-1a, H-1a, and H-1b.

Finding. The CPUC finds that changes or alterations have been incorporated into the Project which avoid or substantially lessen the significant effects on the environment from Impact B-42. Specifically, the following mitigation measures are feasible and are hereby adopted to mitigate significant effects from Impact B-42 to a less-than-significant level.

- **MM B-1a Provide restoration/compensation for impacts to native vegetation communities.** (*See above for full text*)
- **MM B-1b Implement a Worker Environmental Awareness Program.** (*See above for full text*)
- **MM B-1c Treat cut tree stumps with Sporax.** (*See above for full text*)
- **MM B-2 Implement RCA Treatment Plan.** (*See above for full text*)
- **MM B-3a Prepare and implement a Weed Control Plan.** (*See above for full text*)
- **MM B-3b Remove weed seed sources from construction routes.** (*See above for full text*)
- **MM B-3c Remove weed seed sources from assembly yards, staging areas, tower pads, pull sites, landing zones, and spur roads.** (*See above for full text*)
- **MM B-5 Conduct pre-construction surveys and monitoring for breeding birds.** (*See above for full text*)
- **MM B-8b Conduct biological monitoring.** (*See above for full text*)
- **MM B-9 Conduct protocol surveys for arroyo toads and implement avoidance measures in occupied areas.** (*See above for full text*)
- **MM B-30 Conduct pre- and during construction nest surveys for spotted owl.** (*See above for full text*)
- **MM AQ-1a Implement Construction Fugitive Dust Control Plan.** (*See above for full text*)
- **MM H-1a Implement an Erosion Control Plan and demonstrate compliance with water quality permits.** (*See above for full text*)
- **MM H-1b Dry weather construction.** (*See above for full text*)

Rationale for Finding. The preparation and implementation of a Habitat Restoration and Revegetation Plan will compensate for impacts to habitat by restoring areas temporarily disturbed during construction. Where impacts are permanent, compensation for the loss of habitats will occur through the preservation, enhancement, or restoration of comparable off-site lands, or through funding for land purchase for inclusion into the Angeles National Forest, mitigation banking, removing existing structures, or comparable restoration efforts. The implementation of a Worker Environmental Awareness Program will ensure that all construction personnel are familiar with applicable regulations and laws regarding sensitive species that could be encountered in the Project area, the consequences of non-compliance with these laws and regulations, identification and values of plant and wildlife species and significant natural plant community habitats, fire protection measures, sensitivities of working on NFS lands and identification of USDA Forest Service sensitive species, hazardous substance spill prevention and containment measures, a contact person in the event of the discovery of dead or injured wildlife, and review of mitigation requirements. Treating all stumps of trees resulting from Project construction activities with Sporax will prevent the spread of annosus

root disease that could infect MIS or habitat for MIS. The implementation of an RCA Treatment Plan will ensure that activities conducted within RCAs are approved by the USDA Forest Service prior to implementation and are conducted in such a way as to minimize disturbance to sensitive resources. The implementation of a Weed Control Plan will ensure that the spread and establishment of weeds due to Project activities is minimized. Controlling known populations of nonnative and invasive weeds along construction access routes and from within assembly yards, staging areas, tower pads, pull sites, landing zones, and spur roads within the ANF will minimize the potential for spread of these species into and through work areas, as outlined in the USDA Forest Service Land Management Plan (2005). Pre-construction surveys and monitoring for breeding birds by a qualified biologist, and protective buffers established around active nests, will ensure that impacts to breeding birds (including song sparrows and California spotted owls) are minimized. Monitoring conducted by a qualified biologist will minimize the potential for direct effects to listed wildlife, including arroyo toads. Protocol surveys for arroyo toad in suitable habitat and the implementation of avoidance measures such as seasonal restrictions on Project activities within occupied habitat, restricting work to daytime hours, and relocation of individuals out of work areas will minimize effects to the species. Nest surveys, Limited Operating Periods (LOPs), no helicopter construction within 0.5 mile of breeding spotted owl territories, and a buffer between territories and helicopter overflights will minimize impacts to California spotted owls. Implementation of a Construction Fugitive Dust Control Plan will minimize impacts to MIS associated with fugitive dust generated during construction. Implementation of an Erosion Control Plan and compliance with water quality permits will minimize impacts associated with erosion and water quality. Avoiding construction during rain events will minimize the potential for Project activities to occur during the period when arroyo toads are most likely to be active. Together these measures will reduce Project impacts to MIS to a less-than-significant level.

Reference. Final EIR Section 3.4; Table ES-3

III.3.4 Cultural Resources

As described in Final EIR Section 3.5.4.1, cultural resources are places or objects that are important for historical, scientific, and religious reasons and are of concern to cultures, communities, groups, or individuals. These resources may include historic buildings and architectural remains, archaeological sites and other artifacts that provide evidence of past human activity, human remains, or traditional cultural properties. In addition, under both federal and State law, Native American human remains and associated grave goods are granted special significance.

For cultural resources, the impact assessment in the Final EIR is based on a comparison of known resource locations with the placement of ground disturbing Project activities that have the potential to remove, relocate, damage, or destroy the physical evidence of past cultural activities. A GIS-based impact analysis was performed for the Project using data on the locations of known sites and Project elements provided by SCE, subcontractors to SCE, and Aspen Environmental Group, augmented by field survey data.

Impact C-1: Construction may diminish the integrity of properties eligible for the National Register of Historic Places (NRHP).

Properties that are eligible for the NRHP (i.e., "historic properties" as defined at 36 CFR 800.16(l)), as well as properties that may be eligible but have not been evaluated, occur within and near several tower sites and at other locations within or adjacent to the Project Area of Potential Effect (APE). Direct impacts are considered to be any ground-disturbing activities, including tower site preparation and construction, grading of new access or spur roads, reconductoring, tower removal, transportation, storage, and maintenance of construction equipment and supplies, staging area and material yard preparation and use, and use or

improvement of existing access roads, that have the potential to disturb known cultural resources. Impacts could also result from inadvertent trespass out of designated work areas or roads.

Adverse effects to individual sites cannot be precisely identified until the final tower locations are defined, specific tower sites are determined, detailed engineering plans for all Project roads and facilities are completed, the precise relationship of these Project elements to known sites is determined, and final NRHP eligibility of affected cultural resources has been evaluated; thus planning for these activities must account not only for sites determined eligible for the NRHP, but also for unevaluated sites. If direct impacts to these sites cannot be avoided, the CPUC, Forest Service, and the USACE, in consultation with the California State Historic Preservation Officer (SHPO), will make a final determination of adverse effect. Since this is a complex undertaking that will be built in phases, and since the CPUC, a non-federal agency, has decision-making responsibilities, the USDA Forest Service, USACE, CPUC, and SCE will execute a Programmatic Agreement (PA) with the SHPO that will guide the resolution of adverse effects to historic properties.

Indirect impacts may occur to properties eligible for the NRHP within and in the vicinity of the Project APE during operation and long-term presence of the Project. Increased erosion could result as an indirect Project impact to cultural resources.

Finding. The CPUC finds that changes or alterations have been incorporated into the Project which avoid or substantially lessen the significant effects on the environment from Impact C-1. Specifically, the following mitigation measures are feasible and are hereby adopted to mitigate significant effects from Impact C-1 to a less-than-significant level.

- **MM C-1a Development and Execution of a Programmatic Agreement (PA).** Since the Project's effects on historic properties cannot be fully determined before the Project has been approved, and the CPUC is a non-federal agency with decision-making responsibilities, the Forest Service, USACE, CPUC, and SCE, along with the Advisory Council on Historic Preservation if they choose to participate, will develop and execute a PA for the TRTP with the SHPO in accordance with 36 CFR 800.14(b)(ii) and (iii). The PA will guide the resolution of adverse effects to and management of historic properties. Consultation to develop the PA will follow 36 CFR 800.6. The PA will contain minimum standards and guidelines for identifying historic properties and evaluating their significance. It will include requirements for development and implementation of Historic Properties/Historical Resources Management Plans, Construction Phase Management Plans, archaeological monitoring, reporting, professional qualifications, artifact curation, Native American consultation, treatment of human remains, discovery of unknown cultural resources, cost, dispute resolution, amendment, termination, confidentiality, annual meetings, and duration.
- **MM C-1b Inventory cultural resources in the APE.** APM CR-1 calls for intensive archaeological inventories of areas that may be disturbed by construction. As described in Section 3.5.2, cultural resource inventories have been completed for most of the APE. However, some elements of the Project remain undefined and additional inventories may be necessary. Prior to construction and all other surface disturbing activities, SCE shall submit cultural resources inventory reports to the Forest Service, USACE, and CPUC for any portions of the APE which have not been inventoried previously, including but not limited to existing and newly proposed access and spur roads, construction turn-arounds, guard pole locations, marshalling yards, wire setup areas, helicopter staging areas, helicopter landing zones, and any other projected areas of potential ground disturbance outside of the previously surveyed areas. The nature and extent of additional inventory shall be determined by the Forest Service, USACE, and CPUC in consultation with the State Historic Preservation Officer (SHPO). Results of these inventories shall also be filed with the appropriate Information Centers of the California Historical Resources Information System. Site-specific field surveys also shall be undertaken at all projected areas of impact within the previously

surveyed corridor that coincide with previously recorded resource locations to further refine the assessment of potential Project effects. The selected tower locations and other direct impact areas shall be staked prior to the cultural resource field surveys.

- **MM C-1c Avoid and protect resources.** APMs CR-2, CR-2a, and CR-2c call for avoidance of impacts through Project redesign or use of protective buffer zones. The Forest Service, USACE, and CPUC may require the relocation of transmission lines, ancillary facilities, or temporary facilities or work areas, if any, where relocation would avoid or reduce damage to cultural resource values. Where operationally feasible, NRHP-eligible resources shall be protected from direct Project impacts by Project redesign and inclusion of sites in exclusion areas.

  All cultural resources that will not be impacted directly but are within 50 feet of direct impact areas shall be designated as Environmentally Sensitive Areas (ESAs). Protective fencing or other markers, at the Forest Service, USACE, or CPUC's discretion, shall be erected and maintained to protect ESAs from inadvertent trespass for the duration of construction in the vicinity. Construction personnel and equipment shall be instructed on how to avoid ESAs. ESAs shall not be identified specifically as cultural resources. A monitoring program shall be developed as part of the Historic Properties Treatment Plan (see Mitigation Measure C-1e, Develop and implement a Historic Properties Treatment Plan) and implemented by the SCE to ensure the effectiveness of ESAs.

- **MM C-1d Evaluate the significance of cultural resources that cannot be avoided.** APMs CR-3, CR-3a, and CR-3b call for formal significance evaluation of archaeological sites and historical buildings and structures that cannot be avoided during construction. APM CR-3c calls for consultation with Native Americans regarding traditional cultural values that may be associated with archaeological sites. Where the Forest Service, USACE, and/or CPUC decide that cultural resources cannot be protected from direct impacts by Project redesign or avoidance, SCE shall undertake additional studies to evaluate the resources' NRHP eligibility and to recommend further treatment, if necessary. The nature and extent of this evaluation shall be determined by the Forest Service in consultation with the USACE, CPUC, SCE, and the SHPO. Consultation shall include direct contact with Native American tribal representatives to seek their views on the significance of resources having a Native American component. Significance evaluations will be based on surface remains, subsurface testing, archival and ethnographic resources, and in the framework of the historic context and research questions important to the general Project area. Results of those evaluation studies and recommendations for mitigation of Project effects shall be incorporated into a Historic Properties Treatment Plan consistent with Mitigation Measure C-1e (Develop and implement a Historic Properties Treatment Plan).

- **MM C-1e Develop and implement Historic Properties/Historical Resources Treatment Plan.** Upon Forest Service, USACE, and CPUC approval of the inventory report and the NRHP eligibility evaluations, consistent with Mitigation Measures C-1b (Inventory cultural resources in the Final APE), C-1c (Avoid and protect resources), and C-1d (Evaluate the significance of cultural resources that cannot be avoided), SCE shall prepare and submit for approval a Historic Properties Treatment Plan (HPTP) or Historical Resources Management Plan (HRMP) for NRHP/CRHR - eligible cultural resources to mitigate or avoid identified impacts. Treatment of cultural resources shall follow the procedures established by the Advisory Council on Historic Preservation for compliance with Section 106 of the National Historic Preservation Act and the Secretary of Interiors Standards and Guidelines for the Treatment of Historic Properties. Mitigation alternatives may include, but are not limited to, avoidance, recordation, additional analysis of existing collections, and data recovery excavation. The HPTP or HRMP (herein HP/HRMP) shall be submitted to the Forest Service, USACE, and CPUC for review and approval.

  As part of the HP/HRMP, SCE shall prepare a research design and a scope of work for data recovery or additional treatment of significant sites that cannot be avoided. Data recovery on most

resources would consist of sample excavation and/or surface artifact collection, and site documentation. A possible exception would be a site where human remains or sacred features are discovered that cannot be avoided.

The HP/HRMP shall define and map all known significant properties affected, or potentially affected, by the Project, and shall identify the cultural values that contribute to their eligibility for the NRHP. A Construction Phase Management Plan shall be included that details how cultural resources will be avoided and protected during construction, in accordance with the PA. Measures shall include, at a minimum, designation and marking of Environmentally Sensitive Areas (ESAs), archaeological monitoring, personnel training, and effectiveness reporting. The plan shall detail what measures will be used; how, when, and where they will be implemented; and how protective measures and enforcement will be coordinated with construction personnel.

The HP/HRMP shall also define any additional areas that are considered to be of high-sensitivity for discovery of buried NRHP-eligible cultural resources, including burials, cremations, or sacred features. The HP/HRMP shall detail provisions for monitoring construction in these high-sensitivity areas. It shall also detail procedures for halting construction, making appropriate notifications to agencies, officials, and Native Americans, assessing NRHP-eligibility in the event that unknown cultural resources are discovered, and the timelines for assessing NRHP-eligibility, formulating a mitigation plan, and implementing treatment. Treatment plans for unanticipated discoveries shall be approved by the Forest Service, USACE, CPUC, appropriate Native Americans, and the SHPO prior to implementation.

The HP/HRMP shall include provisions for analysis of data in a regional context, reporting of results within one year of completion of field studies, and curation of artifacts and data (maps, field notes, archival materials, recordings, reports, photographs, and analysts' data) at a facility that is approved by Forest Service, USACE, and CPUC, and dissemination of reports to local and State repositories, libraries, and interested professionals. The Forest Service will retain ownership of artifacts collected from Forest Service managed lands. SCE shall attempt to gain permission for artifacts from privately held land to be curated with the other Project collections. The HP/HRMP shall specify that archaeologists and other discipline specialists conducting the studies meet the Secretary of the Interior's Professional Qualifications Standards (per 36 CFR 61).

- **MM C-1f Conduct data recovery excavation or other actions to reduce adverse effects.** If NRHP eligible resources, as determined by the CPUC, Forest Service, USACE, and SHPO, cannot be protected from direct impacts of the Project, SCE shall implement data-recovery investigations or other actions to reduce adverse effects to the characteristics of each property that make it eligible for the NRHP. For archaeological sites eligible under Criterion d, significant data would be recovered through excavation and analysis. For properties eligible under Criteria a, b, or c, treatment may include historical documentation, photography, collection of oral histories, architectural or engineering documentation, preparation of a scholarly work, or some form of public awareness or interpretation. Information gathered during the evaluation phase and the research design element of the HP/HRMP shall guide plans and data thresholds for data recovery; treatment will be based on the resource's research potential beyond that realized during resource recordation and evaluation studies. If data recovery excavation is necessary, appropriate sampling methods will be proposed. Sampling will be confined, as much as possible, to the direct impact area. Data-recovery methods, sample sizes, and procedures shall be detailed in the HP/HRMP consistent with Mitigation Measure C-1e (Develop and implement Historic Properties/Historical Resources Treatment Plan) and implemented by SCE only after approval by the Forest Service, USACE, and CPUC. Following any field investigations required for data recovery, SCE shall document the field studies and findings, including an assessment of whether adequate data were recovered to reduce adverse Project effects, in a brief field closure report. The field closure report shall be submitted to the Forest Service, USACE, and CPUC for their review and approval, as well as to the appropriate

State repositories and local governments. Construction work within 100 feet of cultural resources that require data-recovery fieldwork shall not begin until authorized by the Forest Service, USACE, or CPUC, as appropriate.

- **MM C-1g Conduct cultural resources monitoring.** APM CR-5 calls for preparation of a construction monitoring and inadvertent discovery plan. A professional archaeologist shall monitor subsurface construction disturbance at all locations identified in the HP/HRMP where monitoring is required (see Mitigation Measure C-1e, Develop and implement a Historic Properties/Historical Resources Treatment Plan). These locations and their boundaries shall be defined and mapped in the HP/HRMP. Intermittent monitoring may occur in areas of moderate archaeological sensitivity at the discretion of the Forest Service, USACE, and/or CPUC. Archaeological monitoring shall be conducted by a qualified archaeologist familiar with the types of historical and prehistoric resources that could be encountered within the Project APE, and under direct supervision of a principal archaeologist. The qualifications of the principal archaeologist and archaeological monitors shall be approved by the Forest Service, USACE, and CPUC. A Native American monitor may be required at culturally sensitive locations. SCE shall retain and schedule any required Native American monitors.

  Compliance with and effectiveness of the cultural resources monitoring plan shall be documented by SCE in a monthly report to be submitted to the Forest Service, USACE, and CPUC, for the duration of Project construction. In the event that cultural resources are not properly protected by ESAs, all Project work in the immediate vicinity shall be diverted by the archaeological monitor until authorization to resume work has been granted by the Forest Service, USACE, and CPUC. SCE shall notify the Forest Service of any damage to cultural resource ESAs. SCE shall consult with the Forest Service, USACE, and CPUC to mitigate damages and to increase effectiveness of ESAs. At the discretion of the Forest Service, USACE, and CPUC, such mitigation may include, but not be limited to modification of protective measures, refinement of monitoring protocols, data-recovery investigations, or payment of compensatory damages in the form of non-destructive cultural resources studies or protection.

- **MM C-1h Workers Environmental Awareness Program.** APM CR-2b calls for a pre-construction worker education program. All construction personnel shall be trained regarding the recognition of possible buried cultural remains and protection of all cultural resources, including prehistoric and historic resources during construction, prior to the initiation of construction or ground-disturbing activities. SCE shall complete training for all construction personnel. Training shall inform all construction personnel of the procedures to be followed upon the discovery of archaeological materials, including Native American burials. Training shall inform all construction personnel that Environmentally Sensitive Areas (ESAs) must be avoided and that travel and construction activity must be confined to designated roads and areas. All personnel shall be instructed that unauthorized collection or disturbance of artifacts or other cultural materials on or off the ROW by SCE, their representatives, or employees will not be allowed. Violators will be subject to prosecution under the appropriate State and federal laws and violations will be grounds for removal from the Project. Unauthorized resource collection or disturbance may constitute grounds for the issuance of a stop work order. The following issues shall be addressed in training or in preparation for construction:

  - All construction contracts shall include clauses that require construction personnel to attend training so they are aware of the potential for inadvertently exposing buried archaeological deposits, their responsibility to avoid and protect all cultural resources, and the penalties for collection, vandalism, or inadvertent destruction of cultural resources.
  - SCE shall provide a background briefing for supervisory construction personnel describing the potential for exposing cultural resources, the location of any potential ESA, and procedures and notifications required in the event of discoveries by Project personnel or

archaeological monitors. Supervisors shall also be briefed on the consequences of intentional or inadvertent damage to cultural resources. Supervisory personnel shall enforce restrictions on collection or disturbance of artifacts or other cultural resources.

- Upon discovery of potential buried cultural materials by archaeologists or construction personnel, or damage to an ESA, work in the immediate area of the find shall be diverted and SCE's archaeologist notified. Once the find has been inspected and a preliminary assessment made, SCE's archaeologist will consult with the Forest Service, USACE, or CPUC, as appropriate, to make the necessary plans for evaluation and treatment of the find(s) or mitigation of adverse effects to ESAs.

SCE shall provide to the CPUC, USACE, and Forest Service a list of construction personnel who have completed the cultural resources identification training prior to start of construction, and this list shall be updated by SCE as required when new personnel start work. No construction worker may work in the field without first participating in the Environmental Awareness Training.

- **MM C-1i Protect and monitor NRHP-eligible properties.** SCE shall design and implement a long-term plan which will be included in the HP/HPMP to protect NRHP-eligible sites from direct impacts of Project operation and maintenance and from indirect impacts, such as erosion, that result from the presence of the Project. The plan shall be developed in consultation with the Forest Service, USACE, and CPUC to design measures that will be effective against Project maintenance impacts and Project-related vehicular impacts. The plan shall also include protective measures for significant properties within the TRTP corridor that will experience operational and access impacts as a result of the Project. The proposed measures may include restrictive fencing or gates, permanent access and spur road closures, signage, stabilization of erosion, site capping, site patrols, interpretive/educational programs, and/or other measures that will be effective for protecting cultural resources. The plan shall be property specific and shall include provisions for monitoring and reporting its effectiveness and for addressing inadequacies or failures that result in damage to significant properties. The plan shall be submitted to the Forest Service, USACE, and CPUC for review and approval one year after execution of the PA as stated in the PA.

  Monitoring of selected sites shall be conducted annually by a professional archaeologist for a period of three years following completion of Project construction. Monitoring shall include inspection of all site loci and defined surface features, documented by photographs from fixed photo-monitoring stations and written observations. A monitoring report shall be submitted to the Forest Service, USACE, and CPUC within one month following the annual resource monitoring. The report shall indicate any properties that have been impacted by erosion or vehicle or maintenance impacts. For properties that have been impacted, SCE shall provide recommendations for mitigating impacts and for improving protective measures. After the third year of resource monitoring, the Forest Service, USACE, or CPUC, as appropriate, will evaluate the effectiveness of the protective measures and the monitoring program. Based on that evaluation, the Forest Service, USACE, or CPUC may require that SCE revise or refine the protective measures, or alter the monitoring protocol or schedule. If the CPUC, USACE, and Forest Service (for NFS lands) do not authorize alteration of the monitoring protocol or schedule, those shall remain in effect for the duration of Project operation.

  If the annual monitoring program identifies adverse effects to NRHP-eligible properties from operation or long-term presence of the Project, or if, at any time, SCE, Forest Service, USACE, or CPUC become aware of such adverse effects, SCE shall notify the Forest Service, USACE, and CPUC immediately and implement mitigation for adverse effects, as directed by the agencies. At the discretion of the Forest Service, USACE, and CPUC, such mitigation may include, but not be limited to modification of protective measures, refinement of monitoring protocols, data-recovery investigations, or payment of compensatory damages in the form of non-destructive cultural resources studies or protection.

Rationale for Finding. In many cases, direct impacts can be avoided through minor design modifications and Project effects will be reduced to a less-than-significant level by the avoidance and protection measures listed in Mitigation Measures C-1a through C-1h, above; this is the preferred treatment for all cultural resources. Once final design is completed and the APE has been defined fully, additional surveys and evaluations may be necessary, as discussed in Mitigation Measure C-1b (Inventory cultural resources in the APE). Using best available data, known cultural resources should be avoided wherever possible through Project redesign and engineering modifications as described in Mitigation Measure C-1c (Avoid and protect significant resources). If cultural resources are identified through additional surveys or construction activities, then Mitigation Measures C-1e (Develop and implement Historic Properties Treatment Plan), C-1f (Conduct data recovery excavation or other actions to reduce adverse effects), C-1g (Conduct cultural resources monitoring), and C-1h (Workers Environmental Awareness Program) as detailed above, will be implemented by SCE to ensure discovery, evaluation, and treatment of unknown buried prehistoric and historical archaeological sites. Mitigation Measure C-1i also serves to minimize indirect Project impacts. Implementation of these measures will reduce impacts to less-than-significant levels under CEQA.

Reference. Final EIR Section 3.5; Table ES-3

Impact C-2: Native American human remains could be uncovered, exposed, and/or damaged during Construction.

Native American human remains or sacred features, in the form of primary inhumations, cremations, ceremonial bundles, or mourning ceremony features, could be inadvertently uncovered, exposed, and/or otherwise damaged during Project construction.

Finding. The CPUC finds that changes or alterations have been incorporated into the Project which avoid or substantially lessen the significant effects on the environment from Impact C-2. Specifically, the following mitigation measure is feasible and is hereby adopted to mitigate significant effects from Impact C-2 to a less-than-significant level.

- **MM C-2 Treatment of human remains discovered during construction.** APM CR-6 addresses the inadvertent discovery of human remains. If human remains are discovered during construction, all work will be diverted from the area of the discovery and the CPUC, USACE, and Forest Service authorized officer will be informed immediately. SCE shall follow all State and federal laws, statutes, and regulations that govern the treatment of human remains. As requested, SCE shall assist and support the CPUC, USACE, and Forest Service to comply with Native American Graves Protection and Repatriation Act (NAGPRA). SCE shall comply with all relevant Public Resource Codes and Health and Safety Codes regarding the discovery and handling of human remains, shall support consultation with Native Americans and appropriate agencies and commissions, and shall comply with and implement actions and studies as directed by the CPUC, USACE, and/or Forest Service**.**

Rationale for Finding. Implementation of Mitigation Measure C-2 will reduce impacts to a level of less than significant by providing a mechanism to treat human remains discovered during construction.

Reference. Final EIR Section 3.5; Table ES-3

Cumulative Impact C-2: Native American human remains could be uncovered, exposed, and/or damaged during Construction.

Exposure of unanticipated Native American human remains or sacred features during construction could result in a significant impact to the remains and an adverse effect under the regulations in the National Historic Preservation Act.

Finding. The CPUC finds that changes or alterations have been incorporated into the Project which avoid or substantially lessen the significant cumulative effects on the environment from Cumulative Impact C-2. Specifically, the following mitigation measure is feasible and is hereby adopted to mitigate significant effects from Cumulative Impact C-2 to a less-than-significant level.

- **MM C-2 Treatment of human remains discovered during construction.** (*See above for full text*)

Rationale for Finding. Implementation of Mitigation Measure C-2 (Treatment of human remains discovered during construction) will reduce Project-specific impacts to a level of less than significant by requiring all work to be diverted in the event human remains are discovered, and requiring compliance with the NAGPRA and all relevant Public Resource Codes and Health and Safety Codes regarding the discovery of human remains. Similar measures would be required for any past, present or reasonably foreseeable projects; therefore, this impact would not be cumulatively considerable.

Reference. Final EIR Section 3.5; Table ES-3

III.3.5 Environmental Contamination and Hazards

Impact E-2: Excavation or grading could result in mobilization of existing soil or groundwater contamination from known sites.

Depth to groundwater throughout the Project area is generally at least 75 feet below ground surface (bgs), although shallow and perched groundwater may be present locally near Whittier Narrows and Chino Valley. The maximum construction-related excavation depth is approximately 40 feet bgs and therefore, direct contact with groundwater (or contaminated groundwater) would be expected to occur only locally during construction of the Project. Many areas of the Project, such as the undeveloped lands along Segments 4, 5, 6, 10 and 11, are unlikely to have existing soil or groundwater contamination. However, in developed urban areas along Segments 7, 8, and 11 (south of S11 MP 26), environmental contamination may be present at each new or expanded substation location and along newly acquired transmission line ROWs. There are several sites with existing contamination along this portion of the route. Such contamination includes leaking underground storage tanks (LUST), landfills, industrial and manufacturing sites, and former defense sites. SCE has committed to implementation of Phase I ESAs under APM HAZ-1, which will require existing contamination at these sites to be further investigated. However, contamination may also be present along *existing* transmission line ROWs due to the nature of the industrial/commercial setting of adjacent sites along some segments of the Project alignment. Any potential areas of concern, such as LUST and industrial sites with on-going investigation and clean up, landfills, and oil fields, will need to be evaluated for possible further assessment.

Finding. The CPUC finds that changes or alterations have been incorporated into the Project which avoid or substantially lessen the significant effects on the environment from Impact E-2. Specifically, the following mitigation measures are feasible and are hereby adopted to mitigate significant effects from Impact E-2 to a less than significant level. With implementation of Mitigation Measures E-2a and E-2b, below, this impact would be reduced to a level of less than significant.

- **MM E-2a Perform Phase I ESAs along existing transmission line ROWs.** SCE shall conduct Phase I Environmental Site Assessments (ESAs) within a 0.25-mile corridor along the segments identified below to determine whether there is a record of hazardous material contamination which would affect construction activities. This investigation will determine the likelihood of on-site contamination and shall identify the need for further investigation and/or remediation of soil or groundwater within areas of ground disturbance for the Project. For example,

if there would be little or no human contact with contaminated materials by avoidance of the area or because no excavation is required during construction, no further mitigation would be required. However, if Project construction activities would involve human contact with contaminated materials that could potentially affect the health or safety of workers or the public during construction of the Project, then Mitigation Measure E-2b (Perform Phase II Investigations for potentially contaminated sites) shall be implemented.

- Segment 7 from S7 MP 1.8 to MP 15.8
- Segment 8A from S8A MP 2.2 to MP 7.0, S8A MP 15.2 to MP 15.5, S8A MP 24 to 35.2
- Segment 8B from S8B MP 0.0 to MP 6.8
- Segment 8C from S8C MP 0.0 to MP 6.4
- Segment 11 from S11 MP 26 to MP 36.2

- **MM E-2b Perform Phase II Investigations for potentially contaminated sites.** Phase II Environmental Site Investigations (ESIs) shall be performed on sites that have been determined by the Phase I ESAs performed under APM HAZ-1 and Mitigation Measure E-2a (Perform Phase I ESAs along existing transmission line ROWs) to be potentially contaminated. If it is determined that disturbance or excavation of contaminated soils or groundwater would occur during construction at a given site, SCE would undertake a Phase II ESI involving sampling and further characterization of potentially contaminated areas within the Project ROW or reroute the line away from the contamination area. Should further investigation reveal high levels of hazardous materials, SCE would mitigate health and safety risk according to Los Angeles County Certified Unified Program Agency (CUPA) or Regional Water Quality Control Board (RWQCB) regulations or requirements. This would include site-specific Health and Safety Plans, Work Plans, and/or Remediation Plans.

Rationale for Finding. Implementation of Mitigation Measures E-2a and E-2b will reduce the potential for excavation or grading to result in mobilization of existing soil or groundwater contamination to a less-than-significant level by providing a mechanism to check for existing contamination and then mitigating the health and safety risks according to existing regulations and requirements.

Reference. Final EIR Section 3.6; Table ES-3.

Impact E-3: Landfill gas and/or natural gas located near active, inactive or abandoned oil wells could be encountered during excavation or grading, resulting in explosions or exposure of workers to toxic gases.

The proximity of the Project alignment to designated landfill areas represents a potential risk for encountering methane gas during construction. Toxic and inflammable gases that have migrated from a landfill or oil well could accumulate in excavations or depressions at construction sites and could result in explosions or exposure of workers to these toxic gases.

The Segment 7 alignment, which extends east from the Mesa Substation, traverses very near the North Parcel of the Operating Industries Landfill (EDR Site No. 0 in Final EIR Table 3.6-6) from approximately S7 MP 14.8 to S7 15.8, a 190-acre designated Superfund site. In addition, Segment 7 nears EDR Sites 35 (S7 MP 2), 47 (S7 MP 4.2), 50, 51, 52, 56 (S7 MP 4.3-4.4), 62, 64 (S7 MP 4.7-4.9), 165 (S7 MP 10.8), and 185/193 (S7 MP 14.2-14.5), which are all noted as landfill operations, located along the San Gabriel River northeast of the Mesa Substation. Segment 8 nears landfill areas (EDR Sites 207, 219 and 254), located at approximately S8A MP 4.8 to 6.0, S8B MP 4.4 and S8B MP 0.3, respectively. Segment 11 approaches EDR identified landfill Sites 20, 170 and 174, located at S11 MP 26, and at the Mesa Substation, respectively.

EDR Site 33 is a designated USEPA and Cal EPA Brownfield with Deed Restriction, located at mile marker S11 MP 28 in the City of Pasadena. These sites pose a low but potential risk for encountering methane gas or toxic fumes during excavation or grading.

Additionally, the proximity of the Project alignment to active, inactive, and abandoned oil wells may expose workers to natural gas leaking leaks from improperly sealed wells. According to oil field maps (DOGGR, 2003, 2004a, 2004b, 2005, and 2006), portions of Segments 7, 8, and 11 are located within 200 to 500 feet of plugged and abandoned wells, dry holes, or active oil wells. Considering the proximity of the Project to these oil wells, there is potential for contacting natural gas pocket(s) during construction. Oil wells within 500 feet of the Project are located at S7 MP 13.6 to 14.6, S8A MP 2.2 to 4.0, S8A MP 4.7 to 5.5, and S11 MP 35.1 to 35.4.

Finding. The CPUC finds that changes or alterations have been incorporated into the Project which avoid or substantially lessen the significant effects on the environment from Impact E-3. Specifically, the following mitigation measures are feasible and are hereby adopted to mitigate significant effects from Impact E-3 to a less-than-significant level. With implementation of Mitigation Measures E-3a through E-3c, below, this impact would be reduced to a level of less than significant.

- **MM E-3a Determine if landfill gases are present.** To assess the likelihood that contamination from identified landfills could be present in the Project alignment construction zone, SCE shall complete a search of landfill records, plans, maps and gas monitoring to determine the limits of landfill waste and landfill gas plume for all landfills listed below. For all locations at which the records review cannot confirm a gas-free landfill perimeter adjacent to the Project construction zone, a soil vapor survey shall be conducted. The soil vapor survey shall consist of driving probes in areas of proposed excavation and grading activities along the transmission line corridors and substation sites. Vapor samples shall be tested for methane, other flammable gases, and volatile organic compounds. Laboratory test results shall be reported to the Department of Toxic Substances Control (DTSC) or the appropriate County Environmental Health Division and shall include an assessment of the contamination potential in the excavation area. Documentation of all site research and a copy of the Los Angeles CUPA approval letter shall be provided to the CPUC at least 30 days prior to the start of construction within the appropriate Project segment.

Landfill Sites Near the Project Alignment

Segment	Milepost	Corresponding EDR Site ID Nos.
Segment 7	MP 2	35
Segment 7	MP 4.2	47
Segment 7	MP 4.3-4.4	50-52, 56
Segment 7	MP 4.7-4.9	62, 64
Segment 7	MP 10.8	165
Segment 7	MP 14.2-14.5	185, 193
Segment 7	MP 14.8-15.8	0
Segment 8A	MP 4.8-6.0	207
Segment 8B	MP 0.3	254
Segment 8B	MP 4.4	219

Source: EDR, 2007a.

- **MM E-3b Implement personnel safety and monitoring measures.** If laboratory tests indicate the presence of landfill gases in the construction areas, a Health and Safety Plan shall be developed by a licensed industrial hygienist and a gas monitoring program shall be implemented by SCE or its contractors. A Health and Safety Plan shall also be developed for work in areas within 500 feet of active, inactive or abandoned oil wells that includes requirements for gas monitoring of excavations. A copy of the Health and Safety Plan and monitoring program shall be submitted to

the appropriate CUPA agency and the CPUC at least 30 days prior to the start of construction within the appropriate Project segment.

- **MM E-3c Verify location and status of abandoned oil and natural gas wells.** Prior to excavation and construction activities, SCE shall contact the California Department of Conservation, Division of Oil, Gas and Geothermal Resources (DOGGR) for specific information on wells located within 500 feet of the transmission line route, including location and abandonment details. SCE shall avoid construction near (within 50 feet) abandoned oil or gas wells. If a tower or trench is located within 50 feet of a plugged or abandoned well, SCE shall coordinate with DOGGR and provide written confirmation to the CPUC that the well has been correctly abandoned and does not require remedial plugging or the installation of a gas venting system. If documentation of proper abandonment is not available SCE shall provide and implement a work plan for natural gas testing and controls for the work area and excavations which complies with OSHA standards for protection of workers. The work plan shall include, at a minimum, the following: testing of areas where hazardous atmosphere exists or could reasonably be expected to exist (excavations and work areas within 50 feet of identified oil or gas wells), and if hazardous atmosphere is identified controls such as proper respiratory protection or ventilation must be provided. Additionally, the work plan shall require regular testing of controls used to reduce atmospheric contaminants to acceptable levels. The work plan shall also require that where adverse atmospheric conditions may exist or develop in an excavation area, emergency rescue equipment (e.g., breathing apparatus, a safety harness and line, basket stretcher, etc.) must be kept readily available.

  If an unrecorded well is encountered during construction, SCE shall stop construction and notify DOGGR immediately. Although SCE would not be responsible to properly abandon oil wells in the vicinity of the Project, construction at the location will resume after SCE has coordinated with DOGGR to verify well status and provided the CPUC with written confirmation that the well has been correctly abandoned and does not require remedial plugging or the installation of a gas venting system. If documentation of proper abandonment is not available, SCE shall provide and implement a work plan, with the above-described specifications, for natural gas testing and controls for the work area and excavations.

Rationale for Finding. Implementation of Mitigation Measures E-3a, E-3b, and E-3c will reduce the potential for encountering toxic gas or natural gas located near landfills or active, inactive or abandoned oil wells to a less-than-significant level by requiring a search of landfill records plans, maps and gas monitoring to determine the limits of landfill waste and landfill gas plume for all landfills in the Project vicinity and conducting a soil vapor survey, as required (MM E-3a); developing a Health and Safety Plan, if required (MM E-3b); and contacting DOGGR to verify the location and status of abandoned oil and natural gas wells, and coordinating with DOGGR as appropriate (MM E-3c).

Reference. Final EIR Section 3.6; Table ES-3.

Impact E-4: Unanticipated preexisting soil and/or groundwater contamination could be encountered during excavation or grading.

Depth to groundwater throughout the Project area is generally greater than 75 feet bgs, and the maximum construction-related excavation depth is approximately 40 feet bgs and therefore, direct contact with groundwater (or contaminated groundwater) would be expected to occur only locally during construction of the Project. However, unanticipated soil and/or groundwater contamination could exist along the Project alignment due to illegal dumping or other historical activities (e.g., mining). Possible types of contamination include gasoline and diesel fuel residuals, heavy metals, and/or other hazardous materials. SCE's Soil Management Plan developed under APM HAZ-3 will be incorporated into the Project in order to identify and dispose of potentially impacted soil (by assigning appropriately trained professionals to monitor soil

conditions, identifying and assessing any impacted soil, performing soil excavation, and/or verifying sampling and disposal). However, this measure will not reduce Project impacts to a less-than-significant level. It does not specify how or who would determine if regulatory limits are exceeded. If laboratory data are not properly interpreted, environmentally contaminated soil or groundwater could be improperly handled and disposed of, resulting in additional environmental contamination or exposure of workers to contaminated materials. In addition, this measure does not include requirements for documentation and reporting of incidents of encountered contaminants, such as documenting locations of occurrence, sampling results, and reporting actions taken to remediate contaminated materials to the CPUC and Forest Service (if on NFS lands).

Finding. The CPUC finds that changes or alterations have been incorporated into the Project which avoid or substantially lessen the significant effects on the environment from Impact E-4. Specifically, the following mitigation measures are feasible and are hereby adopted to mitigate significant effects from Impact E-4 to a less than significant level. With implementation of Mitigation Measures E-4a and E-4b, below, this impact would be reduced to a level of less than significant.

- **MM E-4a Appoint individuals with correct training for sampling, data review, and regulatory coordination.** In the event that potential contaminated soil or groundwater is encountered during construction activities, samples shall be collected by an Occupational Safety and Health Administration (OSHA) trained individual with a minimum of 40-hour Hazardous Waste Operations and Emergency Response (HAZWOPER) worker training. Laboratory data from suspected contaminated material shall be reviewed by the contractor's Health and Safety Officer and/or SCE's Field Environmental Representative and they shall coordinate with the appropriate regulatory agency (RWQCB or local CUPA agency) if contamination is confirmed, to determine the suitable level of worker protection and the necessary handling and/or disposal requirements.
- **MM E-4b Document compliance with APM HAZ-3.** If the visual or olfactory evidence of contamination in the exposed soil is observed during grading or excavation work, the location and the potential contamination, results of laboratory testing, recommended remediation (if contamination is verified), and actions taken shall be documented in a report and submitted to the CPUC and FS (for NFS lands) for each event. This report shall be submitted within 30 days of receipt of laboratory data.

Rationale for Finding. Implementation of Mitigation Measures E-4a and E-4b will ensure that laboratory data is properly interpreted by trained personnel regarding contamination levels for reporting to the appropriate regulatory agency and documentation that these measures are properly implemented, which will reduce the impact from encountering unknown contamination to less than significant.

Reference. Final EIR Section 3.6; Table ES-3.

III.3.6 Geology and Soils

Impact G-1: Project activities could interfere with access to known energy resources.

Construction traffic and work areas for the Project (Segments 7, 11, and 8A) along oil field access roads could interfere with daily operation of the oil field, including but not limited to impeding access to oil field structures and facilities by temporarily blocking access roads during construction.

Finding. The CPUC finds that changes or alterations have been incorporated into the Project which avoid or substantially lessen the significant cumulative effects on the environment from Impact G-1. Specifically, the following mitigation measure is feasible and is hereby adopted to mitigate significant effects from Impact G-1 to a less-than-significant level.

- **MM G-1 Coordination with oil field operations.** Operations and management personnel for the oil fields shall be consulted regarding access requirements, and SCE and its contractors shall coordinate construction activities across and along necessary oil field access roads in a manner to limit interference with oil field operations. A plan to avoid or minimize interference with oil field operations shall be prepared in conjunction with oil field operators prior to construction. SCE shall document compliance with this measure by submitting the plan to the CPUC for review 30 days prior to the start of construction in the affected Project segments.

Rationale for Finding. Implementation of Mitigation Measure G-1 (Coordination with oil field operations) requires that operations and management personnel for the oil fields shall be consulted regarding access requirements, and SCE and its contractors shall coordinate construction activities across and along necessary oil field access roads in a manner to limit interference with oil field operations. A plan to avoid or minimize interference with oil field operations shall be prepared in conjunction with oil field operators prior to construction. SCE shall document compliance with this measure by submitting the plan to the CPUC for review 30 days prior to the start of construction in the affected Project segments reducing potential adverse impacts to less than significant.

Reference. Final EIR Section 3.7; Table ES-3

Impact G-2: Erosion could be triggered or accelerated due to construction activities.

Soils along all segments (Segments 4, 5, 6, 7, 8, 9, 10, and 11) of the Project alignment have potential hazards of erosion for off-road/off-trail ranging from slight to very severe and on-road/on-trail ranging from slight to severe. Soil loosened by Project construction could migrate by wind or water to nearby waterways potentially causing damage to aquatic habitat, or could add to particulate air pollution if picked up by the wind or disturbed by vehicles. Erosion could cause rutting and loss of topsoil.

APMs GEO-3 (Construction SWPPP) and HYD-1 (Construction SWPPP), which are included as part of the Project, will minimize this impact of the Project, along with Mitigation Measure H-1a (Implement an Erosion Control Plan and demonstrate compliance with water quality permits).

Finding. The CPUC finds that changes or alterations have been incorporated into the Project which avoid or substantially lessen the significant cumulative effects on the environment from Impact G-2. Specifically, the following mitigation measure is feasible and is hereby adopted to mitigate significant effects from Impact G-2 to a less-than-significant level.

- **MM H-1a Implement an Erosion Control Plan and demonstrate compliance with water quality permits.** *(See above for full text).*

Rationale for Finding. APMs GEO-3 and HYD-1 will reduce the amount of erosion that will result from construction by developing and implementing a Project-specific SWPPP as required in accordance with the Clean Water Act. Mitigation Measure H-1a (Implement an Erosion Control Plan and demonstrate compliance with water quality permits) will require that pre-construction plans be developed to identify and properly implement any necessary BMPs to control erosion and/or sedimentation, and for the identification and mitigation of any disturbances to drainages and/or riparian areas. Implementation of this measure will ensure impacts from soil erosion due to Project construction will be less than significant.

Reference. Final EIR Section 3.7; Table ES-3

Impact G-3: Excavation and grading during construction activities could cause slope instability or trigger landslides.

Destabilization of the natural or constructed slopes could occur as a result of construction activities due to

excavation and/or grading operations. Excavation operations associated with tower foundation construction and grading operations for temporary and permanent access roads and staging and work areas could result in slope instability, resulting in landslides, soil creep, or debris flows. Portions of Segments 5, 6, 11, and 8A traverse moderate to steep mountains and hills underlain by landslide prone sedimentary and metamorphic rocks. The alignments also cross numerous mapped landslides (see Tables 2-8, 2-9, 2-11, and 2-12 of the *Geology, Soils, and Paleontology Specialist Report* (GTC, 2009)).

Finding. The CPUC finds that changes or alterations have been incorporated into the Project which avoid or substantially lessen the significant cumulative effects on the environment from Impact G-3. Specifically, the following mitigation measure is feasible and is hereby adopted to mitigate significant effects from Impact G-3 to a less-than-significant level.

- **MM G-3 Conduct geological surveys for landslides and protect against slope instability.** Design-level geotechnical investigations performed by SCE shall include geological surveys for landslides that will allow identification of specific areas with the potential for unstable slopes, landslides, earth flows, and debris flows along the approved transmission line route and in other areas of ground disturbance, such as access and spur roads and staging and work areas. The geotechnical investigations shall evaluate subsurface conditions, identify potential hazards, and provide information for development of excavation plans and procedures. If the results of the geotechnical survey indicate the presence of unstable slopes at or adjacent to Project structures, appropriate support and protection measures shall be designed and implemented to maintain the stability of slopes adjacent to newly graded or re-graded access and spur roads, work areas, and Project structures during and after construction, and to minimize potential for damage to Project facilities. These design measures shall include, but are not limited to, retaining walls, visqueen, removal of unstable materials, and avoidance of highly unstable areas. Appropriate construction methods and procedures, in accordance with State and federal health and safety codes, shall be followed to protect the safety of workers and the public during drilling and excavation operations. SCE shall document compliance with this measure by submitting a report to the CPUC and FS (for NFS lands) for review at least 30 days prior to final Project design. The report shall document the investigations and detail the specific support and protection measures that will be implemented. Additionally, along Segment 8A (between approximately S8A MPs 5.4 and 6.6), where portions of the proposed project alignment and associated access roads are located adjacent to the Puente Hills Landfill in an area where known slope stability issues and landslides are present, SCE shall coordinate with the County Sanitation Districts of Los Angeles County (LACSD) regarding known landslides and landslide repairs along the southwestern boundary of the landfill and shall submit the geological survey and slope stability reports, including recommended support and protection measures for Segment 8 to the LACSD for review at least 30 days prior to final project design.

Rationale for Finding. The Project will result in significant impacts if unidentified unstable slopes or areas of potentially unstable slopes were disturbed or undercut by construction activities resulting in slope failures. Slope failures could cause damage to the environment, to Project or other nearby structures, and could cause injury or death to workers and/or the public, a significant impact. However, prior to final design of substation facilities and transmission line tower foundations, SCE will perform geotechnical studies to identify site-specific geologic conditions (APM GEO-2). This measure does not identify items to be completed as part of the geotechnical study to identify areas of unstable slopes. However, implementation of Mitigation Measure G-3 (Conduct geological surveys for landslides and protect against slope instability) adds specific requirements to the planned geotechnical investigations to be completed prior to final Project design, ensuring that slope instability impacts will be reduced to less than significant.

Reference. Final EIR Section 3.7; Table ES-3

Impact G-4: Project structures could be damaged by surface fault rupture at crossings of active faults exposing people or structures to hazards.

Project facilities will be subject to hazards of surface fault rupture at crossings of the active San Andreas (Segment 5), San Gabriel, (Segments 6 and 11), Clamshell-Sawpit (Segment 6), Sierra Madre (Segments 7 and Segment 11 north of S11 MP 19), East Montebello Hills (Segments 7 and 8A), Whittier (Segment 8A), Chino (Segment 8A), and Central Ave (Segment 8A) faults.

APM GEO-1 (Seismic Design) and GEO-2 (Perform Geotechnical Studies), which are included as part of the Project, will reduce impacts associated with overhead active fault crossings. In addition, Mitigation Measure G-4 (Avoid placement of Project structures on active fault traces) will also reduce this impact of the Project.

Finding. The CPUC finds that changes or alterations have been incorporated into the Project which avoid or substantially lessen the significant cumulative effects on the environment from Impact G-4. Specifically, the following mitigation measure is feasible and is hereby adopted to mitigate significant effects from Impact G-4 to a less-than-significant level.

- **MM G-4 Avoid placement of Project structures on active fault traces.** Prior to final Project design SCE shall perform a fault evaluation study to confirm the location of mapped traces of active and potentially active faults crossed by the Project route or other Project structures. For crossings of active faults, the Project design shall be planned so as not to locate towers or other Project structures on the traces of active faults; and in addition, Project components shall be placed as far as feasible outside the areas of mapped fault traces. Compliance with this measure shall be documented to the CPUC and FS in a report submitted for review at least 60 days prior to the start of construction.

Rationale for Finding. 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 to Project structures could result in power outages, damage to nearby roads of structures, and injury or death to people, a significant impact. SCE has committed to designing Project elements according to appropriate industry standards and in accordance with good engineering practices (APM GEO-1); prior to final design of substation facilities and transmission line tower foundations SCE will perform geotechnical studies to identify site-specific geologic conditions (APM GEO-2). However, APM GEO-1 and APM GEO-2 do not specify that fault studies will be performed to prevent placement of towers on active fault traces, nor do they address issues related to potential fault rupture damage to transmission line facilities where it is not feasible to locate towers outside of active fault zones. Mitigation Measure G-4 (Avoid placement of Project structures on active fault traces) reduces impacts associated with overhead active fault crossings to less-than-significant levels. Proper placement of towers relative to active faults will allow the conductor to distribute fault displacements over a comparatively long span and towers will be less likely to result in structural failure in the event of an earthquake if not placed directly on an active fault trace.

Reference. Final EIR Section 3.7; Table ES-3

Impact G-5: Project structures could be damaged by seismically induced groundshaking and/or ground failure exposing people or structures to hazards.

It is likely that the Project facilities will be subjected to at least one moderate or larger earthquake occurring close enough to produce local strong to severe groundshaking along portions of Segments 4, 5, 6, 7, 9, and 11. Local strong to severe groundshaking with vertical and horizontal ground accelerations that could

exceed standard design stresses could result in damage to Project structures. Structural damage could result in power outages, damage to nearby roads or structures, and injury or death to nearby people.

Severe to strong groundshaking could result in liquefaction-related phenomena along sections of the Project segments (portions of Segments 5, 7, 11, 8A, 8B, and 8C) that cross young alluvial deposits in the Leona Valley, San Gabriel Valley, eastern Chino Basin, and in active river washes and streams where lenses and pockets of loose seasonally saturated sand may be present. This could result in damage to Project structures should a large earthquake occur during the periods when these soils are saturated, a significant impact. Seismically induced slope failures such as landslides could occur in the event of a large earthquake along portions of the Project. Portions of Segments 5, 6, 11, and 8A are located along hillsides or ridgelines in geologic units of moderate to steep slopes, which are particularly susceptible to this type of ground failure. Some of these areas, which include the Pelona Schist, weathered gneissic bedrock, and Puente Formation, have a high possibility of seismic-induced ground failure in the form of landsliding or ground-cracking resulting in damage to Project structures.

APMs GEO-1 (Seismic Design) and GEO-2 (Perform Geotechnical Studies), which are included as part of the Project, will help to reduce this impact of the Project. In addition, Mitigation Measures G-3 (Conduct geological surveys for landslides and protect against slope instability), G-5a (Reduce effects of groundshaking), and G-5b (Conduct geotechnical investigations for liquefaction) will reduce the potential of impacts related to groundshaking and seismically-related ground failure along the Project route.

Finding. The CPUC finds that changes or alterations have been incorporated into the Project which avoid or substantially lessen the significant cumulative effects on the environment from Impact G-5. Specifically, the following mitigation measures are feasible and are hereby adopted to mitigate significant effects from Impact G-5 to a less-than-significant level.

- **MM G-3 Conduct geological surveys for landslides and protect against slope instability.** *(See above for full text).*
- **MM G-5a Reduce effects of groundshaking.** The design-level geotechnical investigations performed by SCE shall include site-specific seismic analyses to evaluate ground accelerations for design of Project components. Based on these findings, Project structure designs shall be modified/strengthened, as deemed appropriate by the Project engineer, if the anticipated seismic forces are found to be greater than standard design load stresses on Project structures. Study results and proposed design modifications shall be provided to the CPUC and FS for review at least 60 days before final Project design.
- **MM G-5b Conduct geotechnical investigations for liquefaction.** Because seismically induced liquefaction-related ground failure has the potential to damage or destroy Project components, the design-level geotechnical investigations to be performed by SCE shall include investigations designed to assess the potential for liquefaction to affect the approved Project and all associated facilities, specifically at tower locations in areas with potential liquefaction-related impacts (portions of Segments 5, 7, 11, 8A, 8B, and 8C underlain by alluvium with the potential for shallow groundwater). Where these hazards are found to exist, appropriate engineering design and construction measures shall be incorporated into the Project designs as deemed appropriate by the Project engineer. Design measures that would mitigate liquefaction-related impacts could include construction of pile foundations, ground improvement of liquefiable zones, installation of flexible bus connections, and incorporation of slack in cables to allow ground deformations without damage to structures. Study results and proposed solutions to mitigate liquefaction shall be provided to the CPUC and FS for review at least 60 days before final Project design.

Rationale for Finding. Prior to final design of substation facilities and transmission line tower foundations, SCE will perform geotechnical studies to identify site-specific geologic conditions (APM GEO-2). In addition, as part of the Project SCE will design new substations in accordance with seismic design requirements based on the IEEE 693 "Recommended Practices for Seismic Design of Substation" and design other Project elements according to appropriate industry standards and in accordance with good engineering practices (APM GEO-1). However, these measures do not identify specific items to be completed as part of the geotechnical study to identify areas of severe groundshaking, potential seismically induced landslides, or potential liquefaction. Implementation of Mitigation Measures G-3 (Conduct geological surveys for landslides and protect against slope instability), G-5a (Reduce effects of groundshaking), and G-5b (Conduct geotechnical investigations for liquefaction) include these specific requirements to the planned geotechnical investigations to be completed prior to final Project design. These specific requirements will ensure that potentially significant impacts for seismically induced groundshaking and potential of seismically-related ground failure along the Project route are reduced to less-than-significant levels.

Reference. Final EIR Section 3.7; Table ES-3

Impact G-6: Project structures could be damaged by problematic soils exposing people or structures to hazards.

Soils along the Project Segments have a potential to corrode steel and concrete ranging from low to high. In areas where corrosive subsurface exist along the proposed route, the corrosive soils could have a detrimental effect on concrete and metals. Depending on the degree of corrosivity of subsurface soils, concrete and reinforcing steel in concrete structures and bare-metal structures exposed to these soils could deteriorate, eventually leading to structural failures. Expansion potential for the soils along the Project alignment ranges from low to high. Expansive soils can also cause problems to structures. Soils that exhibit shrink-swell behavior are clay-rich and react to changes in moisture content by expanding or contracting. Some of the natural soil types identified along the Project have moderate to high clay contents and many have moderate to high shrink-swell potential. Expansive soils may cause differential and cyclical foundation movements that can cause damage and/or distress to structures and equipment. In addition, potential impacts associated with loose sands or other compressible soils include excessive settlement, low foundation-bearing capacity, and limitation of year-round access to Project facilities.

APM GEO-2 (Perform Geotechnical Studies), which is included as part of the Project, will help to reduce this impact of the Project. In addition, Mitigation Measure G-6 (Conduct geotechnical studies to assess soil characteristics and aid in appropriate foundation design) will reduce the potential of impacts related to problematic soils.

Finding. The CPUC finds that changes or alterations have been incorporated into the Project which avoid or substantially lessen the significant cumulative effects on the environment from Impact G-6. Specifically, the following mitigation measure is feasible and is hereby adopted to mitigate significant effects from Impact G-6 to a less-than-significant level.

- **MM G-6 Conduct geotechnical studies to assess soil characteristics and aid in appropriate foundation design.** The design-level geotechnical studies to be performed by SCE shall identify the presence, if any, of potentially detrimental soil chemicals, such as chlorides and sulfates. Appropriate design measures for protection of reinforcement, concrete, and metal-structural components against corrosion shall be utilized, such as use of corrosion-resistant materials and coatings, increased thickness of Project components exposed to potentially corrosive conditions, and use of passive and/or active cathodic protection systems. The geotechnical studies

shall also identify areas with potentially expansive or collapsible soils and include appropriate design features, including excavation of potentially expansive or collapsible soils during construction and replacement with engineered backfill, ground-treatment processes, and redirection of surface water and drainage away from expansive foundation soils. Studies shall conform to industry standards of care and American Society for Testing and Materials (ASTM) standards for field and laboratory testing. Study results and proposed solutions shall be provided to the CPUC and FS, as appropriate, for review at least 60 days before final Project design.

Rationale for Finding. APM GEO-2 (Perform Geotechnical Studies) will reduce the adverse effects of problematic soils by conducting a geotechnical study for the Project. However, this APM is lacking in detail and is inadequate to ensure that unsuitable soils will be properly identified and mitigated. Unidentified expansive and corrosive soils could damage Project structures and facilities, which could result in power outages, damage to nearby roads or structures, and injury or death to nearby people. Accordingly, implementation of Mitigation Measure G-6 (Conduct geotechnical studies to assess soil characteristics and aid in appropriate foundation design) will be implemented. The design-level geotechnical studies to be performed by SCE shall identify the presence, if any, of potentially detrimental soil chemicals, such as chlorides and sulfates. Appropriate design measures for protection of reinforcement, concrete, and metal-structural components against corrosion shall be utilized, such as use of corrosion-resistant materials and coatings, increased thickness of Project components exposed to potentially corrosive conditions, and use of passive and/or active cathodic protection systems. The geotechnical studies shall also identify areas with potentially expansive or collapsible soils and include appropriate design features, including excavation of potentially expansive or collapsible soils during construction and replacement with engineered backfill, ground-treatment processes, and redirection of surface water and drainage away from expansive foundation soils. Studies shall conform to industry standards of care and American Society for Testing and Materials (ASTM) standards for field and laboratory testing. Ensuring that impacts will be reduced to less than significant levels.

Reference. Final EIR Section 3.7; Table ES-3

Impact G-7: Transmission line structures could be damaged by landslides, earth flows, or debris slides, during operation.

The southern part of Segment 5, Segment 6, the north end of Segment 7, Segment 8A, and the north half of Segment 11, are located in hill and mountain areas with steep slopes, mapped landslides, or geologic materials prone to landslide. Locating transmission line structures within landslides or on unstable slopes could result in result in damage to Project structures. Slope failures could cause damage to Project structures resulting in power outages, damage to nearby roads or structures, and injury or death to nearby people.

APM GEO-2 (Perform Geotechnical Studies), included as part of the Project, will help to reduce this impact of the Project. In addition, Mitigation Measure G-3 (Conduct geological surveys for landslides and protect against slope instability) will reduce the potential of impacts related to damage by landslides, earth flows, or debris slides.

Finding. The CPUC finds that changes or alterations have been incorporated into the Project which avoid or substantially lessen the significant cumulative effects on the environment from Impact G-7. Specifically, the following mitigation measure is feasible and is hereby adopted to mitigate significant effects from Impact G-7 to a less-than-significant level.

- **MM G-3 Conduct geological surveys for landslides and protect against slope instability.** *(See above for full text).*

Rationale for Finding. APM GEO-2 (Perform Geotechnical Studies) will reduce impacts related to landslide hazards during operations of the Project. However this measure does not specify that surveys for unstable slope will be conducted as part of the planned geotechnical studies. Unidentified unstable slopes or areas of potentially unstable slopes along or nearby and upslope of Project components could fail during the lifetime of the Project resulting in damage to these facilities. To ensure that landslide impacts to Project structures during operation will be reduced to less-than-significant levels, implementation of Mitigation Measure G-3 (Conduct geological surveys for landslides and protect against slope instability) is required prior to construction for the hill and mountain areas. This will aid in proper identification of areas of potential slope instability allowing for avoidance or stabilization of these areas, reducing potential for damage to structures during Project operation.

Reference. Final EIR Section 3.7; Table ES-3

III.3.7 Hydrology and Water Quality

Impact H-1: Construction activities would degrade surface water quality through erosion and accelerated sedimentation.

Construction and/or demolition of overhead transmission line towers and construction and/or upgrades of substations will include soil-disturbing activities that could subsequently cause localized, short-term water quality degradation. Excavation and/or grading will be required at all tower sites where new pads or footings are required, at all tower demolition sites, and at all new and/or expanded substations. Additional clearing of vegetation and/or grading will be required for crane pads, pulling/stringing stations, staging areas, marshalling yards, concrete batch plants, helicopter staging areas, helicopter landing pads, tower wreck-out staging areas, and access and spur roads.

Disturbance of soil during construction and/or demolition could result in soil erosion and temporarily lowered water quality through increased turbidity and accelerated sediment deposition into local streams. In particular, road construction for both temporary and permanent roadways has the potential to cause soil instability resulting in accelerated erosion and sedimentation, which could temporarily degrade surrounding water quality. Road construction will produce large amounts of loose and disturbed soil, which, without proper management, could enter nearby streams. The water quality impact of road construction and improvement is of particular concern when that road crosses a stream channel, closely parallels a stream channel, or traverses a steep slope. In steep terrain, existing unpaved roads within the Project area show extensive evidence of overland flow, such as rills and gullies that run across and parallel to the roadways. Soil disturbance on these steep, unpaved roads will create a high potential for accelerated erosion.

Land disturbance associated with road construction and improvements will include the following activities: removal of vegetation, blade grading, soil compaction, installation of drainage structures and stream crossings, installation of footings and foundations, and installation of slope-strengthening structures as needed. These activities involve soil disturbance and stockpiling of earth, which, without proper management, could wash into surrounding waterways. Additionally, construction of any type of stream crossing through an actively flowing stream channel will cause some amount of unavoidable, temporary, localized sedimentation. This impact will apply to all stream crossings along the transmission line route, as well as streams crossed by access and spur roads required by the Project.

APM HYD-1 (Construction SWPPP) and APM HYD-2 (Environmental Training Program) will reduce the likelihood of construction-related water quality degradation through erosion and sedimentation. Short-term degradation of surface water quality through erosion and sedimentation, especially within the ANF, will also be reduced through implementation of Mitigation Measures H-1a (Implement an Erosion Control Plan and

demonstrate compliance with water quality permits) and H-1b (Dry weather construction), in addition to Mitigation Measure B-2 (Implement RCA Treatment Plan) as described in Section 3.4 (Biological Resources) of the Final EIR.

Finding. The CPUC finds that changes or alterations have been incorporated into the Project which avoid or substantially lessen the significant effects on the environment from Impact H-1. Specifically, the following mitigation measures are feasible and are hereby adopted to mitigate significant effects from Impact H-1 to a less-than-significant level.

- **MM H-1a Implement an Erosion Control Plan and demonstrate compliance with water quality permits.** *(See above for full text)*
- **MM H-1b Dry weather construction.** *(See above for full text)*
- **MM B-2 Implement RCA Treatment Plan.** *(See above for full text)*

Rationale for Finding. APM HYD-1 requires implementation of a Construction SWPPP, which will include several BMPs to reduce erosion and sedimentation, such as straw wattles, water bars, covered stockpiles, silt fences, silting basins, and mulching or seeding to protect exposed areas as well as monitoring to ensure that the BMPs are implemented. APM HYD-2 requires establishment of an environmental training program to communicate environmental concerns and appropriate work practices, including spill prevention and response measures, and SWPPP measures, to all field personnel. Additionally, Mitigation Measure H-1a will require that an Erosion Control Plan be submitted to the CPUC and the USDA Forest Service prior to commencement of any soil-disturbing activities. This plan will include a logbook that records major precipitation events and evaluates the effectiveness of existing BMPs. Iterative review of the logbook by the CPUC and the USDA Forest Service will provide the opportunity to employ adaptive management practices through review and modification, if necessary, of existing BMPs and their effectiveness. Evaluation of the effectiveness of the BMPs can be narrative, and need not include water quality testing unless otherwise required by the RWQCBs, CPUC, USDA Forest Service, or any other jurisdictional agency.

Within the ANF, the applicant will adhere to the Best Management Practice Evaluation Process set forth in the *Water Quality Management for Forest System Lands in California, Best Management Practices* (USDA, 2000). Examples of typical BMPs can be found in the California Department of Transportation's (Caltrans') *Stormwater Quality Handbooks, Storm Water Pollution Prevention Plan (SWPPP) and Water Pollution Control Program (WPCP) Preparation Manual* (Caltrans, 2007). Some of the more commonly employed BMPs include: preservation of existing vegetation, mulching, hydroseeding, soil binders, geotextiles, silt fences, sediment/desilting basins, check dams, fiber rolls, straw bale barriers, and stockpile management.

Mitigation Measure H-1b (Dry weather construction) will minimize soil-disturbing activities during wet weather in the ANF and will prohibit soil-disturbing activities on those lands during major storm events, unless otherwise authorized by the USDA Forest Service. On steeply sloped topography subject to intense precipitation, limiting construction to dry weather substantially lowers the potential to cause erosion and water quality degradation. Mitigation Measure B-2 (Implement RCA Treatment Plan) will require the applicant to receive ANF approval before constructing or modifying any structure, culvert, or bridge or modifying any habitat on NFS lands in Riparian Conservation Areas.

Reference. Final EIR Section 3.8; Table ES-3

Impact H-2: Construction activities would degrade water quality through the accidental release of potentially harmful or hazardous materials.

Surface water and groundwater quality could be degraded through the accidental release of hazardous

materials into a dry or flowing stream channel during Project-related construction activities. Such materials include: lead-based paint flakes, diesel fuel, gasoline, lubricant oils, hydraulic fluid, antifreeze, transmission fluid, lubricant grease, cement slurry, and other fluids required for the operation of construction vehicles and equipment. The transportation of concrete and the use of motorized equipment are examples of construction activities that will involve the use of potentially harmful materials. Motorized equipment could leak hazardous materials such as motor oil, transmission fluid, or antifreeze due to inadequate or improper maintenance, unnoticed or unrepaired damage, improper refueling, or operator error. The release of one or more hazardous materials into a stream channel could occur at any stream crossing within the Project area, or at any of the Project staging areas, such as marshalling yards and helicopter staging areas, that are crossed by or directly adjacent to a stream channel.

Surface water could be contaminated through either direct or indirect contact with potentially harmful or hazardous materials. Direct contact with these materials will result from a spill or leak that occurs directly above or within the bed and banks of a flowing stream or waterbody. An accidental release of a potentially harmful or hazardous material into a dry stream bed or wash will not directly impact water quality. Similarly, an accidental spill or release of hazardous materials outside of a stream channel will not directly impact water quality. However, accidental spills or releases of hazardous materials into a dry stream bed or wash, or outside of a stream channel, could indirectly impact water quality through runoff during a subsequent storm event, when the spilled material could come in contact with or be washed into a flowing stream or waterbody.

Groundwater could be contaminated through indirect contact with potentially harmful or hazardous materials. Because depth to groundwater throughout the Project Regions is approximately 75 feet or more below ground surface (bgs), and the maximum construction-related excavation depth is approximately 40 feet bgs, no direct contact with groundwater will occur during construction of the Project. However, accidental spills or releases of hazardous materials into a dry or flowing stream channel could indirectly impact groundwater through leaching. Stream channels often facilitate infiltration into the underlying groundwater and therefore an accidental release of hazardous materials within a stream channel will have a greater potential to indirectly impact groundwater resources than an accidental release of hazardous materials outside the bed and banks of a stream channel. Hazardous material spills that are left on the ground surface within a dry stream channel and are followed quickly by a storm event could leach through the soil and into the groundwater, thereby resulting in the degradation of groundwater quality.

The following APMs, which are included as part of the Project, will reduce the likelihood that an accidental spill or release of hazardous materials will directly or indirectly impact water quality: HYD-1 (Construction SWPPP), HYD-2 (Environmental Training Program), HYD-3 (Accidental Spill Control), HYD-4 (Non-storm Water and Waste Management Pollution Controls), and HAZ-2 (Hazardous Materials and Waste Handling Management).

Finding. The CPUC finds that changes or alterations have been incorporated into the Project which avoid or substantially lessen the significant effects on the environment from Impact H-2. Specifically, the following mitigation measure is feasible and is hereby adopted to mitigate significant effects from Impact H-2 to a less-than-significant level.

- **MM H-1b Dry weather construction.** *(See above for full text).*

Rationale for Finding. APM HYD-1 requires implementation of a Construction SWPPP, which will define the following: where hazardous materials will be stored; where trash will be placed; where motorized equipment will be parked, fueled, and serviced; and where construction materials will be stored. APM HYD-2 requires establishment of an environmental training program to communicate environmental

concerns and appropriate work practices, including spill prevention and response measures, and SWPPP measures, to all field personnel. APM HYD-3 requires that the Construction SWPPP include an emergency response program to ensure quick and safe cleanup of accidental spills. APM HYD-4 requires that excess concrete and concrete slurry that is produced during tower and substation construction will be retained on-site within a bermed area and then transported to an approved landfill for disposal. APM HAZ-2 requires development of a Project-specific hazardous materials management and hazardous waste management program, which will outline proper hazardous materials use, storage and disposal requirements as well as hazardous waste management procedures. All Project personnel will be provided with Project-specific training.

Although the APMs APM HYD-1 through APM HYD-4 and APM HAZ-2 will reduce the potential for water quality degradation through the accidental release of potentially harmful or hazardous materials, these adverse effects could still occur. In order to further reduce the potential for degradation of water quality through accidental release of potentially harmful or hazardous materials, implementation of Mitigation Measure H-1b will minimize the potential for such materials to directly contact surface water or leach into the groundwater, and will therefore reduce Impact H-2 to a less-than-significant level.

Reference. Final EIR Section 3.8; Table ES-3

Impact H-4: Project structures would cause erosion, sedimentation, or other flood-related damage by impeding flood flows.

Encroachment of a Project structure into a stream channel or floodplain could result in flooding of or erosion damage to the encroaching structure, diversion of flows and increased flood risk for adjacent property, or increased erosion on adjacent property. The Project will traverse several Flood Hazard Areas designated by the Federal Emergency Management Agency (FEMA), including those associated with the following waterways: Whittier Narrows Flood Control Basin (which includes the San Gabriel River and the Rio Hondo), Santa Fe Flood Control Basin, Little Chino Creek, Carbon Canyon, Chino Creek, Cypress Channel and Cucamonga Creek.

During construction, operation, and maintenance of the Project, all applicable floodplain management ordinances will be fully complied with in accordance with FEMA's regulations on development in Flood Hazard Areas. In addition, APM HYD-7 (Flood and Erosion Structure Damage Protection) and Mitigation Measure H-1a (Implement an Erosion Control Plan and demonstrate compliance with water quality permits) will ensure that Impact H-4 remains less than significant.

Finding. The CPUC finds that changes or alterations have been incorporated into the Project which avoid or substantially lessen the significant effects on the environment from Impact H-4. Specifically, the following mitigation measure is feasible and is hereby adopted to mitigate significant effects from Impact H-4 to a less-than-significant level.

- **MM H-1a Implement an Erosion Control Plan and demonstrate compliance with water quality permits.** *(See above for full text)*

Rationale for Finding. APM HYD-7 (Flood and Erosion Structure Damage Protection) will ensure that aboveground Project features such as transmission line towers and substation facilities are designed and engineered to withstand potential flooding and erosion hazards. Measures will include specially designed footings to withstand flooding due either to a 100-year flood event or failure of a nearby upstream dam or reservoir. Additionally, Mitigation Measure H-1a (Implement an Erosion Control Plan and demonstrate compliance with water quality permits) will ensure that appropriate BMPs are employed to reduce the potential for erosion during construction activities, and require demonstrated compliance with all required

water quality permits, including compliance with any applicable floodplain management ordinances, as required by FEMA. Together these measures will reduce Project impacts associated with flood-related damage to a less-than-significant level.

Reference. Final EIR Section 3.8; Table ES-3

Impact H-5: Project structures would be inundated by mudflow.

Mudflows are a type of mass wasting or landslide, where earth and surface materials are rapidly transported downhill under the force of gravity. Mudflow events are caused by a combination of factors, including soil type, precipitation, and slope. Mudflow may be triggered by heavy rainfall that the soil is not able to sufficiently drain or absorb. As a result of this super-saturation, soil and rock materials become unstable and eventually slide away from their existing location. The majority of the Southern Region is characterized by generally flat terrain that will not be conducive to a mudflow event. However, the steeper portions of the Puente and Chino Hills do contain soils that could form a mudflow under heavy precipitation.

The potential for inundation of Project structures by mudflow is reduced by the implementation of APM HYD-1 (Construction SWPPP) and APM HYD-7 (Flood and Erosion Structure Damage Protection), as well as Mitigation Measure G-3 (Conduct geological surveys for landslides and protect against slope instability).

Finding. The CPUC finds that changes or alterations have been incorporated into the Project which avoid or substantially lessen the significant effects on the environment from Impact H-5. Specifically, the following mitigation measure is feasible and is hereby adopted to mitigate significant effects from Impact H-5 to a less-than-significant level.

- **MM G-3 Conduct geological surveys for landslides and protect against slope instability.** *(See above for full text)*

Rationale for Finding. APM HYD-1 requires implementation of a Construction SWPPP, which will include several BMPs to reduce erosion and soil movement, such as straw wattles, water bars, covered stockpiles, silt fences, silting basins, and mulching or seeding to protect exposed areas as well as monitoring to ensure that the BMPs are implemented. APM HYD-7 will require that aboveground Project features such as transmission line towers and substation facilities be designed and engineered to withstand potential flooding and erosion hazards. Measures will include specially designed footings to withstand flooding due either to a 100-year flood event or failure of a nearby upstream dam or reservoir. These design features will also help Project structures withstand inundation by mudflow. Additionally, Mitigation Measure G-3 (Conduct geological surveys for landslides and protect against slope instability) will substantially reduce the potential for inundation by mudflow during the construction phase of the Project. By avoiding areas prone to landslide, and by installing appropriate protection where those areas cannot be avoided, Project structures will not be placed in locations that are prone to landslide and/or mudslide without proper protection. Because this measure will minimize the potential for damage due to inundation by mudflow, Impact H-5 will be reduced to a less-than-significant level.

Reference. Final EIR Section 3.8; Table ES-3

Impact H-6: Discharge of contaminated groundwater during dewatering operations would degrade surface water quality.

This impact will only occur in association with the underground components of Alternative 7 in the South Region. The San Gabriel Valley Groundwater Basin, which underlies the underground portions of the Project, exceeds Maximum Contaminant Levels (MCLs) for Total Dissolved Solids (TDS), nitrate, Volatile Organic Compounds (VOCs), perchlorate, and nitrosodimethylamine (NDMA). Construction of the

undergrounded sections of subtransmission line for the Project will require excavation below Avocado Creek, a tributary of the San Gabriel River, which will likely require dewatering activities. Improper design and/or implementation of a dewatering plan could result in discharge of contaminated groundwater to a surface waterbody, which will subsequently lead to degradation of surface water quality. A proper dewatering plan will include testing of the groundwater to be dewatered, and subsequent treatment of that groundwater prior to discharge if contamination is discovered. Discharge of the dewatered effluent will be regulated under the National Pollutant Discharge Elimination System (NPDES) permit required by the appropriate Regional Water Quality Control Board. Compliance with the conditions of the NPDES permit will ensure that contaminated groundwater is properly tested and treated, if necessary, prior to discharge to any surface water. In addition, Mitigation Measure H-1a (Implement an Erosion Control Plan and demonstrate compliance with water quality permits) will be required to mitigation Impact H-6 to a less-than-significant level.

Finding. The CPUC finds that changes or alterations have been incorporated into the Project which avoid or substantially lessen the significant effects on the environment from Impact H-6. Specifically, the following mitigation measure is feasible and is hereby adopted to mitigate significant effects from Impact H-6 to a less-than-significant level.

- **MM H-1a Implement an Erosion Control Plan and demonstrate compliance with water quality permits.** *(See above for full text)*

Rationale for Finding. Mitigation Measure H-1a will ensure proper design and implementation of any dewatering activities through demonstrated compliance with NPDES requirements, and will substantially reduce the likelihood that surface water will be contaminated. This measure will reduce Impact H-6 of the Project to a less-than-significant level.

Reference. Final EIR Section 3.8; Table ES-3

III.3.8 Land Use

Impact L-1: Construction of the Project would temporarily disrupt, displace, or preclude existing residential land uses.

Construction-related impacts will typically cause direct effects on land uses within approximately 1,000 feet of either side of a given ROW, or within approximately 1,000 feet of staging areas, wire setup sites, substation sites, and new and improved access and spur roads due to the presence of construction crews, the operation of heavy equipment, and associated crew, equipment, and material access (import and export) from these sites. Residents within 1,000 feet of construction could perceive activities as an intrusion of their privacy, and may adjust, limit, or cease some of their daily routines and activities in response to construction. Along Segments 6 and 11 implementation of the Project will also involve helicopter construction within the ANF, which will result in temporary land disturbances due to the need for helicopter staging and support areas. Depending on the specific construction activity, work crews at any given location could range between two and 80 persons. Construction activities at or along any given element of the Project will periodically occur between an estimated eight (Segment 10 construction) to 45 months (Vincent and Antelope Substation expansions).

Under the Alternative 2 portions of the Project, many residential properties are located less than 250 feet away and, in some instances, less than an estimated 150 feet away from areas which will be subject to construction-related activity. Construction-related impacts associated with the rural homes situated along the east and west sides of 100th Street between Avenues I and J (Segment 4) will be substantially reduced with

incorporation of the Alternative 3 portion of the Project, and will shift the majority of transmission line construction to the west of these residences by a distance of approximately one-half mile.

Two of the helicopter staging areas (Sites #1 and 2) for the Alternative 6 portion of the Project are located within one-half mile of existing residential land uses. Several rural residential homes within a private in-holding of the ANF are located northwest of Site #1, which is adjacent to MP 3.0 of Segment 6; the closest of these homes to the western boundary of the staging area is approximately 0.3 mile away. Several rural residential homes are also located west and southeast of Site #2; these homes are also located within a private in-holding of the ANF. The closest homes are located an estimated 800 to 950 feet from the western boundary of the site; rural residential homes located southeast of the site are an estimated 0.3 mile away or more.

Under the Alternative 7 portion of the Project along the Duck Farm 66-kV Underground Re-Route, residential homes are located less than 1,000 feet from the proposed underground ROW. Along the Whittier Narrows 66-kV Underground Re-Route residential land uses fall within 1,000 feet of the ROW along Farmer Avenue (located northwest of Durfee Avenue), and within one-half mile of the ROW within a neighborhood that is bound by Lexington Gallitan Road, Farmer Avenue, Fawcett Avenue, and Andrews Street; this neighborhood is also located northwest of Durfee Avenue. Existing residential land uses within one-half mile of the northern-most point of the Whittier Narrows 66-kV Overhead Re-Route Options 1 and 2 are located along Hazel Avenue and Darlington Street, which are north-northwest of Segment 7 MP 13.8 and Segment 8 MP 2.2; existing residential land uses are also located within one-quarter to one-half mile of Option 1 in a neighborhood flanked by Highway 19 to the west, the San Gabriel River Parkway to the east and Kruse Road to the north. Construction of both options of the Whittier Narrows 66-kV Overhead Re-Route will also result in new temporary impacts to those land uses located along, and adjacent to, San Gabriel Boulevard/Durfee Avenue, and Option 1 will additionally result in temporary impacts to land uses along Siphon Road and the San Gabriel River crossing. Option 2 will require an expanded ROW width of 20 feet along Segment 8A between MPs 3.2 and 3.8. Option 1 will require approximately 1,600 linear feet of new ROW for the San Gabriel River crossing. However, assuming that SCE is able to secure the land needed for the new ROW, construction related disturbances along these re-route options will be anticipated to be the same as for Alternative 2.

Mitigation Measures L-1a (Construction liaison – Property owners), L-1b (Advance notification of construction - Property owners), and L-1c (Quarterly construction updates - Property owners) will reduce this impact of the Project.

Finding. The CPUC finds that changes or alterations have been incorporated into the Project which avoid or substantially lessen the significant effects on the environment from Impact L-1. Specifically, the following mitigation measures are feasible and are hereby adopted to mitigate significant effects from Impact L-1 to a less than significant level.

- **MM L-1a Construction liaison – Property owners.** SCE shall provide a toll-free general phone number, and the name and contact information for a local public liaison (or liaisons) to all affected property owners within 300 feet of construction-related activities. The toll-free access number and the identified local public liaison(s) shall act as points of contact and interface between residents and construction crews for that area. The toll-free number and local public liaison(s) shall be available both in person and by phone, as necessary, for at least 14 days prior to the start of any construction-related activities and for up to six months following construction. The local public liaison(s) shall respond to all construction-related questions and concerns within a 72-hour period during construction when contact information is provided. Post-construction, replies shall be made within a two-week period.

SCE shall provide summary documentation of all complaints, comments, and concerns communicated to the liaison every two months for the duration of construction and for one year following the completion of construction. The compliance documentation will be treated as confidential and shall include the name and address of the person contacting the local public liaison(s), the date of contact, and what actions were taken by the local public liaison(s) to rectify and/or address the complaints, comments or concerns expressed. The compliance documentation shall be submitted to the CPUC throughout the duration of construction and for one year following construction.

- **MM L-1b Advance notification of construction - Property owners.** SCE shall give at least 14 days advance notice of the start of any construction-related activities to potentially affected property owners. The notification shall include the toll-free general phone number, contact information for the local public liaison(s) (Mitigation Measure L-1a, Construction liaison – Property owners), including a phone number (or phone numbers), as well as an internet website address where additional information related to construction can be found. Notification shall be provided by: (1) mailing notices to all property owners within 300 feet of all approved ROW segments, construction-related work areas, and substation sites; and, (2) placing notices in local newspapers.
- **MM L-1c Quarterly construction updates - Property owners.** Following publication/transmittal of the advance notification of construction (Mitigation Measure L-1b, Advance notification of construction – Property owners), SCE shall provide all affected property owners with updates and changes to all of the information provided in the pre-construction notification as related to their Segment-specific location. The updates shall be provided every quarter for the duration of all construction-related activities. Post-construction noticing for restoration activities shall be provided annually. The updates shall continue to provide the toll-free number and the name and phone number of the local public liaison(s) to respond to all construction-related questions and concerns. The local public liaison(s) shall continue to respond to all questions and complaints within a 72-hour period during construction and within two weeks post-construction (Mitigation Measure L-1a, Construction liaison – Property owners).

  The updates shall be: (1) mailed to all property owners within 300 feet of all approved ROW segments, construction-related work areas, and substation sites; (2) placed in local newspapers; and, (3) posted on the Project's Internet website (Mitigation Measure L-1b).

Rationale for Finding. Some construction-related activities will require the temporary use of lands for purposes other than their existing use. For example, lands that are currently undeveloped or vacant will be used for staging areas, access roads, and pulling, tensioning, and splicing sites. The use of these areas could temporarily restrict access to, or the use of, lands that surround them as well. Construction will additionally cause temporary disturbances due to site-specific access limitations and parking restrictions, increased traffic and congestion along construction routes and detour routes, increased dust generation and noise, and changes in the overall visual character of an area due to the presence of construction-related equipment, personnel, and associated activities. However, with implementation of Mitigation Measures L-1a through L-1c, listed above, Impact L-1 of the Project would be adverse but less than significant.

Reference. Final EIR Section 3.9; Table ES-3

Impact L-2: Construction of the Project would temporarily disrupt, displace, or preclude existing non-residential land uses.

In the North Region, mining operations and existing energy generation facilities, including access roads, are located within one-half mile of Segment 10. South of the proposed Whirlwind Substation, properties within one-half mile of the proposed ROW include transportation, communications and utility facilities, industrial facilities, electrical power facilities, commercial and services uses, and mixed uses; some of these uses are

directly traversed by the proposed ROW. The North Region additionally includes several airports and air fields (public and military); although these airports and airfields are not located within one-half mile of the proposed ROW, some are located in close proximity to it.

Within the Central Region the Project traverses multiple zones and Places within the ANF. Within the ANF, Segments 6 and 11 additionally fall within one-half mile of several public/special use and mixed use properties, including the: Mill Creek Summit Forest Station (Segment 6, MP 7.3); Shortcut Forest Station (Segment 6, MP 16.5); Angeles Crest Forest Station (Segment 11, MP 17.3); Los Angeles County and USDA Forest Service fire stations and maintenance yards; educational campgrounds and facilities; communication facilities; and other public and private utilities.

Within the South Region, development both within and adjacent to the proposed ROW increases substantially. Along Segment 11 (South of MP 24.5), lands directly affected by construction pre-dominantly include commercial and service uses, and industrial and mixed uses. Along Segment 7, large tracts of mixed and industrial uses are located within or immediately adjacent to the proposed ROW, and smaller areas of commercial and services and public/special use and educational facilities occur as well. West of MP 7.0, non-residential uses affected by construction of Segment 8A include industrial and mixed uses and public/special use and educational facilities. East of MP 7.0, predominant non-residential (or agricultural) land uses associated with Segments 8A, 8B, and 8C include mixed uses, commercial and service uses, and industrial uses.

Within the ROW itself, construction-related activities associated with tower erection and removal sites, staging areas, and pulling, tensioning and splicing sites will displace or disrupt non-residential land uses. Access to these uses may be blocked or detoured, thus affecting the delivery and/or shipment of goods and services, as well as customer and employee ingress and egress. Additionally, site-specific operations will be impaired or prohibited at some locations due to the need to clear areas for construction equipment and materials. Following the completion of construction, site-specific uses may be compromised if affected areas are not restored to their pre-construction condition. Although these types of effects will occur in all three Regions, activities in the South Region will affect the greatest number of non-residential uses. In this region, particularly along Segments 7 and 11, the western-most portion of Segment 8A, and that portion of Segment 8A that traverses the City of Chino (approximately MP 25.5 though MP 29.0), there are numerous commercial and industrial uses, such as wholesale and retail nurseries, commercial and industrial parking lots, and material and truck storage and loading areas, that occur within the ROW.

Construction within an approximate 1,000 feet of either side of (e.g., outside of) the ROW will also result in the same types of effects as described above due to site-specific tower removal, erection, and pulling, tensioning and splicing activities, the need for temporary access roads, road detours and closures, and primary and secondary staging areas. Although the degree of these indirect effects outside of the ROW will not be expected to be as pronounced as within the ROW itself, impacts to non-residential uses in close proximity to construction zones could still be adverse at a site-specific level. Similar to activities within the ROW itself, these impacts will occur in all three regions, although the greatest number of properties affected will occur in the South Region along Segments 7 and 11 and portions of Segment 8A (approximately MP 0.0 through MP 7.0 and MP 25.5 though MP 29.0).

Proposed upgrades to the Mesa, Gould, and Mira Substations will occur within the confines of the substations' boundaries. However, mixed uses occur within one-half mile of the Gould Substation, while industrial, public/special use facilities, mixed uses, and commercial and services uses occur within 1,000 feet of both the Mesa and Chino Substations. Due to the proximity of proposed expansion and upgrade activities at these sites, the same types of secondary impacts to non-residential uses as described above for

the Project's ROW will occur and may be adverse at a site-specific scale. The construction of 33 towers within the ANF could temporarily affect aircraft movement within the Central Region, as well as those land uses (both non-residential and residential) that are in close proximity to the proposed helicopter staging areas and subject tower sites; these effects may also be adverse at a site-specific scale.

Mitigation Measures L-1a (Construction liaison – Property owners), L-1b (Advance notification of construction - Property owners), L-1c (Quarterly construction updates - Property owners), L-2a (Construction plan provisions – Non-residential property owners), and L-2b (Aircraft flight path and safety provisions and consultations) will reduce this impact of the Project.

Finding. The CPUC finds that changes or alterations have been incorporated into the Project which avoid or substantially lessen the significant effects on the environment from Impact L-2. Specifically, the following mitigation measures are feasible and are hereby adopted to mitigate significant effects from Impact L-2 to a less than significant level.

- **MM L-1a Construction liaison – Property owners.** *(See above for full text)*
- **MM L-1b Advance notification of construction - Property owners.** *(See above for full text)*
- **MM L-1c Quarterly construction updates - Property owners.** *(See above for full text)*
- **MM L-2a Construction plan provisions – Non-residential property owners.** SCE shall incorporate provisions into its construction plans and schedules to minimize the length of time that construction-related activities occur in areas actively used for non-residential purposes, such as commercial and service uses, industrial uses, public/special uses, and educational facilities. SCE shall ensure that all affected non-residential property owners within 300 feet of the ROW are always provided with at least one point of vehicular (passenger car and truck) and pedestrian access to their respective properties throughout all phases of construction.

  Immediately following the completion of construction, SCE shall ensure that all affected non-residential properties and uses affected by construction outside of the ROW are fully restored to their pre-construction conditions.
- **MM L-2b Aircraft flight path and safety provisions and consultations.** Prior to construction, SCE shall consult with the Federal Aviation Administration (FAA) and ensure the filing of all forms and associated specifications per the requirements of Federal Aviation Regulations (FAR) Title 14, Part 77. In addition, prior to the start of construction, SCE shall consult with all affected Airport Land Use Commissions (or their alternative process) and the FS to ensure that construction, operation, and maintenance of the Project does not conflict with local aircraft operations or associated safety provisions.

Rationale for Finding. Construction of portions of the Project will require the use of lands for purposes other than their existing uses to accommodate tower placement and removal areas, staging areas, access roads, and pulling, tensioning and splicing sites. Construction-related activities will also temporarily restrict or preclude access to, and potentially the use of, lands adjacent to construction-related work areas. Lands used for construction could additionally be damaged or otherwise impaired to a degree that their existing (e.g., pre-construction) uses are impaired. The intrusion of construction equipment, materials, and personnel typically constitutes an adverse but less than significant impact because it occurs for a limited period of time and does not result in permanent disturbances. However, there are instances where construction-related activities can disrupt or preclude land uses to a significant level even though these disturbances are temporary. Mitigation measures L-1a, L-1b, L-1c, L-2a and L-2b will reduce these impacts to less than significant by coordinating and communicating with affected property owners, minimizing the length of time required for construction-related activities, restoring non-residential properties to their pre-construction

conditions, and consulting with the FAA, Airport Land Use Commissions, and the FS to ensure there are no conflicts with local aircraft operations. Construction-related impacts to will be adverse but mitigable to a level of less than significant.

Reference. Final EIR Section 3.9; Table ES-3

Impact L-4: Operation and maintenance of the Project would cause long-term disruption of existing and planned non-residential land uses.

Segment 10 of the Project includes lands used for electrical power generation, mining and utilities (primarily the Los Angeles Aqueduct, which is operated by the Los Angeles Department of Water and Power [LADWP]), and additionally falls within one-half mile of lands managed by the CSLC. The majority of Segments 10 and 4 within Kern County are designated for resource management, residential, and agricultural uses, although some lands traversed by and within one-half mile of Segment 4 near the Skyotee Ranch landing strip are designated Light Industrial. The centerline of Segment 4's ROW also falls within an estimated two miles of the Skyotee Ranch landing strip, and two comparatively small tracts of land used for transportation-communication-utilities (near MP 7) and industrial purposes (near MP 10) also occur within one-half mile of Segment 4. Along Segment 4 the proposed ROW directly traverses a relatively large tract of land designated for mixed urban uses, as well as comparatively smaller tracts of land designated for industrial uses within western Palmdale; it additionally falls within one-half mile of the Antelope Valley California Poppy Reserve near MP 13, which is managed by the State Department of Parks and Recreation. Portions on Segment 5 additionally fall within one-half mile of lands under the jurisdiction of the BLM. Along its crossing of State Highway 14, Segment 5 falls within close proximity to a variety of land uses, including commercial and transportation, communication and utility uses.

The South Region contains the greatest number of non-residential land uses directly within and adjacent to the Project's existing, new, relocated, and expanded ROWs, including non-residential uses surrounding its existing substations. As outlined in Table 3.9-19, within the South Region new, expanded or relocated ROW will only occur along Segment 8A within lands designated Other Institutions, Open Not Developable and Residential. In addition, the Project falls within an estimated four miles of several airports and helipads, and also traverses through lands under the ownership of the U.S. Department of Defense along Segment 8A, at approximately MP 15.2.

Construction of the proposed Whirlwind Substation and expansion of the Antelope and Vincent Substations will permanently preclude existing and future planned residential uses. However, no impacts to non-residential land uses will occur due to the location of these substations either immediately adjacent to existing substation sites, or existing utility infrastructure. Upgrades to the existing Gould, Mesa and Mira Loma Substations will remain within the existing boundaries of these sites and will not permanently affect non-residential land uses.

Mitigation Measures L-2a (Construction plan provisions – Non-residential property owners) and L-4 (Consul with federal, State, and local agencies) will reduce this impact of the Project.

Finding. The CPUC finds that changes or alterations have been incorporated into the Project which avoid or substantially lessen the significant effects on the environment from Impact L-4. Specifically, the following mitigation measures are feasible and are hereby adopted to mitigate significant effects from Impact L-4 to a less than significant level.

- **MM L-2a Construction plan provisions – Non-residential property owners.** *(See above for full text).*

- **MM L-4 Consult with federal, State, and local agencies.** Prior to construction, SCE shall consult with all federal, State, and local agencies, including local agency consortiums, having jurisdiction over lands within one-half mile of the Project's ROW and ancillary facilities to minimize permanent restrictions or preclusions of their land management practices. SCE shall additionally ensure that a liaison to these agencies is available for the operational life of the Project to address and reconcile any future potential conflicts with land management practices. SCE will provide affected agencies with the name and contact information of the liaison and update that contact information as necessary.

Rationale for Finding. The Project will directly traverse, or fall within one-half mile of lands used for a variety of purposes other than residential, agricultural, or recreational development. Additionally, the Project falls within one-half mile of properties under the ownership or management of State and federal agencies, as well as multiple proposed and existing SEAs. Impacts from L-4 will be less than significant with the implementation of Mitigation Measures L-2a and L-4 because they require consultation to ensure no permanent restrictions or preclusions of land management practices occur and ensure properties will be restored to pre-construction conditions. With implementation of Mitigation Measure L-2a and L-4, long-term operational and maintenance impacts of the Project will be adverse but less than significant.

Reference. Final EIR Section 3.9; Table ES-3

Impact L-5: Construction, operation or maintenance of the Project would conflict with relevant federal, State, or local land use plans, goals, or policies.

As part of the Project's approval, and prior to construction, the USDA Forest Service will issue a Special Use Easement, which will involve amending the 2005 ANF Land Management Plan, as necessary, to insure consistency with the USDA Forest Service's management direction for affected areas within the ANF. It is currently anticipated that two Project-specific amendments will be required for the Project to allow for its inconsistencies with the Land Management Plan's Standards S9 and S10, and Riparian Conservation Area (RCA) Standards for those RCAs adversely impacted by the Project. The USDA Forest Service will also issue temporary Special Use Permits, as needed, for construction-related activities which will be located outside of the proposed ROW widths to ensure compliance with USDA Forest Service plans and policies.

Implementation of the Project will require both new and expanded ROWs and substation sites, however, these features will not conflict with either the land use plans and policies outlined in Table 3.9-20 of the Final EIR, or the other land use and management plans and policies presented in the Policy Screening Report. Additionally, as required by the CPUC's General Order No. 131-D, Section XIV B, the CPUC has consulted with all affected agencies regarding land use matters, and implementation of Mitigation Measures L-2b (Aircraft flight path and safety provisions and consultations) and L-4 (Consult with federal, State, and local agencies) will require SCE to further coordinate with applicable agencies to ensure that no conflicts with their respective land use plans and policies occur.

Finding. The CPUC finds that changes or alterations have been incorporated into the Project which avoid or substantially lessen the significant effects on the environment from Impact L-5. Specifically, the following mitigation measures are feasible and are hereby adopted to mitigate significant effects from Impact L-5 to a less than significant level.

- **MM L-2b Aircraft flight path and safety provisions and consultations.** (*See above for full text).*
- **MM L-4 Consult with federal, State, and local agencies.** *(See above for full text).*

Rationale for Finding. As part of the Project's approval, and prior to construction, the USDA Forest Service will issue a Special Use Easement, which will involve amending the 2005 ANF Land Management Plan as necessary to insure consistency with the USDA Forest Service's management direction for affected areas within the ANF. As such, the Project will be consistent with the USDA Forest Service land use policies. In addition, implementation of Mitigation Measures L-2b (Aircraft flight path and safety provisions and consultations) and L-4 (Consult with federal, State, and local agencies) will require SCE to further coordinate with applicable agencies to ensure that no conflicts with their respective land use plans and policies occur.

Reference. Final EIR Section 3.9; Table ES-3

Cumulative Impact L-4: Operation and maintenance of the Project would cause long-term disruption of existing and planned non-residential land uses.

Impact L-4 would create an incremental effect that is cumulative in nature. Non-residential land uses within one-half mile of the Project include mining, utilities, resource management, transportation, and light industrial uses. In addition, other energy projects have been proposed within one-half mile of the Project. The PdV/Manzana Wind Energy Project and the Alta Wind Energy Center may conflict with existing or proposed non-residential land uses in Kern County. The impacts of these projects in combination with the Project will result in a potentially significant cumulative effect on non-residential land uses. However, Mitigation Measure L-4 will reduce the incremental effect of the Project. With implementation of Mitigation Measure L-4 the Project's cumulative impact would be less than significant.

Finding. The CPUC finds that changes or alterations have been incorporated into the Project which avoid or substantially lessen the significant cumulative effects on the environment from Impact L-4. Specifically, the following mitigation measures are feasible and are hereby adopted to mitigate significant cumulative effects from Impact L-4 to a less than significant level.

- **MM L-4 Consult with federal, State, and local agencies.**

Rationale for Finding. The Project will directly traverse, or fall within one-half mile of lands used for a variety of purposes other than residential, agricultural, or recreational development. Additionally, the Project falls within one-half mile of properties under the ownership or management of State and federal agencies, as well as multiple proposed and existing SEAs. Project-level impacts from Impact L-4 will be less than significant with the implementation of Mitigation Measure L-4 because it requires consultation to ensure no permanent restrictions or preclusions of land management practices occur and ensure properties will be restored to pre-construction conditions. With implementation of Mitigation Measure L-4, long-term operational and maintenance impacts of the Project will be less than significant and will not contribute to a significant cumulative impact.

Reference. Final EIR Section 3.9; Table ES-3

III.3.9 Public Services and Utilities

Impact PSU-1: Emergency services would be needed if an accident or other emergency incident occurs at a construction site.

Fire protection or other emergency response services will be necessary if a construction accident or other emergency incident occurs at a Project construction site. A potential hazard could be the accidental ignition of a fire within the dry vegetation along the construction zone, particularly in the ANF where chaparral vegetation is prevalent and there is a considerable history of wildfires.

APM AQ-7 (Implement feasible fugitive dust control measures as provided in Kern County Air Pollution Control District's Rule 402 and Antelope Valley Air Quality Management District and South Coast Air Quality Management District Rule 403), which is included as part of the Project, will help to reduce this impact of the Project. In addition, the following mitigation measures will reduce Project impacts to emergency services: PSU-1a (Revise SCE's Fire Management Plan), PSU-1b (Review of construction methods by county fire departments), PSU-1c (Practice safe welding procedures), PSU-1d (Fire preventive construction equipment requirements), and F-1 (Prepare wildland traffic control plans).

Finding. The CPUC finds that changes or alterations have been incorporated into the Project which avoid or substantially lessen the significant effects on the environment from Impact PSU-1. Specifically, the following mitigation measures are feasible and are hereby adopted to mitigate significant effects from Impact PSU-1 to a less than significant level.

- **MM PSU-1a Revise SCE's Fire Management Plan.** Appendix D of the Proponent's Environmental Assessment (PEA) includes the Transmission Line Project Fire Plan to reduce the risk of igniting a fire during construction and operation as well as controlling the spread of a fire should one occur. The Plan shall be revised with the following provisions and submitted to the CPUC and FS no less than 60 days prior to construction:
    - The Smoking and Fire Rules require the Constructor to designate smoking areas "…in a barren area or in an area cleared to mineral soil at least three feet in diameter." SCE shall revise the Plan to mandate that these smoking areas are located at a radius of at least 50 feet from all hazardous material, gas and oil storage areas, and equipment service areas.
    - In Section 1.6 of the Fire Plan, Precautions in Areas of Fire Hazards, SCE shall designate Critical Protection Sites. In particular, these sites will be areas associated with dry habitats, chaparral vegetation, inhabited property, and a considerable history of wildfires. Designations of these sites inform construction crews of the need for the precautions noted in Section 1.6, which include the following: prohibit smoking on the jobsite; require the use of spark arrestors on equipment exhaust; designation of a Fire Patrolperson whose responsibility shall be solely to monitor the Constructor's fire prevention activities; require portable firefighting equipment, shovels, axes, and other necessary firefighting equipment; and observe all other precautionary measures that may be ordered by the FS, Division of Forestry of the State, and County Fire Departments.
- **MM PSU-1b Review of construction methods by county fire departments.** SCE shall coordinate with the Kern, Los Angeles, and San Bernardino County Fire Departments to review the specific construction methods and equipment, and identify any additional requirements that will minimize the potential for wildfires. Prior to construction, SCE shall include documentation of this coordination in the Transmission Line Project Fire Plan, and submit the Plan to the CPUC, FS (for NFS lands), and the county fire departments no less than 60 days prior to the start of construction, such as the following:
    - Any motor, engine, welding equipment, cutting torch, grinding device or equipment from which a spark, fire, or flame may originate shall not be used without first: (a) clearing away all flammable material for a distance of 10 feet, and (b) having on hand a round-point shovel with an overall length of not less than 46 inches and a fire extinguisher or water-filled backpack pump fully equipped and ready to use. This does not apply to power saws and other portable tools powered by a gasoline-fueled internal combustion engine (see next bullet).

      Any portable gasoline-powered tool (chainsaws, etc.) shall not be used within 25 feet of any flammable materials without providing one round-point shovel with an overall length of not less than 46 inches or a fire extinguisher having a minimum rating of 2-BC. The fire tools must be unobstructed and within 25 feet of the tool operation at all times. Motor vehicles

shall not be parked or operated outside of cleared work areas except for the specific purpose of clearing vegetation.

- **MM PSU-1c Practice safe welding procedures.** SCE shall select a welding site that is free of native combustible material and/or clear the site of such material to minimize the fire hazard. All welding on supporting structures shall be performed during fabrication of the structures at the fabricator's yard, to the extent practicable.
- **MM PSU-1d Fire preventive construction equipment requirements.** SCE shall meet the following requirements for gasoline, diesel, or other hydrocarbon fuel-powered equipment prior to construction:
  - The exhausts of all equipment powered by gasoline, diesel, or other hydrocarbon fuel shall be equipped with effective spark arrestors.
  - The spark arrestor shall be designed to prevent the escape from the exhaust of carbon or other flammable particles over 0.0232 inches. Motor trucks, truck tractors, buses, and passenger vehicles (except motorcycles) shall not be subject to this provision if their exhaust systems are equipped with mufflers.
  - All welding rigs shall be equipped with a minimum of one 20-pound or two 10-pound fire extinguishers, and a minimum of five gallons of water in a fire-fighting apparatus.
- **MM F-1 Prepare wildland traffic control plans.** SCE shall develop wildland traffic control plans as part of the Traffic Control Plans required by Mitigation Measure T-1a (Prepare Traffic Control Plans) in consultation with the FS (ANF) and Puente Hills Landfill Native Habitat Preservation Authority (PHLNHPA), as appropriate. The wildland traffic control plans shall stipulate mechanisms through which narrow roads shall be kept passable for emergency service providers in a wildfire-related or other emergency situation. SCE shall appoint a Road Master, who shall administer the wildland traffic control plans and facilitate emergency vehicle access in the event of a wildfire-related or other emergency. The wildland traffic control plans shall identify strategic locations for adequate construction and maintenance vehicle parking, as necessary, in consultation with the land management agency, and alternate routes for large equipment and vehicle evacuation shall be identified to the extent possible. Wildland traffic control plans shall be prepared in consultation with the land management agencies for both construction and maintenance activities and shall be submitted to the FS and PHLNHPA at least 30 days prior to construction in areas managed by these agencies.

Rationale for Finding. APM AQ-7 (Implement feasible fugitive dust control measures as provided in KCAPCD's Rule 402 and AVAQMD and SCAQMD Rule 403), which is included as part of the Project, requires implementation of control measures provided by Rule 402 of the KCAPCD, and Rule 403 of the AVAQMD and the SCAQMD. These rules require watering as a fugitive dust control measure, which will also reduce the potential for accidental ignition in hazardous areas. Fire hazards presented by the Project will not pose significant impacts with implementation of Mitigation Measures PSU-1a (Revise SCE's Fire Management Plan), PSU-1b (Review of construction methods by county fire departments), PSU-1c (Practice safe welding procedures), PSU-1d (Fire preventive construction equipment requirements), and F-1 (Prepare wildland traffic control plans), which require preparation of control plans based on consultations with the ANF and the Puente Hills Landfill Natural Habitat Authority, will help to minimize this impact. According to Mitigation Measure F-1, wildland traffic control plans shall include mechanisms through which narrow roads are kept passable by emergency service providers, and shall provide for adequate construction and maintenance vehicle parking. Provision of alternate routes in lieu of maintaining passable roadways shall be minimized, and shall be subject to agency approval. Wildland traffic control plans will be prepared for both construction and maintenance activities. The fire risks associated with Project construction

activities will be reduced with the implementation of SCE's Fire Management Plan, which is intended to prevent, control and extinguish fire during the construction period.

Reference. Final EIR Section 3.11; Table ES-3

Impact PSU-2: Temporary lane closures during the construction period would interfere with emergency response vehicles.

Temporary lane closures during Project construction could potentially interfere with emergency response vehicles, such as police, fire, and medical vehicles. The loss of a lane and the resulting increase in congestion could lengthen the response time required for emergency vehicles passing through the construction zone. In some cases, use of an alternative route might be required, which could also increase travel time and temporarily lengthen response times for emergency vehicles. This will be of particular concern in rural areas where roads are limited to two lanes and substantially longer distances must be traveled to utilize alternative routes.

Implementation of mitigation measure MM T-1a will reduce the Project's impact on emergency response vehicles.

Finding. The CPUC finds that changes or alterations have been incorporated into the Project which avoid or substantially lessen the significant effects on the environment from Impact PSU-2. Specifically, the following mitigation measure is feasible and is hereby adopted to mitigate significant effects from Impact PSU-2 to a less than significant level.

- **MM T-1a Prepare Traffic Control Plans.** *(See above for full text).*

Rationale for Finding. In order to minimize adverse impacts, Mitigation Measure T-1a (Prepare Traffic Control Plans) requires SCE to inform emergency service agencies of road closures, detours, and delays. This measure also includes provisions to accommodate emergency vehicles, such as immediately stopping work for emergency vehicle passage, short detours, and alternate routes developed in conjunction with local agencies.

Reference. Final EIR Section 3.11; Table ES-3

Impact PSU-4: Utility systems would be temporarily disrupted during the construction period.

During construction, there is a potential for accidental disruption of other utility systems located in the construction zone. This could include overhead utility lines, such as telephone and cable television, and buried utility lines, such as water, wastewater, and natural gas lines. Buried lines are more likely to be accidentally disrupted because their exact locations are sometimes difficult to determine and, therefore, can be unintentionally disrupted by construction activities involving ground disturbance, such as excavation. Excavation required for installation of new transmission towers involves drilling for new foundations. Excavation is also required for removal, or partial removal, of existing towers that need to be replaced. Most buried utilities along the transmission corridors are located in public streets crossed by the transmission line or in other readily identifiable public ROWs. These are not locations where new towers will be installed or existing towers will be removed, but rather streets and other similar public ROWs will be spanned by transmission lines. However, this does not eliminate the possibility for disruptions of buried utilities during Project construction, especially for any utility lines that may be located outside of public streets or other readily identifiable ROWs.

SCE is required by State law to contact Underground Service Alert and manually probe for existing buried utilities in the Project corridor prior to any powered-equipment drilling or excavation. This will substantially

reduce the risk of accidental upset of existing utility lines. In addition, Project construction plans may require the temporary disruption of buried utility lines located in the construction zone. Therefore, some temporary service interruptions may be unavoidable. While any disruption in service will be temporary in nature, it will inevitably disrupt activities in the surrounding area that are dependent on those utilities. The implementation of mitigation measure MM PSU-4 will reduce this impact.

Finding. The CPUC finds that changes or alterations have been incorporated into the Project which avoid or substantially lessen the significant effects on the environment from Impact PSU-4. Specifically, the following mitigation measure is feasible and is hereby adopted to mitigate significant effects from Impact PSU-4 to a less than significant level.

- **MM PSU-4 Notification of utility service interruption.** Prior to Project construction in which a utility service interruption is known to be unavoidable, SCE shall notify members of the public, the jurisdiction, and the service providers that would be affected by the planned outage by mail. SCE shall also publish notice in a newspaper of local jurisdiction. The notice shall specify the estimated duration of the planned outage, and shall be published no less than seven days prior to the outage. Copies of notices and dates of public notification shall be provided by SCE to the CPUC and FS (NFS lands) no later than 30 days following notification.

Rationale for Finding. Disruptions in the flow of water and/or gas utility services are likely during the construction period. Mitigation Measure PSU-4 requires that SCE notify neighborhoods that are to be affected. Any utility disruption will be temporary and the public will be provided with sufficient notice to prepare for such an outage.

Reference. Final EIR Section 3.11; Table ES-3

Impact PSU-5: Public Works maintenance yards would be disrupted during the construction period.

The following Public Works yards are located within the ROW: RD557A Road Maintenance Yard located in the ANF (Segment 11); Eaton Yard Flood Maintenance Yard located in the City of Pasadena (Segment 11); and the MD1 Road Maintenance Yard located in Baldwin Park (Segment 7). Construction of the Project could temporarily interrupt access to these maintenance yards unless arrangements are made to provide temporary alternative means of access. The implementation of mitigation measure PSU-5 will reduce this impact.

Finding. The CPUC finds that changes or alterations have been incorporated into the Project which avoid or substantially lessen the significant effects on the environment from Impact PSU-5. Specifically, the following mitigation measure is feasible and is hereby adopted to mitigate significant effects from Impact PSU-5 to a less than significant level.

- **MM PSU-5 Notification of public service interruption.** Prior to the start of construction activities that would restrict access to a maintenance yard, SCE shall notify the Los Angeles County Public Works Department of the service locations to be affected and the duration of restricted activities at each site, and coordinate in order to avoid multiple or extended disruptions. Documentation of coordination efforts shall be completed and submitted to the CPUC and FS (NFS lands) upon request.

Rationale for Finding. Mitigation Measure PSU-5 requires that SCE inform the Los Angeles County Public Works Department when disruptions will occur in order to prepare for restricted access. Impacts to maintenance yards will be temporary and advance notice will be provided to Public Works.

Reference. Final EIR Section 3.11; Table ES-3

Impact PSU-9: The amount of waste material recycled during construction activities would not adhere to State standards.

The Integrated Waste Management Act of 1989, which is described in Section 3.11.3 (Applicable Laws, Regulations, and Standards) of the Final EIR, requires all local and county governments to adopt a Source Reduction and Recycling Element to identify means of reducing the amount of solid waste sent to landfills. During construction of the Project, removed conductor wiring and metal from replaced tower structures will be dismantled and recycled. Soil from drilling or excavation will be screened and separated for use as backfill to the maximum extent possible. Other waste such as packing crates, spare bolts, and other construction debris will be hauled off site for recycling when possible.

SCE estimates that the average daily solid waste disposal will be 528 tons. This amount spread out over the 59-month construction schedule is not expected to exceed the available capacity of the landfills noted in Table 3.11-9 of the Final EIR, and recyclable material will be taken to recycling facilities. In addition, Project operation and maintenance will not generate solid waste in excess of SCE's current operations in the area, and will not affect existing landfill capacities. The implementation of mitigation measure PSU-9 will reduce this impact.

Finding. The CPUC finds that changes or alterations have been incorporated into the Project which avoid or substantially lessen the significant effects on the environment from Impact PSU-9. Specifically, the following mitigation measure is feasible and is hereby adopted to mitigate significant effects from Impact PSU-9 to a less than significant level.

- **MM PSU-9 Recycle construction waste.** SCE shall recycle a minimum of 50 percent of the waste generated during construction activities along the entire Project route. Following the completion of construction activities, SCE shall submit documentation to the CPUC and FS verifying the recycling of 50 percent of generated Project waste.

Rationale for Finding. Recycling efforts required by Mitigation Measure PSU-9, will ensure the Project's compliance with the Integrated Waste Management Act of 1989 and Assembly Bill 939 by incorporating the maximum recycling efforts during Project construction.

Reference. Final EIR Section 3.11; Table ES-3

III.3.10 Traffic and Transportation

Impact T-1: Closure of roads to through traffic or reduction of travel lanes would result in substantial congestion.

Construction of the Project could result in roadway closures at locations where the construction activities, especially transmission line stringing, will be located within ROWs of public streets and highways. Although temporary closures of this nature will likely occur for only a few minutes at a time, even temporary road closures on roads with ADT greater than 10,000 vehicles per lane could substantially disrupt traffic flow and substantially increase traffic congestion, particularly if road closures occurred during a.m. or p.m. peak hours of travel. In addition, delivery of large equipment and materials via truck may also require temporary closures.

The Northern Region will require transmission line stringing over SR14, Elizabeth Lake Road, and Sierra Highway, as well as various other Kern County and Los Angeles County roads. Transmission line stringing activities in the Central Region will require temporary closures of several freeways, highways and collector roads with high volume ADT, including I-210, I-605, SR60, SR19, I-10, and Huntington Boulevard, as well as several local municipal and Los Angeles County collector roads. Transmission line stringing activities in

the Southern Region will require temporary closures of several freeways, highways and collector roads with high volume ADT, including SR60, SR19, I-605, SR57, SR71, SR83, and Fullerton Road, as well as stringing over several local municipal, Los Angeles County, and San Bernardino County collector roads.

Under Alternative 6 components of the Project, Helicopter staging area #6 will be located directly adjacent to Upper Big Tujunga Canyon Road, and helicopter flights to and from this site may require temporary closures of this roadway during construction. Under Alternative 7 components of the Project, trenching required for construction of the underground portions of Segment 7 within Valley Boulevard and adjacent to Durfee Avenue will require temporary closure of Valley Boulevard and potential closure of Peck Road and Durfee Avenue. Additionally, the rerouted portion of Segment 8 included under Alternative 7 components of the Project will result in crossings and commensurate temporary closure of San Gabriel Boulevard.

APMs TRA-1 (Minimize Street Use), TRA-2 (Obtain Permits), TRA-3 (Incorporate Protective Measures), and TRA-4 (Prepare Traffic Management Plans), which are included as part of the Project, will help to minimize this potential impact.

Finding. The CPUC finds that changes or alterations have been incorporated into the Project which avoid or substantially lessen the significant effects on the environment from Impact T-1. Specifically, the following mitigation measures are feasible and are hereby adopted to mitigate significant effects from Impact T-1 to a less than significant level.

- **MM T-1a Prepare Traffic Control Plans.** Prior to the start of construction, SCE shall submit Traffic Control Plans (TCPs) to all agencies with jurisdiction over public roads that would be affected by overhead construction activities as part of the required traffic encroachment permits. TCPs shall define the locations of all roads that would need to be temporarily closed due to construction activities, including aerial hauling by helicopter and conductor stringing activities. The TCPs shall define the use of flag persons, warning signs, lights, barricades, cones, etc. to provide safe work areas and to warn, control, protect, and expedite vehicular and pedestrian traffic. The measures included in the TCPs shall be consistent with the standard guidelines outlined in the Standard Specifications for Public Works Construction, the U.S. Department of Transportation's Manual on Uniform Traffic Control Devices (MUTCD), and the Work Area Traffic Control Handbook (WATCH). Copies of the TCPs shall be sent to the FS and to the planning/or traffic departments of the affected local jurisdictions at least 30 days prior to the start of construction.

  TCPs shall also include measures to avoid disruptions or delays in access for emergency service vehicles and to keep emergency service agencies fully informed of road closures, detours, and delays. Police departments, fire departments, ambulance services, and paramedic services shall be notified at least one month in advance by SCE of the proposed locations, nature, timing, and duration of any construction activities and advised of any access restrictions that could impact their effectiveness. Provisions shall be ready at all times to accommodate emergency vehicles, such as immediately stopping work for emergency vehicle passage, short detours, and alternate routes developed in conjunction with local agencies. TCPs shall also identify all emergency service agencies, include contact information for those agencies, assign responsibility for notifying the service providers, and specify coordination procedures. Copies of the TCPs shall be provided to all affected police departments, fire departments, ambulance and paramedic services. Documentation of coordination with service providers shall be provided to the CPUC and FS 30 days prior to the start of construction.

- **MM T-1b Restrict lane closures.** To minimize traffic congestion and delays during construction to the extent feasible, SCE shall restrict all necessary lane closures or obstructions on major roadways, as designated by applicable County and City General Plans, associated with overhead construction activities to off-peak periods only. Unless absolutely necessary, lane closures

must not occur between the peak hours of 6:00 and 9:00 a.m. and between the peak hours of 3:30 and 6:30 p.m., or as directed in writing by the affected public agency in the encroachment permit.

Rationale for Finding. APM TRA-1 requires construction activities be designed to minimize work on or use of local streets; APM TRA-2 requires obtaining encroachment or other permits as necessary when construction will require local streets to be used for more than normal traffic purposes; and APM TRA-3 requires use of guard poles, netting, or similar means to protect moving traffic and structures when construction requires the crossing of local streets, highways, or rail lines. This measure will also require continuous traffic breaks operated by the CHP on state highways, if necessary be planned and provided. APM TRA-4 will require preparation of a traffic control plan where necessary to minimize Project impacts on local streets. Additionally, implementation of Mitigation Measures T-1a (Prepare Traffic Control Plans) and T-1b (Restrict lane closures) will reduce the potential for substantial congestion as a result of construction-related roadway closures, by requiring the minimizing use of streets, obtaining relevant permits, preparation of traffic control plans and use of guard structures, netting, and traffic breaks to protect traffic.

Reference. Final EIR Section 3.13; Table ES-3

Impact T-2: Construction traffic would result in congestion on area roadways.

Construction of the Project will generate additional traffic on regional and local roadways. Construction worker commute trips, Project equipment deliveries, and hauling materials such as support towers, concrete, conductor, and excavation spoils will increase existing traffic volumes in the Project area.

Approximately 300 workers in separate construction crews, each comprised of between two and 100 workers, will work on the various aspects of the Project over a 55-month period. Construction will require a peak of approximately 540 daily truck trips and average of approximately 190 daily truck trips. An average of approximately 155 workers will commute to various locations along the proposed route ROW each workday. Transmission line workers will be dispersed in groups throughout the Project area and will not typically be working at the same place at any one time. Construction activities will occur concurrently at several locations along the ROW within the counties of Kern, Los Angeles, and San Bernardino. Assuming that each worker will travel in a personal vehicle this will represent a peak of 300 worker commute trips per day in addition to 540 truck trips per day. Worker and truck trips are assumed to be evenly dispersed along the entire 173-mile long transmission line route in the project regions discussed below. Therefore, during peak construction approximately 100 worker trips and 180 truck trips will be added to the regional roadway system of each project region. Haul truck traffic will include trucks carrying equipment and materials, spoils for disposal, and new and old tower support pieces. Trips will be made to and from various points along the transmission line route. The exact routes and scheduling of truck trips are not known at this time.

Traffic volumes in the Northern Region are generally low to moderate. However, it is possible that Project-related construction traffic could contribute to congestion on heavily traveled roads such as SR14 and Elizabeth Lake Road or along narrow roadway segments. Construction vehicles will be added to several roadways in the Central Region that currently experience high traffic volumes, including I-210, I-605, SR60, SR19, I-10, and Huntington Boulevard, as well as several local municipal and Los Angeles County collector roads. In the South Region, construction vehicles will be added to several roadways that currently experience high traffic volumes, including SR60, SR19, I-605, SR57, SR71, SR83, and Fullerton Road, as well as stringing over several local municipal, Los Angeles County, and San Bernardino County collector roads.

Delivery of equipment and workers required for helicopter construction associated with Alternative 6 portions of the Project will result in an incremental increase in the number of construction vehicles traveling on roadways within the ANF. However, these roadways, primarily Angeles Crest Highway, Big Tujunga Canyon Road, and SR-2, experience low volumes of traffic; therefore the incremental increase in construction traffic is not likely to result in substantial congestion. In addition, the additional duration of lane closures required for construction of the underground and rerouted portions of the transmission line associated with Alternative 7 portions of the Project will incrementally increase the potential for this impact to occur.

Finding. The CPUC finds that changes or alterations have been incorporated into the Project which avoid or substantially lessen the significant effects on the environment from Impact T-2. Specifically, the following mitigation measure is feasible and is hereby adopted to mitigate significant effects from Impact T-2 to a less than significant level.

- **MM T-2 Prepare Construction Transportation Plan**. Where construction traffic has the potential to significantly affect regional and local roadways by generating additional vehicle trips, SCE shall prepare a Construction Transportation Plan (CTP) describing alternate traffic routes, timing of commutes, reduction in crew-related traffic, and other mitigation methods for reducing construction-generated additional traffic on regional and local roadways. The CTP shall also require construction workers to park personal vehicles at primary and secondary marshalling yards and carpool to work locations in order to limit the number of construction vehicles on the road. Construction vehicles shall be required to park within the Project ROW or on access roads to the maximum extent possible. SCE shall submit the CTP to Caltrans and the affected local jurisdictions for review and approval at least 30 days prior to commencing construction activities.

Rationale for Finding. Construction vehicles will be added to several roadways throughout the Project area that currently experience high traffic volumes throughout all three regions of the Project. Implementation of Mitigation Measure T-2 (Prepare Construction Transportation Plan) will reduce the number of construction-related vehicles traveling on regional and local roadways. Implementation of this measure will reduce Impact T-2 to a less-than-significant level.

Reference. Final EIR Section 3.13; Table ES-3

Impact T-3: Construction activities could temporarily interfere with emergency response.

Overhead construction activities could interfere with emergency response by ambulance, fire, paramedic, and police vehicles. Potential roadway segments that will be most impacted will be two-lane roadways, which provide one lane of travel per direction. On roadways with multiple lanes, the loss of a lane and the resulting increase in congestion could lengthen the response time for emergency vehicles to pass through the construction zone. Additionally, there is a possibility that emergency services will be needed at a location where access is temporarily blocked by the construction zone.

Under Alternative 6 portions of the Project, two helicopter staging areas will be located directly adjacent to or in close proximity to Upper Big Tujunga Canyon Road and Angeles Forest Highway, and temporary closures of each of these roadways that will not be required during construction of any other alternative may be required. Such closures will result in an incremental increase in the potential for construction to result in delays to emergency vehicles. Under Alternative 7 portions of the Project, the additional duration of lane closures required for construction of the underground and rerouted portions of the proposed transmission line will incrementally increase the potential for this impact to occur.

Finding. The CPUC finds that changes or alterations have been incorporated into the Project which avoid or substantially lessen the significant effects on the environment from Impact T-3. Specifically, the following mitigation measures are feasible and are hereby adopted to mitigate significant effects from Impact T-3 to a less than significant level.

- **MM T-1a** **Prepare Traffic Control Plans.** *(See above for full text).*
- **MM T-1b** **Restrict lane closures.** *(See above for full text).*

Rationale for Finding. Mitigation Measure T-1a (Prepare Traffic Control Plans) includes measures, such as keeping emergency service agencies fully informed of road closures, detours, and delays and making ready at all times provisions to accommodate emergency vehicles. Additionally, Mitigation Measure T-1b (Restrict lane closures) will reduce the potential for roadway congestion to occur, which will also reduce the potential for interference with emergency services. Implementation of Mitigation Measures T-1a and T-1b will reduce Impact T-3 to a less-than-significant level.

Reference. Final EIR Section 3.13; Table ES-3

Impact T-4: Construction activities could temporarily disrupt transit routes.

Overhead stringing activities that will require short-term road closures associated with construction of the proposed transmission line will disrupt transit routes. Potential impacts will include scheduling delays and temporary bus reroutes.

The proposed transmission line route will not cross any Antelope Valley Transit Authority (AVTA) local transit routes. At its point of closest approach, the Segment 5 transmission route is approximately 1.25 miles to the west of the nearest Route 5 stop. However, the route will cross SR14, which is used by AVTA commuter bus routes 785 (to downtown Los Angeles), 786 (to West Los Angeles and Century City), and 787 (to West San Fernando Valley). Segment 5 will cross the Union Pacific Railroad (UPRR)/Metrolink line near the Vincent Grade/Acton Metrolink Station at approximately MP 16.7.

The transmission line routes of Segment 7 and Segment 11 of the Project will cross several transit routes operated by the Los Angeles Metropolitan Transit Authority, Foothill Transit, Pasadena Area Transit System, Montebello Municipal Bus Lines, and Norwalk Transit District. Segment 11 will cross the light rail Metro Gold Line at approximately MP 27.5 as well as UPRR and Metrolink lines at approximately MP 31.5 and MP 33.0, respectively. Segment 7 will cross the Metrolink rail line at approximately MP 8.9.

The transmission line route of Segment 8 of the Project will cross several transit routes operated by the Los Angeles Metropolitan Transit Authority, Foothill Transit, Montebello Municipal Bus Lines, Norwalk Transit District, and Omnitrans. The underground portions of this route will cross Valley Boulevard and will be located directly adjacent to Durfee Avenue, which are utilized by five Foothill Transit bus routes and one Los Angeles Metro bus route. Lane closures required for construction of the underground portions of Alternative 7 will be of longer duration than closures required for the Project and will incrementally increase the potential for this impact to occur.

Finding. The CPUC finds that changes or alterations have been incorporated into the Project which avoid or substantially lessen the significant effects on the environment from Impact T-4. Specifically, the following mitigation measure is feasible and is hereby adopted to mitigate significant effects from Impact T-4 to a less than significant level.

- **MM T-4 Avoid disruption of bus service.** SCE will coordinate with the Los Angeles Metropolitan Transit Authority, Foothill Transit, Pasadena Area Transit System, Montebello Municipal Bus Lines, Norwalk Transit District, and Omnitrans at least 30 days prior to construction in the respective service territory of each agency noted to reduce potential interruption of bus transit services. Documentation of coordination efforts shall be submitted to the CPUC upon request.

Rationale for Finding. Mitigation Measure T-4 (Avoid disruption of bus service) includes measures, such as coordination with transit providers, to avoid interruption of bus service. Implementation of this measure will reduce Impact T-4 to a less-than-significant level.

Reference. Final EIR Section 3.13; Table ES-3

Impact T-5: Construction activities would cause a temporary disruption to rail traffic or operations.

Overhead construction activities could interfere with rail traffic because construction of overhead transmission lines could require temporary use or closure of a railroad ROW. It will be necessary to halt through-rail traffic during stringing operations over railroads. In addition, delivery of large equipment and materials via truck will also require temporary closures. Temporary closures, although likely to occur only for up to a few minutes at a time, could cause back-ups with freight and commuter trains and constrain circulation in the area.

Segment 10 of the proposed transmission line route will cross a spur of the UPRR line at approximately MP 1.0 and Segment 5 will pass immediately to the west of the Vincent Grade/Acton Metrolink Station parking lot and across the railroad tracks at approximately MP 16.7. Segment 11 will cross the light rail Metro Gold Line at approximately MP 27.5 as well as UPRR and Metrolink lines at approximately MP 31.5 and MP 33.0, respectively. Segment 7 will cross the Metrolink rail line at approximately MP 8.9. Segment 8 will cross a UPRR / Metrolink rail line at approximately MP 4.8.

APM TRA-3 (Incorporate Protective Measures), which is included as part of the Project, will help to minimize this impact.

Finding. The CPUC finds that changes or alterations have been incorporated into the Project which avoid or substantially lessen the significant effects on the environment from Impact T-5. Specifically, the following mitigation measure is feasible and is hereby adopted to mitigate significant effects from Impact T-5 to a less than significant level.

- **MM T-5 Obtain and comply with railroad permits.** SCE shall obtain permits/approvals from each of the affected railway operators (Union Pacific Railroad, Metrolink, and/or Amtrak) to ensure construction activities comply with each company's safety requirements and to avoid disruption to or congestion of rail traffic. Copies of permits shall be submitted to the CPUC prior to construction across or adjacent to rail lines.

Rationale for Finding. APM TRA-3 requires that construction activity requiring the crossing of a rail line will incorporate the use of guard poles, netting, or similar means to protect moving traffic and structures from the activity. Mitigation Measure T-5 (Obtain and comply with railroad permits) includes measures, such as coordination with transit providers to ensure safety and avoid interruptions of service. Implementation of this measure will reduce Impact T-5 to a less-than-significant level.

Reference. Final EIR Section 3.13; Table ES-3

Impact T-6: Construction activities could temporarily interfere with the use of pedestrian/bicycle paths.

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 bike routes were blocked.

Designated bicycle lanes do not exist along the Northern Region portion of the Project route; however this will not necessarily preclude use of roads in this area by bicyclists or pedestrians. Segment 6 of the TRTP route is located within the ANF and will not cross any designated bike routes, which does not necessarily preclude use of roads in this area by bicyclists or pedestrians.

Most of the Segment 7 and Segment 11 routes are located in an urbanized area and will cross or run parallel to several roadways with separated sidewalks. Segment 7 will cross or run parallel to several designated bike paths and routes including: a Class III route along Royal Oaks Drive in Duarte near MP 1.5; a Class I bike path along the San Gabriel River near MP 10.5; a Class III bike route along Peck Road near MP 11; a Class I bike path in Whittier Narrows Recreation Area near MP 11.5; and a Class I bike bath along Rio Hondo River near MP 13.5. Segment 11 will cross a Class III bicycle path along SR2 in La Canada Flintridge just north of the Gould Substation (La Canada Flintridge, 1994) near MP 18.3. Segment 11 will also cross several Class II and Class III bike paths between MP 26 and MP 29 in Pasadena located along New York Drive, Orange Grove Boulevard., Foothill Boulevard, Del Mar Boulevard, and San Pasqual Street.

Segment 8 will cross several designated bike routes including: Class I bike paths along the Rio Hondo River (MP 2.5), Whittier Narrows Recreation Area (MP 3.5) and the San Gabriel River (MP 4); a Class II bike route along Colima Road near MP 9.5; a Class II bike path along Edison Avenue between Magnolia Avenue and Cypress Avenue near MP 28.5; and a Class I bike path located north of Edison Avenue between Cypress Avenue and Euclid Avenue near MP 29.5.

The underground portion of the Alternative 7 section of the Project will be located immediately adjacent to Peck Road and Durfee Avenue, which serve adjacent businesses. During excavation of the trench for the underground cable, access to sidewalks will be temporarily disrupted and possibly blocked, which will increase the potential for this impact to occur.

Finding. The CPUC finds that changes or alterations have been incorporated into the Project which avoid or substantially lessen the significant effects on the environment from Impact T-6. Specifically, the following mitigation measure is feasible and is hereby adopted to mitigate significant effects from Impact T-6 to a less than significant level.

- **MM T-6 Ensure pedestrian and bicycle circulation and safety.** Where construction will result in temporary closures of sidewalks or other pedestrian facilities, SCE shall provide temporary pedestrian access, through detours or safe areas along the construction zone, where feasible. Where construction activity will result in bike route or bike path closures, appropriate detours shall be established, where feasible, and detour signs shall be posted. Detours and closures required for safe pedestrian and bicycle access through or around the construction area shall be identified in a circulation plan included in the TCP's required under Mitigation Measure T-1. All detours and related signage shall be consistent with the standard guidelines outlined in the U.S. Department of Transportation's Manual on Uniform Traffic Control Devices (MUTCD).

Rationale for Finding. Mitigation Measure T-6 (Ensure pedestrian and bicycle circulation and safety) includes measures, such as providing pedestrian and bicycle access and detours, to avoid disruption to the use of pedestrian/bicycle paths. Implementation of this measure will reduce Impact T-6 to a less-than-significant level.

Reference. Final EIR Section 3.13; Table ES-3

Impact T-7: Construction would result in localized shortages of public parking along the Project ROW.

The Project includes an approximately 173-mile long linear transmission line route. As such, construction at any one location along the ROW will only occur for a limited amount of time before moving to another location along the ROW. Depending on the activity (tower erection, transmission line stringing, etc.), the duration of construction activities at any one location along the ROW (excluding marshalling yards, which will be utilized throughout construction) will range from a few minutes to a few days. However, construction along the Project ROW will require workers to drive construction vehicles to sites under active construction. Construction workers will park construction vehicles and personnel in the immediate vicinity of active construction. In areas of dense urban or residential development, construction workers may have to park along roadsides, thereby utilizing designated parking spaces.

The Northern Region of the Project is mostly rural and open space with little urban or residential development. The Project route in this region will not traverse areas of dense urban or residential development. Most of the roadways crossed by the Project route in this region are rural and private roads with no designated parking spaces. Construction workers will park along roadsides in this region; however, since there are no areas of concentrated commercial or residential development in this area, use of these roadways for construction parking will not be expected to displace parking opportunities for the public.

Segment 6 of the Project is located within the ANF and will not cross any areas of urban or residential development or areas with designated parking spaces. Although construction workers will park along roadsides along this segment, such activities will not be expected to result in a reduction of the local parking space supply. Portions of Segment 7 (in the immediate vicinity of MP 1 and MP 11) and Segment 11 (MP 25.5 to MP 3 6.5) of the Project will be located in areas of dense residential development. These segments will be constructed within existing ROW, which will allow construction workers to park vehicles in the ROW or on existing ROW access roads. However, depending on the intensity and physical logistics of specific construction activities, construction workers may be required to park along local residential roadways and major collector roads directly crossed by these portions of Segment 7 and Segment 11. The areas at which these segments cross roadways occur in residential areas or between urban centers with areas of commercial businesses or government offices. Therefore, the locations at which construction workers will park will not be expected to experience high rates of public utilization for parking.

Most of Segment 8 will be located in existing ROW in areas of industrial development or open space. Most of the roadways crossed by this segment do not experience high volumes of public street parking. Additionally, because this route will be located within existing ROW, construction workers will be expected to park vehicles within the ROW or on existing ROW access roads. However, a portion of Segment 8 (MP 23 to MP 25.5) will be located in an area of dense residential development in the cities of Chino and Chino Hills. Depending on the intensity and physical logistics of specific construction activities, construction workers may be required to park along local residential roadways and major collector roads directly crossed by Segment 8 in these areas. Such activities may result in the temporary reduction of residential parking space along roadways crossed by Segment 8 in these areas.

Finding. The CPUC finds that changes or alterations have been incorporated into the Project which avoid or substantially lessen the significant effects on the environment from Impact T-7. Specifically, the following mitigation measure is feasible and is hereby adopted to mitigate significant effects from Impact T-7 to a less than significant level.

- **MM T-2 Prepare Construction Transportation Plan**. *(See above for full text).*

Rationale for Finding. Implementation of Mitigation Measure T-2 (Prepare Construction Transportation Plan) will reduce the number of construction-related vehicles traveling to areas of active construction along the ROW and will require construction vehicles to be parked within the Project ROW or on ROW access roads to the maximum extent possible, thereby reducing the number of vehicles parked on public roadways. Implementation of this measure will reduce Impact T-7 to a less-than-significant level.

Reference. Final EIR Section 3.13; Table ES-3

Impact T-8: Construction would conflict with planned transportation projects.

Because final design of the Project has not been completed the precise location of transmission towers within the proposed ROW is currently unknown. The Project could conflict with future transportation projects if it will place structures within transportation ROWs that will be developed with new transportation infrastructure.

The transmission route will cross SR14 in the Vincent/Acton area. The Los Angeles County Metropolitan Transportation Authority has a long range plan that includes several alternatives to improve SR14. One alternative under consideration is to construct a new travel lane within the SR14 ROW. As a result, general plans of cities in this region are being amended to incorporate corridor improvements as part of their official map, and require developers to dedicate ROW along the alignment. The Project will conflict with the new travel lane if SCE were to place structures within the existing or planned SR14 ROW.

No planned transportation projects with which the Project could conflict have been identified in the Central or Southern Region of the Project area.

Finding. The CPUC finds that changes or alterations have been incorporated into the Project which avoid or substantially lessen the significant effects on the environment from Impact T-8. Specifically, the following mitigation measure is feasible and is hereby adopted to mitigate significant effects from Impact T-8 to a less than significant level.

- **MM T-8 Avoid conflicts with planned transportation improvements.** Prior to final Project design SCE shall coordinate Project design with the California Department of Transportation (District 6, District 7 and District 8), the Los Angeles County Metropolitan Transit Authority, and the traffic departments or public works departments of the counties of Kern, Los Angeles, and San Bernardino and the individual cities through which the proposed transmission route traverses, and to ensure that Project structures are appropriately placed to avoid conflict with any planned transportation projects.

Rationale for Finding. Mitigation Measure T-8 (Avoid conflicts with planned improvements to SR14) will require coordination with Caltrans and the Los Angeles County Metropolitan Transit Authority to ensure that Project structures will not be placed such that they will conflict with the future travel lane. Implementation of this measure will reduce Impact T-8 to a less-than-significant level.

Reference. Final EIR Section 3.13; Table ES-3

Impact T-10: Project transmission structures could present an aviation hazard.

According to the FAA, objects greater than 200 feet tall from the ground surface, or 200 feet above the elevation of the airport (whichever is higher), that are within three nautical miles of an airport could be considered an obstruction to aviation activities. Potential impacts to navigable airspace could occur during both construction and operation of a transmission line project due to the presence of physical impediments attributable to the Project. Additionally, Projects located within potential military flight test pathways have the potential to result in conflicts between local communities and military installations and training activities.

Three airports are located within three nautical miles of Segment 4 and 5 of the Project. The closest airport is Bohunks Airpark, located approximately one mile east of the Antelope Substation. Skyotee Ranch Airport is located approximately two miles southeast of the proposed Whirlwind Substation. Tehachapi Municipal Airport is located approximately three miles northwest of the Whirlwind Substation. Mojave Airport is located approximately six miles to the east of Segment 4. The height of the single-circuit 500-kV towers used for Segment 4 and Segment 5 will range from 113 feet to 188 feet.

A portion of Segment 4 is located within an area of Kern County that has been identified by Kern County zoning ordinance as one that requires limits (200 feet) to structures for protection of military operations. As stated above, transmission towers associated with Segment 4 will be less than 200 feet tall and will therefore comply with this ordinance. Segment 4 is also located in Los Angeles County, which does not include similar restrictions in its ordinances. However, this portion of Segment 4 will be located beneath a low level military flight path. California Government Codes 65352, 65940, and 65944 require local agencies to refer Projects that will be located beneath low level military flight paths to the appropriate branches of the US Armed Forces for review to ensure that project structures will not create land use conflicts between local communities and military installations and training activities. However, the Project will not require approval by a local agency; therefore Mitigation Measure T-10 is recommended to ensure the Project is reviewed by an appropriate branch of the US Armed Forces.

No elements of Segment 6 are near general aviation or larger airports. El Monte Airport is located approximately two miles west of Segment 7 MP 7 and approximately three miles east of Segment 11 MP 32. Shepherd Field is located approximately 3.6 miles southeast of the existing Mesa Substation. The height of the single-circuit 500-kV towers used for Segment 6, Segment 7, and Segment 11 will range from 75 feet to 220 feet. Since the Project will result in construction of structures greater than 200 feet in height, pursuant to FAA guidelines, SCE will be required to submit FAA Form 7460-1, Notice of Proposed Construction or Alteration, to the Manager of the FAA Air Traffic Division for review and approval of the Project. Final design of the proposed transmission route will have to comply with FAA guidelines. No portions of the Project within the Central Region will be located in an area that will require review by the US Armed Forces.

The LA/Ontario International Airport is located approximately 3.8 miles northwest of Segment 8A near MP 33. Chino Airport is located approximately two miles south of Segment 8 near MP 30. The height of the double-circuit 500-kV LSTs will be 147 feet to 255 feet. Since the Project will result in construction of structures greater than 200 feet in height, pursuant to FAA guidelines, SCE will be required to submit FAA Form 7460-1, Notice of Proposed Construction or Alteration, to the Manager of the FAA Air Traffic Division for review and approval of the Project. Final design of the transmission route will have to comply with FAA guidelines. No portions of the Project within the Southern Region will be located in an area that will require review by the US Armed Forces.

Finding. The CPUC finds that changes or alterations have been incorporated into the Project which avoid or substantially lessen the significant effects on the environment from Impact T-10. Specifically, the following mitigation measure is feasible and is hereby adopted to mitigate significant effects from Impact T-10 to a less than significant level.

- **MM T-10 Notify US Military.** SCE shall provide a complete copy of the Project application, including the general location of the entire project alignment and the heights of towers to be located within each segment of the Project to the Range Sustainability Officer of the Naval Air Systems Command.

Rationale for Finding. Mitigation Measure T-10 (Notify US Air Force) will ensure that the Project is reviewed by the US Air Force, which will ensure that the Project will not conflict with military training flights. Implementation of this measure will reduce Impact T-10 to a less-than-significant level.

Reference. Final EIR Section 3.13; Table ES-3

Impact T-11: Underground construction activities would temporarily restrict access to properties.

The underground section of the Alternative 7 portion of the Project will be located immediately adjacent to Peck Road and Durfee Avenue, which serve adjacent businesses. During excavation of the trench for the underground cable, access to property driveways will be temporarily disrupted and possibly blocked. This could potentially disrupt businesses during the construction period.

Finding. The CPUC finds that changes or alterations have been incorporated into the Project which avoid or substantially lessen the significant effects on the environment from Impact T-11. Specifically, the following mitigation measure is feasible and is hereby adopted to mitigate significant effects from Impact T-11 to a less than significant level.

- **MM T-11 Provide Continuous Access to Properties.** SCE shall provide at all times the ability to quickly lay a temporary steel plate trench bridge upon request to ensure driveway access to businesses, and shall provide continuous access to properties when not actively constructing the underground alignment. In the event that trench stability could be compromised by the laying of a temporary steel plate bridge during an early phase of trench construction, SCE may defer a request for access to the soonest possible time until the stability of the trench has been assured, provided SCE has provided 48-hour advance notification of the potential for disrupted access to any business that may experience such delayed access. The notification shall include information on restoring access and the estimated amount of time that access may be blocked. In addition, SCE shall develop construction plans that will minimize blocked access during the workday.

Rationale for Finding. Mitigation Measure T-11 (Provide Continuous Access to Properties) will reduce temporary traffic impacts associated with underground construction activities by requiring coordination with local businesses. This impact will be less than significant with implementation of Mitigation Measure T-11.

Reference. Final EIR Section 3.13; Table ES-3

III.3.11 Visual Resources

From thousands of potential viewpoints, and in consultation with CPUC and USDA Forest Service personnel, 53 locations were selected as “key observation points” (KOPs) for detailed analysis of the Project. KOPs were established at important viewpoints, regardless of whether they were located on private or public lands. At each KOP, photographs were taken with a digital camera, and from these computerized visual simulations were produced to depict the visual effects of the Project. In the impact analysis for Visual

Resources, future visual effects of the Project were predicted for each KOP using these computerized visual simulations.

For the North and South Areas (non-NFS lands), an assessment was made at each KOP of existing visual conditions, visual contrast, and Project dominance, using the Visual Sensitivity/Visual Change methodology. Subsequently, a conclusion was reached regarding the extent of overall visual change. Taken together with the existing landscape's visual sensitivity, the level of probable visual impact significance was determined.

For the Center Area (NFS lands), the key factors considered in determining the degree of visual impact were compliance and consistency with the adopted Desired Condition and Scenic Integrity Objectives. As in the North and South Areas, a computerized visual simulation was prepared for each KOP in the Center Area, with which to further evaluate the preliminary impact determination. A conclusion on initial impact significance was then reached, using the standard limits of deviations determined by SIO definitions. At each of these KOPs, field analysis included assessment of existing scenic integrity and Scenic Integrity Objectives using the Scenery Management System methodology.

Impact V-5: New metal surfaces associated with transmission infrastructure would potentially reflect sunlight and produce glint and glare in certain lighting conditions.

Visual Resources APMs AES-1 (Transmission Lines - Reduce Light Reflection off Towers/Poles), AES-3 (Transmission Lines - Nonreflective/Nonrefractive Insulators), AES-4 (Transmission Lines - Nonreflective/Nonrefractive Conductors), AES-15 (Marshalling Yards and Laydown Areas - Cover Chain-Link Fencing with Fabric), AES-18 (Substations - Reflectivity Finish), AES-19 (Substations - Nonreflective/Nonrefractive Insulators), and AES-22 (Substations - Chain-Link Dulled Finish), which are included as part of the Project, address the visual effects of new metal surfaces and materials associated with new transmission infrastructure that could reflect sunlight and produce glare in certain lighting conditions. APMs AES-16 (Marshalling Yards and Laydown Areas - Reduce Glare and Light Spill) and AES-21 (Substations - Reduce Glare and Light Spill), also included as part of the Project, address the visual effects of new lighting sources that could produce light spill or glare. These Aesthetic APMs were considered in the analysis of the Project.

The new Whirlwind Substation will introduce lighting sources in a portion of this rural landscape where no nighttime lighting currently exists. Implementation of APM AES-21 (Substations - Reduce Glare and Light Spill) will reduce visual impacts of new light sources.

Conductors seen by sensitive receptors from below do not reflect sunlight or cause glare. In fact, conductors appear dark gray or black when seen from below.

New metals required for the Project's LSTs, TSPs, light weight steel poles, and conductors will reflect more sunlight than old, rusted metals. However, with implementation of APM AES-1 (Transmission Lines - Reduce Light Reflection off Towers/Poles) and Mitigation Measure V-2b (Treat surfaces with appropriate colors, textures, and finishes), it is not anticipated that there will be any substantial daytime glare produced by the new structures.

When viewed from higher vantage points, such as a mountain road, a high mountain highway, or a ridgeline or crest trail, sunlight reflecting off or glinting off conductors and towers will draw attention to the new high-voltage transmission lines and will create color and texture contrasts, thereby adversely affecting desired condition and scenic integrity of NFS lands. This reflectivity and sunlight glint or glare seems to be a visual phenomenon mostly occurring in the Center Area, where observers are located above looking down on the transmission lines. This phenomenon does not occur in the North or South Areas, where conductors

appear mostly black against the sky when viewed from below or in a nearly horizontal fashion. The galvanizing treatments recommended in APM AES-1 and Mitigation Measure V-2b will reduce glint and glare to a less-than-significant level.

There will be no indirect effects associated with Impact V-5.

Finding. The CPUC finds that changes or alterations have been incorporated into the Project which avoid or substantially lessen the significant effects on the environment from Impact V-5. Specifically, the following mitigation measure is feasible and is hereby adopted to mitigate significant effects from Impact V-5 to a less-than-significant level.

- **MM V-2b Treat surfaces with appropriate colors, textures, and finishes.** For all structures that are visible from sensitive viewing locations outside NFS lands, and for all NFS lands, SCE shall treat surfaces with appropriate galvanizing treatments, per APM AES-1, to most effectively blend the structures with the visible backdrop landscape, as determined by the CPUC (for non-NFS lands) and the FS (for NFS lands). For structures that are visible from more than one sensitive viewing location, if backdrops are substantially different when viewed from different vantage points, the darker color shall be selected, because dark colors tend to blend into landscape backdrops more effectively than lighter colors, which may contrast and reflect light, producing glare. At locations where a lattice steel tower or a tubular steel pole would be silhouetted against the skyline, non-reflective, light gray colors shall be selected to blend with the sky. The transmission line conductors shall be non-specular and non-reflective, per APM AES-4, and the insulators shall be non-reflective and non-refractive, per APM AES-3. SCE shall consult with the CPUC and the FS to ensure that the objectives of this measure are achieved. SCE shall submit a Structure Type and Treatment Plan for the lattice steel towers, tubular steel poles, conductors, insulators, substation structures, fences/walls, retaining walls, and any other visible structures, to the CPUC and FS, as appropriate, after Project approval, demonstrating compliance with this measure.

Rationale for Finding. While incorporation of APMs AES-18 through AES-22 into the Project at the Whirlwind, Antelope, Vincent, Gould, Mesa, and Mira Loma Substation sites will lead to an improved visual environment, as compared to the Project without measures, the resulting nighttime environment will be adversely affected. However, visual impacts will be reduced to a level that is less than significant with Mitigation Measure V-2b (Treat surfaces with appropriate colors, textures, and finishes), which requires the surfaces of various Project components to be treated with special finishes, colored, and/or textured to reduce glint and glare and requires the use of non-specular and non-reflective transmission line conductors.

Reference. Final EIR Section 3.14; Table ES-3

Impact V-6: The Project would contribute to the long-term loss or degradation of a scenic highway viewshed or scenic trail viewshed.

The Project will traverse the Pacific Crest National Scenic Trail (PCT) in the following three locations: Segment 4 MP 2.7 (North Area); Segment 11 MP 7.6 (Center Area); and, Segment 6 MP 7.3 (Center Area). The Project will cross over the Angeles Crest Scenic Byway (SR 2) in four different locations (at approximately S11 MP 16.0, 17.7, and 18.4 for Segment 11 and at S6 MP 16.8 for Segment 6). The Project will cross over the Silver Moccasin Trailhead at Shortcut Saddle at S6 MP 16.7. Portions of Segment 6 will be visible from West Fork San Gabriel River National Scenic Bikeway. The State has designated portions of the Orange Freeway (State Highway 57) as “Eligible” to become a State Scenic Highway where it traverses largely undeveloped hills between Brea and Diamond Bar, and the Project will cross State Highway 57 in this vicinity. Colima Road, Hacienda Road, and Harbor Boulevard are proposed as scenic corridors in the most recent update to the County of Los Angeles General Plan and the Project will be visible from these

highways. Los Angeles County has designated several other roads in the Project area as Priority Two Scenic Highways, indicating a high sensitivity for scenic integrity of landscapes. Portions of Interstate 210 (I-210) and State Highways 39 and 57 are either designated as, or eligible for, State Scenic Highway status and portions of the Project will also be visible from these roadways.

Under Alternative 2 (but not under Alternative 6), SCE will use the West Fork National Scenic Bikeway and FS Road 2N25.2 to access Segment 6 from the San Gabriel Canyon Road (State Highway 39). With the combination of Alternatives 2 and 6 under the Project, the ultimate decision on whether SCE will be allowed to use this route during Project construction will be made by the USDA Forest Service in their Record of Decision (ROD). For the purposes of this Findings of Fact, it is assumed that this route will be used to some extent. By using the Scenic Bikeway and FS Road 2N25.2 for construction of Segment 6, SCE equipment and personnel will alter the visual environment of the West Fork San Gabriel River during construction. It is very likely that this recreation trail (single lane paved road used for bicycling, hiking, and fishing access) will be degraded by heavy construction equipment, and it is likely that recreationists will be restricted or prohibited from using this area during construction of Segment 6 for safety reasons. Use of these roadways for construction will alter the availability of scenic resources for human enjoyment during construction, thereby degrading the visual environment.

Under Alternative 6 portions of the Project, the visual effects associated with Impact V-6 will be similar to, but less than, Alternative 2 for Criterion VIS3 because fewer access and spur roads will be visible from the Angeles Crest Scenic Byway and some towers will be given medium or dark galvanizing treatments so that they blend in better with backdrop landscapes. As stated above, the combination of Alternatives 2 and 6 that will be implemented on the ANF will be determined by the USDA Forest Service in their ROD.

No indirect impacts associated with Impact V-6 are anticipated to occur.

There are no APMs for Aesthetics that address the long-term loss or degradation of a scenic highway viewshed or a scenic trail viewshed. Impact V-6 will require implementation of Mitigation Measure V-3b (On NFS lands, provide restoration/compensation for impacts to landscape character and visual quality. With implementation of this mitigation measure, the effects of Impact V-6 will be reduced to a level of less than significant.

Finding. The CPUC finds that changes or alterations have been incorporated into the Project which avoid or substantially lessen the significant effects on the environment from Impact V-6. Specifically, the following mitigation measure is feasible and is hereby adopted to mitigate significant effects from Impact V-6 to a less-than-significant level.

- **MM V-3b On NFS lands, provide restoration/compensation for impacts to landscape character and visual quality.** All reasonable efforts shall be made to meet the Scenic Integrity Objectives (SIOs) shown on the SIO Map in the ANF Land Management Plan. SIO adjustments that exceed a drop of more than one SIO level would require a Project-specific amendment to Forest Plan (Part 3) Standards S9 and S10. In order to compensate for the Project's long-term visual impacts to the landscape character and visual quality, including but not limited to impacts to landscape character and visual quality of scenic highway and scenic trail viewsheds, SCE and the Forest Supervisor shall reach a consensus on what is a commensurate amount of restoration, monetary compensation, or landscape character/visual quality improvement.

Rationale for Finding. The introduction of new 500-kV transmission lines crossing over scenic highways and trails, and visible within viewsheds of scenic highways and trails, will create a significant impact. Implementation of Mitigation Measure V-3b (On NFS lands, provide restoration/ compensation for impacts to landscape character and visual quality) will minimize and compensate for the adverse visual effects of

these new transmission lines and structures through restoration, compensation, and/or landscape character/visual quality improvements within the ANF, resulting in adverse but less-than-significant visual impacts.

Reference. Final EIR Section 3.14; Table ES-3

III.3.12 Wilderness and Recreation

Impact R-1: Construction activities would restrict access to or disrupt activities within established recreational areas.

This impact will occur for all Developed Recreation resources that are subject to a "direct crossing" by the transmission line. Recreational resources that will experience a direct crossing will not necessarily be physically impacted by the presence of the overhead transmission line because in most cases the transmission line will span over the resource or area without any ground impact. However, such resources and areas will be restricted from use during Project construction in order to protect the safety of public recreationists and to accommodate transport and use of the necessary equipment and activities required to install the new transmission line. During Project construction, ground work will be required at each tower pad location as well as along select roadways between the locations, as materials to build the towers will be transported by truck to the tower sites (with the exception of extremely rugged areas that require helicopter construction). Due to temporary construction-related access restrictions and closures, activities within resources with direct crossings will be temporarily disrupted. Recreational areas located in the near vicinity of the transmission line route may also experience temporary use disruptions due to factors such as construction noise and the potential need to stage construction vehicles, equipment, or infrastructure. In addition, access to recreational areas will be restricted if roads or trails to such areas are used by construction equipment and vehicles during the construction period. Such impacts will be temporary and of short duration, lasting only as long as required to complete construction activities in a given location.

APMs REC-1 (Temporary closures) and REC-2 (Closure notices), which are included as part of the Project, will help to reduce impacts to recreational resources and opportunities. A complete description of APMs applicable to Wilderness and Recreation is located in Final EIR Table 3.15-27. These APMs include coordination with recreation officers and agencies, as well as notification of closures and access restrictions. However, even with implementation of the APMs, this impact of the Project will be significant according to Significance Criterion REC1 (Directly or indirectly disrupt or preclude activities in established federal, State, or local recreation areas or wilderness areas). In addition to implementing the APMs, Mitigation Measures R-1a, R-1b, R-1c, R-1d, and R-1e will be required to mitigate Impact R-1 to a less-than-significant level.

Findings. The CPUC finds that changes or alterations have been incorporated into the Project which avoid or substantially lessen the significant effects on the environment from Impact R-1. Specifically, the following mitigation measures are feasible and are hereby adopted to mitigate significant effects from Impact R-1 to a less-than-significant level.

- **MM R-1a Coordinate construction schedule and maintenance activities with managing officer(s) for affected recreation areas.** SCE shall develop the Project construction schedule and coordinate construction with the authorized officer(s) or the agencies of all recreational areas affected by Project construction, including but not limited to the following: FS (ANF); U.S. Army Corps of Engineers (USACE); California Department of Fish and Game (CDFG); Pacific Crest Trail Association (PCTA); California State Park and Recreation Commission; California Department of Parks and Recreation; Kern County Department of Parks and Recreation; Los

Angeles County Department of Parks and Recreation; San Bernardino County Regional Parks; Puente Hills Landfill Native Habitat Preservation Authority (Habitat Authority); Watershed Conservation Authority (WCA); and San Gabriel and Lower Los Angeles Rivers and Mountains Conservancy (RMC).

Through coordination efforts with the agencies listed above as well as any additional agencies that manage recreational resources which would be affected by the Project, SCE shall ensure the following occurs unless otherwise approved by the affected agencies:

- Construction and maintenance activities are scheduled to avoid heavy recreational use periods (including major holidays) to the maximum extent feasible, with the understanding that such efforts may not always be feasible;
- Staging areas for Project-related equipment, materials, and vehicles are located in areas with least possible effect on recreational activities and opportunities; and
- Timetables for the required period of usage of each staging area are developed and adhered to in coordination with all affected resource agencies.

In addition to coordination of construction activities, SCE shall also coordinate maintenance activities with the FS and the USACE, as applicable, when such activities occur on federal lands. SCE and the presiding federal agency will need to determine what type of maintenance activities require prior approval, versus those that may be conducted on a routine basis without additional coordination. All Project activities on federal lands are subject to the approval of the presiding federal agency (FS or USACE). The purpose of this requirement is to ensure that the FS and USACE are aware of any maintenance activities on federal lands that are more intensive than what is considered routine.

SCE shall document its coordination and provide this documentation to the CPUC and the FS no less than 30 days prior to the onset of construction activities.

- **MM R-1b Identify and provide noticing of alternative recreation areas.** SCE shall coordinate with the authorized recreation officer(s) or the agencies of all recreational areas affected by Project activities described under Mitigation Measure R-1a (Coordinate construction schedule and maintenance activities with managing officer(s) for affected recreation areas), the purpose of which is to accomplish the following:
  - Identify recreational areas (i.e., trails, parks, day-use areas) that would be closed during Project construction or maintenance activities;
  - To the extent feasible, identify alternative recreational areas for each resource that would be made unavailable to the public due to Project construction or maintenance activities; and
  - Post a public notice which identifies alternative recreational areas at FS Ranger Stations within the ANF and at all recreational areas to be closed due to Project construction or maintenance activities.

  SCE shall document these coordination efforts to identify and provide noticing of alternative recreational areas and submit this documentation to the CPUC and the FS no less than 30 days prior to construction activities that would occur within one-half mile of wilderness or recreation areas that would be affected by such activities.

- **MM R-1c Notification of temporary closure of OHV routes.** SCE shall coordinate with the FS (ANF) to identify all Operational Maintenance Level (OML) 2 roads and other designated off-highway vehicle (OHV) routes which would be closed or otherwise made unavailable for use as a result of Project construction and/or maintenance activities. Included in this coordination effort, SCE shall prepare a public notice which identifies all OML 2 roads and OHV routes to be closed as a result of Project construction and/or maintenance activities and shall comply with the following:

- Distribute the public notice to relevant FS Ranger Stations within the ANF;
- Publish the public notice in local newspapers which service communities bordering the ANF;
- Publish updated notices in local newspapers if any significant changes in scheduling occur; and
- Maintain public notices and postings throughout the OML 2 road / OHV route closure period.

SCE shall document these coordination efforts related to OML 2 road / OHV route closures and submit this documentation to the CPUC and FS no less than 30 days prior to activities that would affect OHV routes.

- **MM R-1d Notification of temporary closure and reroute of the Pacific Crest National Scenic Trail (PCT).** SCE shall coordinate with the FS and with the Pacific Crest Trail Association (PCTA) regarding temporary closure of the PCT that would occur during Project construction and maintenance activities. The following shall be included in this coordination effort:
  - SCE and the PCTA shall identify trail diversions to be applied at each point where the PCT would be temporarily closed to through-traffic as a result of Project construction and maintenance activities; and
  - SCE shall post public notices of temporary closures/diversions of the PCT at FS Ranger Stations within the ANF and at additional locations determined to be appropriate by the PCTA. The public notice shall provide information on temporary trail reroutes that would be implemented during construction and maintenance activities as well as the time period for implementation of such reroutes.

  SCE shall document these coordination efforts, including the location of all posted notices, and submit this documentation to the CPUC and the FS for approval no less than 30 days prior to construction activities that would occur within one-half mile of the PCT.

- **MM R-1e SCE shall compensate ANF for lost income from Adventure Pass sales due to recreation area closures associated with the Project.** Prior to the onset of Project construction in the ANF, SCE shall coordinate with the FS (ANF) to identify recreational resources on NFS lands in the ANF that would be temporarily closed as a direct result of Project construction. A resource is only considered to be closed directly as a result of Project construction if the resource is made entirely inaccessible to the public as a sole result of Project activities; in other words, no other factors contribute to the resource's inaccessibility. SCE shall coordinate with the FS in reviewing financial records of the Adventure Pass program as well as recreational use data for the ANF, in order to determine a compensation amount comparable to the direct impacts of the Project.

To the extent implementation of these measures is within the sole and exclusive jurisdiction of another public agency and not the CPUC, the CPUC finds that those changes and alterations are within the responsibility and jurisdiction of that other public agency, not the CPUC. Such changes can and should be adopted by such other agency.

Rationale for Finding. Mitigation Measure R-1a will help to minimize Impact R-1 for both Developed and Dispersed Recreation (including as related to recreational hunting in Zone D-11) by requiring coordination among all relevant agencies. Similarly, Mitigation Measures R-1b through R-1e will help to minimize Impact R-1 through public awareness and outreach. Mitigation Measure R-1c is similar to APMs REC-1 (Temporary Closures) and REC-2 (Closure Notices), and will reinforce these APMs by requiring specific procedures such as maintaining public notices and submitting coordination documentation to the CPUC and the Forest Service. Implementation of Mitigation Measures R-1a through R-1e, as described above, will reduce Impact R-1 to a less-than-significant level. With respect to activities that occur on land under the

exclusive jurisdiction and control of the FS or the USACE, the CPUC does not have jurisdiction to impose the above-referenced mitigation measures. Therefore, to the extent implementation of these measures is within the sole and exclusive jurisdiction of either the FS or the USACE and not the CPUC, the CPUC recommends that they be adopted by those agencies.

Reference. Final EIR Section 3.15; Table ES-3

Impact R-2: Operational and maintenance activities would restrict access to or disrupt activities within established recreational areas.

During Project operation and maintenance activities, it is expected that ground work will be limited to transmission tower locations and other ground-based Project infrastructure located along the transmission line route. Recreational resources that are adjacent to areas where ground work is necessary will be temporarily restricted from use during such activities, thus restricting access to or resulting in the disruption of normal recreational activities within such areas. In addition, Impact R-2 will affect recreational resources which are considered to be particularly sensitive and are located in close proximity to (versus being adjacent to) operation and maintenance activities; for instance, operation and maintenance activities which occur within close proximity to the Pacific Crest National Scenic Trail (PCT) will disrupt recreationists who utilize the PCT for its designated purposes of solitude and/or an undisturbed backcountry experience. Impact R-2 will also occur if operation and maintenance activities require that certain roads and/or trails be closed for access to Project infrastructure and such closures remove access to existing recreational resources or opportunities. Such closures will be temporary and of short duration, lasting only as long as required to complete necessary operation and maintenance of Project infrastructure.

APMs REC-1 (Temporary Closures) and REC-2 (Closure Notices), which are included as part of the Project, will help to reduce this impact.

Finding. The CPUC finds that changes or alterations have been incorporated into the Project which avoid or substantially lessen the significant effects on the environment from Impact R-2. Specifically, the following mitigation measures are feasible and are hereby adopted to mitigate significant effects from Impact R-2 to a less-than-significant level.

- **MM R-1a Coordinate construction schedule and maintenance activities with managing officer(s) for affected recreation areas.** *(See above for full text).*
- **MM R-1b Identify and provide noticing of alternative recreation areas.** *(See above for full text).*
- **MM R-1c Notification of temporary closure of OHV routes.** *(See above for full text).*
- **MM R-1d Notification of temporary closure and reroute of the Pacific Crest National Scenic Trail (PCT).** *(See above for full text).*

To the extent implementation of these measures is within the sole and exclusive jurisdiction of another public agency and not the CPUC, the CPUC finds that those changes and alterations are within the responsibility and jurisdiction of that other public agency, not the CPUC. Such changes can and should be adopted by such other agency.

Rationale for Finding. Mitigation Measures R-1a and R-1b will help to minimize Impact R-2 by requiring coordination among all relevant agencies. Mitigation Measure R-1c is similar to Applicant-Proposed Measures (APMs) REC-1 (Temporary Closures) and REC-2 (Closure Notices) and will reinforce these APMs by requiring specific procedures such as maintaining public notices and submitting coordination documentation to the CPUC and the Forest Service. The implementation of these mitigation measures will

reduce Impact R-2 to a less-than-significant level. With respect to activities that occur on land under the exclusive jurisdiction and control of the FS or the USACE, the CPUC does not have jurisdiction to impose the above-referenced mitigation measures. Therefore, to the extent implementation of these the measures is within the sole and exclusive jurisdiction of either the FS or the USACE and not the CPUC, the CPUC recommends that they be adopted by those agencies.

Reference. Final EIR Section 3.15; Table ES-3

Impact R-3: Project activities (construction or operation and maintenance) would cause or contribute to the degradation of one or more of the four primary characteristics of a designated Wilderness Area, as defined by the Wilderness Act.

In accordance with the federal Wilderness Act, Public Law 88-577 (16 U.S.C. 1131-1136), a designated Wilderness Area is defined as having four primary characteristics, including the following: (1) a natural and undisturbed landscape; (2) extensive opportunities for solitude and unconfined recreation; (3) at least 5,000 contiguous acres; and (4) feature(s) of scientific, educational, scenic, and/or historic value. The Project will contribute to the temporary and/or sporadic degradation of the San Gabriel Wilderness Area's characteristics of solitude and unconfined recreation due to the close proximity of Project construction, operation, and maintenance activities to this Wilderness Area (WA).

The Project is located adjacent to the west of the San Gabriel WA along Segment 6 for approximately 0.8 mile, from MP 18.0 – 18.8. Access to this portion of the WA is minimal, provided by several non-motorized trails that require a high degree of physical aptitude for access by foot. Under Alternative 2 (included under the Project), the West Fork Bike Path (Forest Road 2N25.1), which is located adjacent to the south of the San Gabriel WA, will be used for access to the Segment 6 alignment; however, due to the incorporation of Alternative 6 into the Project, the West Fork Bike Path will be avoided and the southern portion of the San Gabriel WA will not be affected by Impact R-3. Also as a result of the helicopter components of Alternative 6, Project construction activities will particularly contribute to the degradation of the San Gabriel WA's characteristic of solitude and unconfined recreation. Helicopter construction activities will have a substantial contribution to the degradation of solitude and unconfined recreation in the San Gabriel WA. As mentioned, the southwestern portion of the San Gabriel WA (the area that will be affected by Impact R-3) is characterized by extremely rugged terrain and is not highly used by public recreationists. However, for the recreationists that do visit this portion of the WA, the experience of solitude and unconfined recreation is of a higher quality than in other portions of the WA that are more highly used by the public.

Finding. The CPUC finds that changes or alterations have been incorporated into the Project which avoid or substantially lessen the significant effects on the environment from Impact R-3. Specifically, the following mitigation measure is feasible and is hereby adopted to mitigate significant effects from Impact R-3 to a less-than-significant level.

- **MM L-2b Aircraft flight path and safety provisions and consultations.** *(See above for full text).*

Rationale for Finding. All helicopter activities associated with the Project will be conducted in coordination with the USDA Forest Service and all other applicable agencies/parties, including but not limited to the following: the Federal Aviation Administration (FAA), the National Oceanic and Atmospheric Administration (NOAA), military authorities, and local pilots. In addition, all helicopter activities will occur in compliance with the ANF's Wilderness Management Manual. Furthermore, Mitigation Measure L-2b (Aircraft flight path and safety provisions and consultations) will ensure that all appropriate agencies are consulted with prior to the onset of helicopter operations. Therefore, this impact will be reduced to a less-than-significant level

Reference. Final EIR Section 3.15; Table ES-3

Impact R-4: The Project would cause or contribute to degradation of the Pacific Crest National Scenic Trail (PCT).

The PCT is a 2,650-mile-long hiking and equestrian trail which extends from Mexico to Canada, through the states of California, Oregon, and Washington. Recreational opportunities along the PCT are particularly valued for the solitude and natural setting of the trail, which characterizes the majority of its length. The Project will traverse the PCT in three locations: once in the North Region and twice in the Central Region. At all three locations, the new transmission lines will create a constant buzzing or crackling noise (corona noise) from the conductors. Existing transmission lines currently span each of the three PCT crossings, however, the Project will replace existing lines with larger, 500-kV lines, which generate a higher level of corona noise, thereby intensifying the existing noise disturbance to the recreational experience. Construction of the Project will not result in a permanent reroute of the PCT or any permanent physical modification to the PCT, and the Project will not change the existing types of land uses and recreational opportunities along or adjacent to the PCT. However, due to temporary construction-related impacts of the Project, implementation of Mitigation Measures R-1a, R-1d, and R-1e are required to reduce Impact R-4 to a less-than-significant level

Finding. The CPUC finds that changes or alterations have been incorporated into the Project which avoid or substantially lessen the significant effects on the environment from Impact R-4. Specifically, the following mitigation measures are feasible and are hereby adopted to mitigate significant effects from Impact R-4 to a less-than-significant level.

- **MM R-1a Coordinate construction schedule and maintenance activities with managing officer(s) for affected recreation areas.** *(See above for full text).*
- **MM R-1d Notification of temporary closure and reroute of the Pacific Crest National Scenic Trail (PCT).** *(See above for full text).*
- **MM R-1e SCE shall compensate ANF for lost income from Adventure Pass sales due to recreation area closures associated with the Project.** *(See above for full text).*

To the extent implementation of these measures is within the sole and exclusive jurisdiction of another public agency and not the CPUC, the CPUC finds that those changes and alterations are within the responsibility and jurisdiction of that other public agency, not the CPUC. Such changes can and should be adopted by such other agency.

Rationale for Finding. Although the Project will elevate existing corona noise levels and introduce larger transmission towers than currently exist in the three locations where the Project will traverse the PCT, these effects will not result in a significant impact compared to existing conditions. Additionally, any Project activities that alter the ability of recreationists to access and utilize the PCT will be temporary and of short duration. The mitigation measures listed above will minimize impacts to the PCT through coordination of construction schedules in the vicinity of the PCT, notification of trail disturbance and possible re-route, and compensation to the USDA Forest Service for any lost Adventure Pass revenue which will facilitate the future repair and maintenance of the PCT, as well as other resources in the ANF. Together these measures will reduce Project impacts to the PCT to a less-than-significant level. With respect to activities that occur on land under the exclusive jurisdiction and control of the FS or the USACE, the CPUC does not have jurisdiction to impose the above-referenced mitigation measures. Therefore, to the extent implementation of these measures is within the sole and exclusive jurisdiction of either the FS or the USACE and not the CPUC, the CPUC recommends that they be adopted by those agencies.

Reference. Final EIR Section 3.15; Table ES-3

Impact R-5: The Project would contribute to degradation of Off-Highway Vehicle (OHV) trails or Open Riding Areas, or would result in a loss of recreational opportunity for OHV users.

Construction or operation and maintenance activities associated with the Project could result in the long-term loss or degradation of OHV routes if such activities require that OHV routes or trails be repeatedly and/or frequently closed due to maintenance activities, or if OHV routes are permanently closed or altered as a result of the Project. Due to a lack of developed OHV trails and opportunities in the North and South Regions, this impact will not affect portions of the Project Area that are located outside the Central Region, which encompasses the ANF. Within the ANF, roads are maintained by the USDA Forest Service in accordance with designated Operation Maintenance Levels (OMLs). OHV use is restricted to OML 2 roads and designated Open Riding Areas where OHV recreation is permitted off-trail. OML 2 roads are maintained for high-clearance vehicles, with generally no maintenance work required. OHV use is not permitted on more well-maintained roads (OML 3 – 5) due to safety hazards associated with the presence of passenger cars and larger vehicles.

During construction of the Project, clearing and grading of existing access and spur roads within the ANF will be required, and will result in the temporary improvement of some roads that are currently maintained to OML 2 standards. As a result, these roads will be unavailable to OHV use until the road condition is returned to OML 2 standards. Any road upgrades that are applied during the construction period will be strictly temporary; no permanent upgrades to existing OML standards will occur as a result of the Project. Therefore, any loss of recreational opportunity to OHV users will be temporary in nature. Implementation of Mitigation Measure R-5 will ensure that permanent upgrades to ANF roads do not occur and impacts to OHV resources and opportunities remain less than significant.

Finding. The CPUC finds that changes or alterations have been incorporated into the Project which avoid or substantially lessen the significant effects on the environment from Impact R-5. Specifically, the following mitigation measure is feasible and is hereby adopted to mitigate significant effects from Impact R-5 to a less-than-significant level.

- **MM R-5 Avoid permanent upgrades to Forest System roads.** SCE shall avoid the permanent upgrade of Forest System roads as a result of Project construction or operation and maintenance activities unless otherwise approved by the FS. Any road upgrades that are required to accommodate construction of the Project shall be temporary in nature. Following construction of the Project, existing OML standards designated for any temporarily improved roads shall be adhered to, thereby returning improved roads to existing maintenance practices, unless otherwise authorized by the FS. As determined to be necessary through coordination between SCE and the FS and at the discretion of the FS, SCE shall develop a plan for returning improved Forest System roads to existing conditions. SCE shall implement the restrictions for road improvements and maintenance set forth in the Special Use or Road Use Authorization to be issued by the FS for the Project.

Rationale for Finding. Implementation of Mitigation Measure R-5 will ensure coordination between SCE and the Forest Service in developing and implementing necessary road improvements in a way that is consistent with existing OML designations. Due to the availability of OHV opportunities throughout the ANF and the temporary nature of Impact R-5 to OHV opportunities along the Project route, the provision of compensatory recreation opportunities is not considered a necessary mitigation for this impact. Impacts to OHV resources and opportunities will be less than significant.

Reference. Final EIR Section 3.15; Table ES-3

Impact R-6: The Project would facilitate unmanaged recreational uses that would contribute to the long-term loss or degradation of recreational opportunities.

Long-term loss or degradation of recreational resources or opportunities could occur through unmanaged or unauthorized use of such resources. Unmanaged recreation could occur if the Project facilitates access to areas that are not intended or suitable for certain recreational uses, particularly through the creation or improvement of roadways in the ANF. Two types of roads are associated with construction and operation of the Project: access roads and spur roads. Access roads are through-ways that serve as the main transportation route along the Project ROW, whereas spur roads are smaller roads that connect access roads directly to tower sites and are not considered part of the Forest System roads. Unmanaged recreation activities (particularly OHV-related) currently occur throughout the ANF via existing spur roads and utility corridors.

During construction and operation of the Project, existing roadways will be utilized wherever possible to accommodate necessary traffic of vehicles and equipment. However, installation of new roads and improvement of existing roads will also be required in order to provide access to the proposed route during construction and operation of the Project. In some areas, improvement of existing roads and installation of new roads may provide access to areas that are not currently accessible by roads. As a result, these new and improved roads could be used by recreationists to gain unauthorized access to areas that are not designated or intended for certain recreational purposes.

In addition, some recreational resources will be temporarily precluded from use during construction and/or operation and maintenance of the Project, as described above with regards to Impact R-1 (Construction activities will restrict access to or disrupt activities within established recreational areas) and Impact R-2 (Operational and maintenance activities will restrict access to or disrupt activities within established recreational areas). This could potentially result in unmanaged recreational uses, as recreationists seek alternative or comparable recreational resources to those which are made unavailable by Project activities. To reduce impacts of the Project from facilitating unmanaged recreation, SCE will implement Mitigation Measure R-5.

Finding. The CPUC finds that changes or alterations have been incorporated into the Project which avoid or substantially lessen the significant effects on the environment from Impact R-6. Specifically, the following mitigation measure is feasible and is hereby adopted to mitigate significant effects from Impact R-6 to a less-than-significant level.

- **MM R-5 Avoid permanent upgrades to Forest System roads.** *(See above for full text).*

Rationale for Finding. Implementation of Mitigation Measure R-5 will ensure that access to managed recreational resources is not permanently altered, and will minimize the potential for unmanaged recreation to occur as a result of the Project. This measure will reduce Project impacts related unmanaged recreation to a less-than-significant level.

Reference. Final EIR Section 3.15; Table ES-3

III.3.13 Wildfire Prevention and Suppression

Impact F-1: Construction and/or maintenance activities would reduce the effectiveness of firefighting.

Project construction and maintenance activities have the potential to interfere with fire engine access to wildfires in remote, wildland areas, which will reduce the effectiveness of firefighting. The Project will be

accessed by several narrow, unpaved roads in the ANF and Puente Hills Landfill Native Habitat Preservation Authority (PHLNHPA) lands, and construction activities could limit emergency vehicle access.

Finding. The CPUC finds that changes or alterations have been incorporated into the Project which avoid or substantially lessen the significant effects on the environment from Impact F-1. Specifically, the following mitigation measures are feasible and are hereby adopted to mitigate significant effects from Impact F-1 to a less-than-significant level.

- **MM F-1 Prepare wildland traffic control plans.** *(See above for full text).*

Rationale for Finding. Mitigation Measure F-1 (Prepare wildland traffic control plans) will ensure that emergency vehicles will have adequate access to wildland areas during Project construction and maintenance activities on NFS and PHLNHPA lands. Therefore, implementation of Mitigation Measure F-1 will ensure the Project does not interfere with fire engine access or reduce firefighting effectiveness. Impact F-1 will be less than significant.

Reference. Final EIR Section 3.16; Table ES-3

Impact F-3: Construction and/or maintenance activities would increase the risk of wildfire.

An ignition that escapes containment at the top of the fireshed could spread to the limits of the fireshed under extreme weather conditions. Project-related ignitions within the Project corridor in the Tehachapi Fireshed have the potential to escape initial attack containment and become catastrophic fires. The areas with heaviest fuel loads, steep topography, and exposure to Santa Ana winds will have a higher burn probability and a higher potential for an ignition to escape. Construction- and maintenance-related ignitions that occur during extreme weather conditions will be at high risk to escape containment and burn large areas throughout the Tehachapi Fireshed, potentially spreading south and west through Acton, La Cañada Flintridge, Santa Clarita, and other communities at the wildland-urban interface, including private inholdings within the ANF. Ignition of a large fire as a result of Project construction or maintenance will threaten firefighter safety above the existing level of hazard that exists for area firefighters.

Finding. The CPUC finds that changes or alterations have been incorporated into the Project which avoid or substantially lessen the significant effects on the environment from Impact F-3. To reduce the significance of these potential impacts, the following mitigation measures have been identified:

- **MM F-3a Revise SCE's Fire Management Plan for maintenance activities.** SCE's Fire Management Plan shall be revised to be applicable to Project maintenance activities located off NFS lands. All provisions of the Plan that are applicable to construction crews and activities shall be made applicable to maintenance crews and activities. The revised Plan shall be submitted to the CPUC for review at least 60 days prior to construction.
- **MM F-3b Cease work during Red Flag Warning events.** During Red Flag Warning events, as issued daily by the National Weather Service in State Responsibility Areas (SRA) and Local Responsibility Areas (LRA), all non-emergency construction and maintenance activities shall cease in affected areas. An exception shall be made for transmission line maintenance and testing activities required to maintain accordance with NERC Reliability Standards. All maintenance and testing activities shall employ fire-safe practices as required by the Fire Management Plan (APM HAZ-4 as modified by Mitigation Measure F-3a).
- **MM F-3c Ensure open communication pathways.** All construction crews and inspectors shall be provided with radio and cellular telephone access that is operational along the entire length of the approved route to allow for immediate reporting of fires. Communication pathways and equipment shall be tested and confirmed operational each day prior to initiating construction

activities at each construction site. All fires shall be reported to the fire agencies with jurisdiction in the Project area immediately upon ignition.

Each crew member shall carry at all times a laminated card listing pertinent telephone numbers for reporting fires and defining immediate steps to take if a fire starts. Information on contact cards shall be updated and redistributed to all construction crewmembers, as needed, prior to the initiation of construction activities and on the day the information change goes into effect. Outdated cards shall be destroyed.

- **MM F-3d Remove hazards from the work area.** SCE shall clear dead and decaying vegetation from the work area prior to starting construction and/or maintenance work. The work area includes only those areas where personnel are active or where equipment is in use or stored, and may include portions of the transmission ROW, construction laydown areas, pull sites, access roads, parking pads, and any other sites adjacent to the ROW where personnel are active or where equipment is in use or stored. Cleared dead and decaying vegetation shall either be removed or chipped and spread onsite in piles no higher than six (6) inches.
- **MM F-3e Comply with non-smoking policy on PHLNHPA lands.** SCE and contractor personnel shall comply with the non-smoking policy on Puente Hills Landfill Native Habitat Preservation Authority (PHLNHPA) lands during construction and maintenance activities, and this commitment shall be written into SCE's Fire Management Plan for construction and maintenance (see Mitigation Measure F-3a, Revise SCE's Fire Management Plan for maintenance activities).
- **MM F-3f Share costs for ANF fuelbreak maintenance.** SCE shall enter into a cost-sharing agreement with the FS for maintenance of the existing system of fuelbreaks. Cost-sharing for fuelbreak maintenance shall be required for backbone fuelbreaks in close proximity to the Project or that transect the path of the Project. A backbone fuelbreak is an identified key ridge or other linear geographical feature that has a high level of effectiveness in slowing or containing a wildfire. Backbone fuelbreaks in the vicinity of the Project include: Santa Clara Divide, Mill Creek, Flintridge, Clear Creek, Millard, Brown Mountain, Clamshell, Santa Anita Dam, Chantry and Monrovia (a.k.a. Redbox/Rincon). SCE's responsibility under the cost-sharing agreement would be proportional to the Project's potential impacts on wildfire prevention and suppression.
- **MM F-3g Provide transmission line safety training to ANF staff.** SCE shall provide transmission line safety training to FS (ANF) staff prior to the start of the official fire season on an annual basis.

To the extent implementation of these measures is within the sole and exclusive jurisdiction of another public agency and not the CPUC, the CPUC finds that those changes and alterations are within the responsibility and jurisdiction of that other public agency, not the CPUC. Such changes can and should be adopted by such other agency.

Rationale for Finding. Mitigation Measure F-3a will require the incorporation of fire safe practices during Project maintenance in addition to Project construction. Mitigation Measure F-3b will reduce the potential impact to communities, firefighters, and natural resources by prohibiting Project construction and maintenance activities during Red Flag Warning events, which will eliminate work during extreme fire weather and have the effect of substantially reducing the potential acres burned, the number of communities at risk, and the hazard to firefighting crews. This measure will be applicable to non-Forest Service lands (similar provisions for ANF lands are contained in HAZ-4). This measure will reduce the risk of homes sustaining damage in a Project construction- or maintenance-related fire.

Mitigation Measure F-3c will reduce firefighting response time in the event of an ignition, which will have the effect of reducing the potential impact to communities and natural resources. Mitigation Measure F-3d (Remove hazards from the work area) will reduce the severity of construction- and maintenance-related

ignitions that escape initial containment efforts by minimizing volatile fuel loads within the corridor. Mitigation Measure F-3e will ensure compliance with PHLNHPA's non-smoking policy. The implementation of these mitigation measures will reduce Impact F-3 to a less-than-significant level.

With respect to activities that occur on land under the exclusive jurisdiction and control of the FS, the CPUC does not have jurisdiction to impose the above-referenced mitigation measures. Therefore, to the extent implementation of these measures is within the sole and exclusive jurisdiction of the FS and not the CPUC, the CPUC recommends that they be adopted by that agency.

Reference. Final EIR Section 3.16; Table ES-3

Impact F-4: Construction and/or maintenance activities would increase the risk of personnel injury or death in the event of fire.

Portions of the Tehachapi Fireshed area within ANF and on PHLNHPA lands are accessible by narrow, unpaved roadways through wildland areas that are highly susceptible to wildfires. Critical to personnel safety in the event of fire are the availability of safe evacuation routes and personnel awareness of these routes. Air-lifting of personnel in the event of fire is unlikely to be feasible due to flight restriction orders that are issued during wildfire events. Segment 11 through ANF is the most access-restricted of all Project segments. Under existing conditions, the bridge along Fall Creek Road (along Segment 11) that will provide for the crossing of Tujunga Creek is out of service, providing only a single point of ingress and egress for personnel and firefighting crews in the event of a wildfire. Under Alternative 2 this bridge will be repaired to ensure an adequate number of emergency evacuation routes in the event of an uncontrolled fire in the vicinity of Segment 11.

APM HAZ-4 (Fire Management Plan, Specification E-2005-104; February 21, 2006) requires SCE to follow its Fire Management Plan during construction of the Project. The Plan is discussed in detail in Section 3.16.3.4. Among other commitments, the Plan commits to restricting project activities in compliance with ANF Project Activity Levels, as issued daily by ANF, for example, during periods of extreme fire hazard due to critical weather conditions. Because Project construction activities will be restricted relative to the severity of weather conditions, the presence of construction workers in ANF will be limited during extreme fire weather thereby reducing the risk of personnel injury and death as a result of a Santa-Ana driven wildfire event.

The Plan covers fire safety provisions, equipment, communication, and reporting during construction, however it does not detail SCE's commitments on non-Forest Service lands, it does not ensure emergency evacuation of personnel from wildland areas in the event of fire, and it does not address the emergency evacuation constraint of the out-of-service Tujunga Creek Bridge. As a result, personnel engaged in Project construction or maintenance activities on non-Forest Service lands will be at risk of being engaged in work activities during extreme weather conditions. In addition, personnel working in wildland areas will be at risk of not being evacuated in the event of fire during normal weather conditions due to a lack of evacuation planning effort despite implementation of APM HAZ-4. Finally, personnel working on ANF lands in the vicinity of Tujunga Creek will be at risk in the event of a fire during normal weather conditions despite implementation of APM HAZ-4 due to the emergency access constraint of the area.

Finding. The CPUC finds that changes or alterations have been incorporated into the Project which avoid or substantially lessen the significant effects on the environment from Impact F-4. The following mitigation measures have been identified to reduce this impact to a less-than-significant level:

- **MM F-3b Cease work during Red Flag Warning events.**
- **MM F-4 Prepare and implement Emergency Evacuation Plan.** SCE shall prepare an Emergency Evacuation Plan to ensure the safe and expedient ground-based evacuation of personnel in the event of an uncontrolled fire in the Project area, including addressing the Tujunga Creek bridge area. The Plan shall make explicit the following elements: a schedule of the locations of all personnel during the fire season, conditions under which to evacuate, chain of command, communications with ANF Emergency Operations Center, and identification of evacuation routes. An emergency evacuation officer shall be appointed to educate personnel about emergency evacuation routes prior to each day's construction activities, to carry out the Plan in the event that an evacuation order is issued or that a nearby uncontrolled fire threatens personnel safety, and to update the plan should access conditions change. The Emergency Evacuation Plan shall be submitted to FS and PHLNHPA, as appropriate, for review and comment at least 30 days prior to Project construction.

To the extent implementation of these measures is within the sole and exclusive jurisdiction of another public agency and not the CPUC, the CPUC finds that those changes and alterations are within the responsibility and jurisdiction of that other public agency, not the CPUC. Such changes can and should be adopted by such other agency.

Rationale for Finding. Mitigation Measure F-3b will reduce the risk to construction and maintenance personnel by prohibiting Project construction and maintenance activities during Red Flag Warning events, which will eliminate work during extreme fire weather. This measure will be applicable to non-Forest Service lands (similar provisions for ANF lands are contained in HAZ-4). This measure will reduce the risk of personnel injury and death as a result of a Santa Ana driven wildfire by restricting the presence of personnel in wildland areas during the most extreme fire weather.

Mitigation Measure F-4 will ensure identification of emergency access routes prior to Project construction activities, require education of personnel about these access routes prior to each day's construction or maintenance activities, and require appointment of an Emergency Evacuation Plan officer to administer the plan in the event of fire. The implementation of these mitigation measures will reduce Impact F-4 to a less-than-significant level.

With respect to activities that occur on land under the exclusive jurisdiction and control of the FS, the CPUC does not have jurisdiction to impose the above-referenced mitigation measures. Therefore, to the extent implementation of these measures is within the sole and exclusive jurisdiction of the FS and not the CPUC, the CPUC recommends that they be adopted by that agency.

Reference. Final EIR Section 3.16; Table ES-3

Impact F-6: Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread.

Project construction and maintenance 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. Construction and maintenance of the Project will contribute to the introduction and proliferation of non-native, invasive plants. Certain invasive plants, like cheatgrass, medusa head and Saharan mustard, can contribute to changes in wildfire frequency, timing and spread (Cal-IPC, 2007). Cheatgrass and medusa head, for example, dry out earlier in the season than native grasses, extending the length of the fire season and creating fine fuels that are easily ignited. These fine fuels increase the likelihood that the background sources of ignition in the environment will result in a wildfire ignition, resulting in wildfire ignitions earlier in the year and an increased level of fire recurrence. While the

introduction of non-native plants will not increase the background rate of ignition sources, it will increase the ignition potential, or the likelihood that an ignition source will result in an actual wildfire ignition. 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 (Wiedinmyer and Neff, 2007). The introduction and spread of specific invasive plants within the Project ROW will adversely influence fire behavior by increasing the fuel load, fire frequency and fire spread

Finding. The CPUC finds that changes or alterations have been incorporated into the Project which avoid or substantially lessen the significant effects on the environment from Impact F-6. The following mitigation measure has been identified to reduce this impact to a less-than-significant level:

- **MM B-3a Prepare and implement a Weed Control Plan.** (*See above for full text*)

Rationale for Finding. Implementation of the Weed Control Plan will prevent or substantially reduce ignition potential and increased fire spread as a result of non-native, invasive plants being introduced during to the Project area during construction or maintenance activities by providing a plan and mechanism for implementing measures to reduce the spread of weed during Project construction and maintenance. Implementation of this mitigation measure will reduce Impact F-6 to a less-than-significant level.

Reference. Final EIR Section 3.16; Table ES-3

Cumulative Impact F-3: Construction and/or maintenance activities would increase the risk of wildfire.

An ignition that escapes containment at the top of the fireshed could spread to the limits of the fireshed under extreme weather conditions. Project-related ignitions within the Project corridor in the Tehachapi Fireshed have the potential to escape initial attack containment and become catastrophic fires. The areas with heaviest fuel loads, steep topography, and exposure to Santa Ana winds will have a higher burn probability and a higher potential for an ignition to escape. Construction- and maintenance-related ignitions that occur during extreme weather conditions will be at high risk to escape containment and burn large areas throughout the Tehachapi Fireshed, potentially spreading south and west through Acton, La Cañada Flintridge, Santa Clarita, and other communities at the wildland-urban interface, including private inholdings within the ANF. Ignition of a large fire as a result of Project construction or maintenance will threaten firefighter safety above the existing level of hazard that exists for area firefighters. Finally, ignition of a large fire as a result of Project construction or maintenance could adversely affect natural resources including biological resources and air and water quality.

Transmission line maintenance activities will 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 will be far less intensive than construction activities; however, they will recur periodically over the life of the Project, resulting in a recurring source of ignitions for 50 years or more. Therefore, construction and maintenance activities will create a significant risk of a fire with potentially damaging impacts to communities, firefighter health and safety, and natural resources in the highly volatile Tehachapi Fireshed.

Finding. The CPUC finds that changes or alterations have been incorporated into the Project which avoid or substantially lessen the significant effects on the environment from Cumulative Impact F-3. Implementation of the following mitigation measures will reduce the Project's incremental contribution to the cumulative impact to less-than-significant:

- **F-3a (Revise SCE's Fire Management Plan for maintenance activities),**
- **F-3b (Cease work during Red Flag Warning events),**
- **F-3c (Ensure open communication pathways),**
- **F-3d (Remove hazards from the work area), and**
- **F-3e (Comply with non-smoking policy on PHLNHPA lands)**

To the extent implementation of these measures is within the sole and exclusive jurisdiction of another public agency and not the CPUC, the CPUC finds that those changes and alterations are within the responsibility and jurisdiction of that other public agency, not the CPUC. Such changes can and should be adopted by such other agency.

Rationale for Finding. Mitigation Measure F-3a will require the incorporation of fire safe practices during Project maintenance in addition to Project construction. Mitigation Measure F-3b will reduce the potential impact to communities, firefighters, and natural resources by prohibiting Project construction and maintenance activities during Red Flag Warning events, which will eliminate work during extreme fire weather and have the effect of substantially reducing the potential acres burned, the number of communities at risk, and the hazard to firefighting crews. This measure will be applicable to non-Forest Service lands (similar provisions for ANF lands are contained in HAZ-4). This measure will reduce the risk of homes sustaining damage in a Project construction- or maintenance-related fire.

Mitigation Measure F-3c will reduce firefighting response time in the event of an ignition, which will have the effect of reducing the potential impact to communities and natural resources. Mitigation Measure F-3d (Remove hazards from the work area) will reduce the severity of construction- and maintenance-related ignitions that escape initial containment efforts by minimizing volatile fuel loads within the corridor. Mitigation Measure F-3e will ensure compliance with PHLNHPA's non-smoking policy. The implementation of these mitigation measures will reduce the Project's incremental contribution to cumulative Impact F-3 to a less-than-significant level.

With respect to activities that occur on land under the exclusive jurisdiction and control of the FS, the CPUC does not have jurisdiction to impose the above-referenced mitigation measures. Therefore, to the extent implementation of these measures is within the sole and exclusive jurisdiction of the FS and not the CPUC, the CPUC recommends that they be adopted by that agency.

Reference. Final EIR Section 3.16; Table ES-3

III.3.14 Electrical Interference and Hazards

Impact EIH-1: The Project would cause radio, television, communications, or electronic equipment interference.

Electric and magnetic fields from power lines occur at a frequency level that is substantially below the frequency range of communications systems and do not typically pose interference problems for communication equipment. Corona or gap discharges related to high frequency radio and television interference impacts are dependent upon several factors, including the strength of broadcast signals and are anticipated to be very localized if it occurs. Magnetic field interference with electronic equipment such as computer monitors can also occur as a result of transmission lines.

Finding. The CPUC finds that changes or alterations have been incorporated into the Project which avoid or substantially lessen the significant effects on the environment from Impact EIH-1. Specifically, the

following mitigation measures are feasible and are hereby adopted to mitigate significant effects from Impact EIH-1 to a less-than-significant level.

- **MM EIH-1a Limit the conductor surface electric gradient.** As part of the design and construction process for the Project, SCE shall limit the conductor surface electric gradient in accordance with the Institute of Electrical and Electronic Engineers Radio Noise Design Guide.
- **MM EIH-1b Document and resolve electronic interference complaints.** After energizing the transmission line, SCE shall respond to, document, and resolve radio/television/electronic equipment interference complaints received. These records shall be made available to the CPUC for review upon request. All unresolved disputes shall be referred by SCE to the CPUC for resolution.

Rationale for Finding. Mitigation Measures EIH-1a and EIH-1b will limit the conductor surface gradient so the electric field intensity on the conductor does not exceed the breakdown strength of air, which will avoid generation of corona noise at levels that cause electronic interference, and will resolve and document all interference complaints. As such impacts related to radio, television, communications, and electronic equipment interference will be less than significant.

Reference. Final EIR Section 3.17; Table ES-3

Impact EIH-2: The Project would cause induced currents and shock hazards in joint use corridors.

Induced currents and voltages on conducting objects near the Project's transmission lines represent a potential significant impact. These impacts do not pose a threat in the environment if the conducting objects are properly grounded.

Finding. The CPUC finds that changes or alterations have been incorporated into the Project which avoid or substantially lessen the significant effects on the environment from Impact EIH-2. Specifically, the following mitigation measure is feasible and is hereby adopted to mitigate significant effects from Impact EIH-2 to a less-than-significant level.

- **MM EIH-2 Implement grounding measures.** As part of the siting and construction process for the Project, SCE shall identify objects (such as fences, metal buildings, and pipelines) within and near the ROW that have the potential for induced voltages and shall implement electrical grounding of metallic objects in accordance with SCE's standards. The identification of objects shall document the threshold electric field strength and metallic object size at which grounding becomes necessary. SCE shall install all necessary grounding measures prior to energizing the transmission lines. Thirty days prior to energizing the lines, SCE shall notify in writing, subject to the review and approval of the CPUC, all property owners within and adjacent to the Project ROW of the date the line is to be energized. The written notice shall provide a contact person and telephone number for answering questions regarding the line and guidelines on what activities should be limited or restricted within the ROW. SCE shall respond to and document complaints received and the responsive action taken. These records shall be made available to the CPUC for review upon request. All unresolved disputes shall be deferred by SCE to the CPUC for resolution.

  The written notice shall describe the nature and operation of the lines, and SCE's responsibilities with respect to grounding all conducting objects. In addition, the notice shall describe the property owner's responsibilities with respect to notification for any new objects, which may require grounding and guidelines for maintaining the safety of the ROW.

Rationale for Finding. Mitigation Measure EIH-2 will ensure that objects with the potential for induced voltages, such as fences, metal buildings, and pipelines, near the Project's ROW will be properly grounded and property owners will be properly notified. As such, impacts related to induced currents and shock hazards will be reduced to a less-than-significant level.

Reference. Final EIR Section 3.17; Table ES-3

III.4 Significant Environmental Impacts that Cannot Be Avoided or Reduced to a Less than Significant Level

The CPUC hereby finds that the following environmental impacts will be significant and unavoidable, despite the incorporation of all feasible mitigation measures. These findings are based on the discussion of impacts in the detailed issue area analyses in Chapter 3 (Affected Environment and Environmental Consequences) of the Final EIR. For each significant and unavoidable impact identified below, the CPUC has made a finding(s) pursuant to Public Resources Code §21081. An explanation of the rationale for each finding is also presented below.

III.4.1 Agricultural Resources

Cumulative Impact AG-1: Construction activities would temporarily preclude the agricultural use of some Farmland.

The Project will result in the temporary conversion of 54.75 acres of Farmland due to construction activities across Segments 4 and 8. In these areas, construction of residential and urban development projects, such as the Christine Bower property and the Frazier Park Estate in Kern County and the Western Hills by Meritage Homes, Vellano, Woodview Terrace, and PD 9-163 projects in San Bernardino County will result in substantial areas of Farmland converted to non-agricultural uses. The effects of the construction of these other planned projects will be cumulatively significant.

Mitigation Measure AG-1 (Coordinate construction activities with agricultural landowners) will be implemented and will help reduce the Project's incremental contribution to the cumulative significance of Impact AG-1. However, despite implementation of this mitigation measure for the Project, Impact AG-1 will have the potential to combine with other, similar impacts of other projects and as such, Impact AG-1 will be cumulatively significant and unavoidable.

Finding.

(1) The CPUC finds that changes or alterations have been incorporated into the Project which mitigate significant cumulative effects on the environment from Impact AG-1. Specifically, Mitigation Measure AG-1, as set forth in Section 3.2 (Agricultural Resources) of the Final EIR, is feasible and is hereby adopted to mitigate significant cumulative effects from Impact AG-1. However, even with implementation of these measures, significant unavoidable impacts will occur as described above.

(2) The CPUC finds that specific economic, legal, social, technological, or other considerations make it infeasible to reduce Cumulative Impact AG-1 to a less-than-significant level.

- **MM AG-1: Coordinate construction activities with agricultural landowners.** (*See above for full text*)

Rationale for Finding. Construction of residential and urban development projects will result in substantial areas of Farmland converted to non-agricultural uses. A review of past development in the Project area as well as the reasonably foreseeable projects identified in Final EIR Table 2.9-12 shows that when combined with the effects of other projects, the Project will contribute to a significant impact. There are no other feasible mitigation measures or alternatives available to reduce the significant cumulative impact to a level that will be less than significant. This impact is cumulatively significant and unavoidable.

Reference. Final EIR Section 3.2; Table ES-3

Cumulative Impact AG-2: Operation would permanently convert Farmland to non-agricultural use.

The area of land that will be permanently converted for the use as a result of the Project, following site restoration and Project completion, will be under the ten acre minimum mapping unit (5.83 acres of Farmland and 1.83 acres of land under Williamson Act contract) resulting in a less than significant impact for the Project. However, this conversion will have the potential to combine with similar impacts of other projects identified in Final EIR Table 2.9-12 and therefore will be cumulatively significant.

Finding.

(1) The CPUC finds that specific economic, legal, social, technological, and other considerations make it infeasible to reduce Cumulative Impact AG-2 to a less-than-significant level.

Rationale for Finding. When combined with similar impacts of past, present, and reasonably foreseeable projects, the effect of Cumulative Impact AG-2 will be significant and unavoidable because the area of land that will be permanently converted for the Project will potentially combine with similar impacts of other projects and, therefore, is cumulatively significant and unavoidable.

Reference. Final EIR Section 3.2; Table ES-3

Cumulative Impact AG-3: Construction activities would interfere with agricultural operations.

The Project will traverse 75.55 miles of agricultural land across Segments 4, 5, 6, and 8 and construction activities across these lands will interfere with agricultural operations in these areas. Construction of residential and urban projects like the Christine Bower property, Frazier Park Estate, Western Hills by Meritage Homes, Vellano, Woodview Terrace, and PD 9-163 projects and infrastructure projects such as the Antelope Transmission Project Segments 1-3, Antelope Valley Water Bank Project, California High Speed Rail, and Orangeline High Speed Maglev Project will disrupt agricultural operations both through the disruption of agricultural land as well as through construction activities on and adjacent to agricultural lands. The effects of the construction of these other planned projects on agricultural operations will be cumulatively significant.

Mitigation Measure AG-1 (Coordinate construction activities with agricultural landowners) will be implemented and will help reduce the Project's incremental contribution to the cumulative significance of Impact AG-3. However, despite implementation of this mitigation measure for the Project, Impact AG-3 will have the potential to combine with other, similar impacts of other projects and as such, Impact AG-3 will be cumulatively significant and unavoidable.

Finding.

(1) The CPUC finds that changes or alterations have been incorporated into the Project which mitigate significant effects on the environment from Impact AG-3. Specifically, Mitigation Measure AG-1, as set forth in Section 3.2 (Agricultural Resources) of the Final EIR, is feasible and is hereby adopted to mitigate significant effects from Impact AG-3. However, even with implementation of this measure, significant unavoidable cumulative impacts will occur as described above.

(2) The CPUC finds that specific economic, legal, social, technological, or other considerations make it infeasible to reduce Cumulative Impact AG-3 to a less-than-significant level.

- **MM AG-1: Coordinate construction activities with agricultural landowners.** (*See above for full text*)

Rationale for Finding. Construction of residential and urban development projects will disrupt agricultural operations both through the disruption of agricultural land as well as through construction activities on and adjacent to agricultural lands. There are no other feasible mitigation measures or alternatives available to reduce this significant cumulative impact to a level that will be less-than-significant. This impact is cumulatively significant and unavoidable.

Reference. Final EIR Section 3.2; Table ES-3

Cumulative Impact AG-4: Operation would interfere with agricultural operations.

Operations associated with the Project, which crosses 75.55 miles of agricultural land, will interfere with agricultural operations by dividing farm properties, creating irregularly shaped fields, disrupting drainage and irrigation systems, affecting the efficacy of windbreaks, fragmenting farms, and allowing for the introduction of invasive weeds within and around disturbed areas. The residential, urban, and infrastructure projects listed in Final EIR Table 2.9-12 will also result in similar impacts, although on a larger scale, and cumulatively interfere with a substantial number of agricultural operations. The effects of the operation of these other planned projects on agricultural operations will be cumulatively significant.

Mitigation Measure AG-1 (Coordinate construction activities with agricultural landowners) will be implemented and will help reduce the Project's incremental contribution to the cumulative significance of Impact AG-4. However, despite implementation of this mitigation measure for the Project, Impact AG-4 will have the potential to combine with other, similar impacts of other projects and as such, Impact AG-4 will be cumulatively significant and unavoidable.

Finding.

(1) The CPUC finds that changes or alterations have been incorporated into the Project which mitigate significant effects on the environment from Impact AG-4. Specifically, Mitigation Measure AG-1, as set forth in Section 3.2 (Agricultural Resources) of the Final EIR, is feasible and is hereby adopted to mitigate significant effects from Impact AG-4. However, even with implementation of this measure, significant unavoidable cumulative impacts will occur as described above.

(2) The CPUC finds that specific economic, legal, social, technological, or other considerations make it infeasible to reduce Cumulative Impact AG-4 to a less-than-significant level.

- **MM AG-1: Coordinate construction activities with agricultural landowners.** (*See above for full text*)

Rationale for Finding. The operation of the Project across agricultural land will interfere with agricultural operations. This impact combined with the effects of the operation of other planned projects on agricultural operations is cumulatively significant. There are no other feasible mitigation measures or alternatives available to reduce this significant cumulative impact to a level that will be less than significant. This impact is cumulatively significant and unavoidable.

Reference. Final EIR Section 3.2; Table ES-3

Impact AQ-1: Construction emissions would exceed the SCAQMD, AVAQMD, and/or KCAPCD regional emission thresholds.

Construction of the Project will result in short-term impacts to ambient air quality. Temporary construction emissions will result from on-site activities, such as surface clearing, excavation, tower foundation construction, tower steel construction, power cable stringing, substation upgrades, etc.; and from off-site activities such as construction related haul trips, construction worker commuting, and helicopters used for tower construction. Daily construction emissions associated with the Project will exceed the Air District Regional planning thresholds for significance for NOx, VOC, CO, PM10, and PM2.5 in the South Coast Air Basin and AVAQMD, and in 2010, prior to equipment mitigation, will exceed the annual NOx and PM10 KCAPCD significance criteria.

Finding.

(1) The CPUC finds that changes or alterations have been incorporated into the Project which mitigate significant effects on the environment from Impact AQ-1. Specifically, Mitigation Measures AQ-1a through AQ-1j, as set forth in Section 3.3 (Air Quality) of the Final EIR, are feasible and are hereby adopted to mitigate significant effects from Impact AQ-1. However, even with the implementation of these measures, significant unavoidable impacts will occur as described above.

(2) The CPUC finds that specific economic, legal, social, technological, or other considerations make it infeasible to reduce Impact AQ-1 to a less-than-significant level.

- **MM AQ-1a: Implement Construction Fugitive Dust Control Plan.** (*See above for full text*)
- **MM AQ-1b: Off-road Diesel-fueled Equipment Standards.** (*See above for full text*)
- **MM AQ-1c: Limit Vehicle Traffic and Equipment Use.** (*See above for full text*)
- **MM AQ-1d: Heavy Duty Diesel Haul Vehicle On-road Equipment Standards.** (*See above for full text*)
- **MM AQ-1e: On-road Vehicles Standards.** (*See above for full text*)
- **MM AQ-1f: Properly Maintain Mechanical Equipment.** (*See above for full text*)
- **MM AQ-1g: Restrict Engine Idling to 5 Minutes.** (*See above for full text*)
- **MM AQ-1h: Schedule Deliveries Outside of Peak Traffic Hours.** (*See above for full text*)
- **MM AQ-1i: Off-road Gasoline-fueled Equipment Standards.** (*See above for full text*)
- **MM AQ-1j: Reduction of Helicopter Emissions.** (*See above for full text*)

Rationale for Finding. The Project's NOx, CO, VOC, PM10 and PM2.5 emissions, even after implementation of all feasible mitigation measures listed above, will remain above the SCAQMD and AVAQMD daily significance thresholds and the Project's PM10 emissions will remain above the KCAPCD annual significance threshold values. Therefore, the daily regional and annual emissions from the Project will cause significant and unavoidable impacts in these three jurisdictions.

Reference. Final EIR Section 3.3; Table ES-3

Impact AQ-3: Construction of the Project would expose sensitive receptors to substantial pollutant concentrations.

Most of the Project route located within the Mojave Desert Air Basin and south through the South Coast Air Basin to the ANF southern border is in fairly remote areas that will not affect substantial numbers of sensitive receptors. However, the construction route and substation construction for the Project within the SCAQMD traverses many areas that will be located near residences, schools, or other sensitive receptors. Site-specific construction emissions of PM10 and PM2.5 emissions have been estimated and compared to the SCAQMD Localized Significance Thresholds (LSTs) and will have the potential to exceed the localized significance criteria during tower construction activities when those towers are located 25 meters, but less than 50 meters, from a receptor.

Finding.

(1) The CPUC finds that changes or alterations have been incorporated into the Project which mitigate significant effects on the environment from Impact AQ-3. Specifically, Mitigation Measures AQ-1a through AQ-1j, as set forth in Section III.3.2, are feasible and are hereby adopted to mitigate significant effects from Impact AQ-3. However, even with implementation of these measures, significant unavoidable impacts will occur as described above.

(2) The CPUC finds that specific economic, legal, social, technological, or other considerations make it infeasible to reduce Impact AQ-3 to a less-than-significant level.

- **MM AQ-1a: Implement Construction Fugitive Dust Control Plan.** (*See above for full text*)
- **MM AQ-1b: Off-road Diesel-fueled Equipment Standards.** (*See above for full text*)
- **MM AQ-1c: Limit Vehicle Traffic and Equipment Use.** (*See above for full text*)
- **MM AQ-1d: Heavy Duty Diesel Haul Vehicle On-road Equipment Standards.** (*See above for full text*)
- **MM AQ-1e: On-road Vehicles Standards.** (*See above for full text*)
- **MM AQ-1f: Properly Maintain Mechanical Equipment.** (*See above for full text*)
- **MM AQ-1g: Restrict Engine Idling to 5 Minutes.** (*See above for full text*)
- **MM AQ-1h: Schedule Deliveries Outside of Peak Traffic Hours.** (*See above for full text*)
- **MM AQ-1i: Off-road Gasoline-fueled Equipment Standards.** (*See above for full text*)
- **MM AQ-1j: Reduction of Helicopter Emissions.** (*See above for full text*)

Rationale for Finding. Due to the lack of sensitive receptors, their distance from each construction site, the mitigation measures to be implemented under Impact AQ-1, the relatively low amount of emissions that will occur at each tower construction site at any given time, and the lower background concentrations (i.e. better air quality than South Coast Air Basin), the impacts to sensitive receptors located in the Mojave Desert Air Basin are determined to be less than significant. Construction of the Project, however, will cause localized emissions above the SCAQMD LST thresholds within the South Coast Air Basin even after mitigating to the maximum feasible extent; therefore, the Project construction will have a significant and unavoidable impact to local sensitive receptors that are located within 50 meters of a new tower construction site.

Reference. Final EIR Section 3.3; Table ES-3

Cumulative Impact AQ-1: Construction emissions would exceed the SCAQMD, AVAQMD, and/or KCAPCD regional emission thresholds.

Construction activities associated with the Project will result in air emissions that exceed the SCAQMD, AVAQMD, and KCAPCD regional emission thresholds for selected pollutants. For cumulative assessment purposes the potential existence of nearby concurrent cumulative projects will only add to these significant emission totals. The cumulative project list in Final EIR Table 2.9-12 shows four projects within one mile of the Project route in KCAPCD jurisdiction, shows five projects within one mile of the Project route in AVAQMD jurisdiction, and shows eighteen projects within one mile of the Project route in SCAQMD jurisdiction. Given the assumption that any of these projects will be constructed concurrently with TRTP in the SCAQMD, AVAQMD, and KCAPCD jurisdictions then the Project will have cumulatively significant impacts in those jurisdictions.

Finding.

(1) The CPUC finds that changes or alterations have been incorporated into the Project which mitigate significant effects on the environment from Cumulative Impact AQ-1. Specifically, Mitigation Measures AQ-1a through AQ-1j, as set forth in Section 3.3 (Air Quality) of the Final EIR, are feasible and are hereby adopted to mitigate significant effects from Cumulative Impact AQ-1. However, even with implementation of these measures, significant unavoidable impacts will occur as described above.

(2) The CPUC finds that specific economic, legal, social, technological, or other considerations make it infeasible to reduce Cumulative Impact AQ-1 to a less-than-significant level.

- **MM AQ-1a: Implement Construction Fugitive Dust Control Plan.** (*See above for full text*)
- **MM AQ-1b: Off-road Diesel-fueled Equipment Standards.** (*See above for full text*)
- **MM AQ-1c: Limit Vehicle Traffic and Equipment Use.** (*See above for full text*)
- **MM AQ-1d: Heavy Duty Diesel Haul Vehicle On-road Equipment Standards.** (*See above for full text*)
- **MM AQ-1e: On-road Vehicles Standards.** (*See above for full text*)
- **MM AQ-1f: Properly Maintain Mechanical Equipment.** (*See above for full text*)
- **MM AQ-1g: Restrict Engine Idling to 5 Minutes.** (*See above for full text*)
- **MM AQ-1h: Schedule Deliveries Outside of Peak Traffic Hours.** (*See above for full text*)
- **MM AQ-1i: Off-road Gasoline-fueled Equipment Standards.** (*See above for full text*)
- **MM AQ-1j: Reduction of Helicopter Emissions.** (*See above for full text*)

Rationale for Finding. Emissions from reasonable foreseeable projects occurring concurrently with TRTP in the SCAQMD, KCAPCD, and AVAQMD jurisdictions will have cumulatively significant impacts in those jurisdictions. There are no other feasible mitigation measures or alternatives available to reduce this significant cumulative impact to a level that will be less than significant. This impact is cumulatively significant and unavoidable.

Reference. Final EIR Section 3.3; Table ES-3

Cumulative Impact AQ-3: Construction of the Project would expose sensitive receptors to substantial pollutant concentrations.

Construction activities associated with the Project will expose sensitive receptors in the populated areas along the construction route. The SCAQMD Localized Significance Threshold (LST) lookup tables used to determine Project significance do not apply to cumulative project evaluation; however, the significance criteria is based on downwind pollutant concentrations causing a new exceedance (NOx and CO) of an air quality standard, substantially increasing current exceedances (PM10 and PM2.5) of an air quality standard, and these general criteria are applicable standards for localized impact cumulative project analysis. For the emissions of any two projects to have the potential for significant cumulative downwind concentrations, they must both be in close proximity to limit the downwind dispersion from one site to the other and generally one of the projects must be able to cause an air quality standard exceedance on its own (conservation of mass principles dictate that two exhaust plumes of stable criteria pollutants do not add concentration, they mix concentration with the plume of highest concentration being diluted by the plume with the lower concentration). Therefore, it can be assumed that the potential for cumulative impacts to sensitive receptors is the same as the Project impacts to sensitive receptors, so the Project will have cumulative significant impacts to sensitive receptors after mitigation.

Finding.

(1) The CPUC finds that changes or alterations have been incorporated into the Project which mitigate significant effects on the environment from Cumulative Impact AQ-3. Specifically, Mitigation Measures AQ-1a through AQ-1j, as set forth in Section 3.3 (Air Quality) of the Final EIR, are feasible and are hereby adopted to mitigate significant effects from Cumulative Impact AQ-3. However, even with implementation of these measures, significant unavoidable impacts will occur as described above.

(2) The CPUC finds that specific economic, legal, social, technological, or other considerations make it infeasible to reduce Cumulative Impact AQ-3 to a less-than-significant level.

- **MM AQ-1a: Implement Construction Fugitive Dust Control Plan.** (*See above for full text*)
- **MM AQ-1b: Off-road Diesel-fueled Equipment Standards.** (*See above for full text*)
- **MM AQ-1c: Limit Vehicle Traffic and Equipment Use.** (*See above for full text*)
- **MM AQ-1d: Heavy Duty Diesel Haul Vehicle On-road Equipment Standards.** (*See above for full text*)
- **MM AQ-1e: On-road Vehicles Standards.** (*See above for full text*)
- **MM AQ-1f: Properly Maintain Mechanical Equipment.** (*See above for full text*)
- **MM AQ-1g: Restrict Engine Idling to 5 Minutes.** (*See above for full text*)
- **MM AQ-1h: Schedule Deliveries Outside of Peak Traffic Hours.** (*See above for full text*)
- **MM AQ-1i: Off-road Gasoline-fueled Equipment Standards.** (*See above for full text*)
- **MM AQ-1j: Reduction of Helicopter Emissions.** (*See above for full text*)

Rationale for Finding. Because the potential for cumulative impacts to sensitive receptors is the same as the Project's impacts to sensitive receptors, and the Project will have significant impacts to sensitive receptors, then the Project will result in cumulative significant impacts. There are no other feasible

mitigation measures or alternatives available to reduce this significant cumulative impact to a level that will be less than significant. This impact is cumulatively significant and unavoidable.

Reference. Final EIR Section 3.3; Table ES-3

III.4.3 Biological Resources

Cumulative Impact B-1: Construction activities would result in temporary and permanent losses of native vegetation.

Despite measures to protect and remediate losses, construction of the Project will cause both temporary (during construction from vegetation clearing) and permanent (replacement of vegetation with project features such as towers or permanent access roads) significant impacts to vegetation communities as described in Section 3.4 of the Final EIR. Many cumulative projects will result in temporary and permanent losses of native vegetation through grading and clearing activities to construct roads, utility infrastructure, and commercial and residential developments.

Finding.

(1) The CPUC finds that changes or alterations have been incorporated into the Project which mitigate significant effects on the environment from Cumulative Impact B-1. Specifically, Mitigation Measures B-1a through B-1c, H-1a, and AQ-1a, as set forth in Section 3.4 (Biological Resources) of the Final EIR and as listed below, are feasible and are hereby adopted to mitigate significant effects from Cumulative Impact B-1. However, even with implementation of these measures, significant unavoidable impacts will occur as described above.

(2) The CPUC finds that specific economic, legal, social, technological, or other considerations make it infeasible to reduce Cumulative Impact B-1 to a less-than-significant level.

- **MM B-1a: Provide restoration/compensation for impacts to native vegetation communities.** (*See above for full text*)
- **MM B-1b: Implement a Worker Environmental Awareness Program.** (*See above for full text*)
- **MM B-1c: Treat cut tree stumps with Sporax.** (*See above for full text*)
- **MM AQ-1a: Implement Construction Fugitive Dust Control Plan.** (*See above for full text*)
- **MM H-1a: Implement an Erosion Control Plan and demonstrate compliance with water quality permits.** (*See above for full text*)

Rationale for Finding. The Project will result in the temporary and permanent loss of native vegetation in the Northern, Central, and Southern Regions. Past and foreseeable future actions in these areas will also result in considerable loss of native vegetation. The incremental effect of the Project, when combined with the effects created by other past and reasonably foreseeable projects, will be significant, because the combined impact will substantially reduce the acreage of several native vegetation types that are limited in distribution within southern California. There are no other feasible mitigation measures or alternatives available to reduce this significant cumulative impact to a level that will be less than significant.

Reference. Final EIR Section 3.4; Table ES-3

Cumulative Impact B-2: The Project would result in the loss of desert wash or riparian habitat.

The Project will result in the temporary disturbance to, and permanent loss of, desert wash and riparian habitat in the Northern, Central, and Southern regions of the Project. Past and foreseeable future actions in these areas will also result in considerable loss of, or degradation of, desert wash and riparian habitat.

Finding.

(1) The CPUC finds that changes or alterations have been incorporated into the Project which mitigate significant effects on the environment from Cumulative Impact B-2. Specifically, Mitigation Measures B-1a, B-1b, B-2, H-1a, and AQ-1a, as set forth in Section 3.4 (Biological Resources) of the Final EIR and as listed below, are hereby adopted to mitigate significant effects from Cumulative Impact B-2. However, even with implementation of these measures, significant unavoidable impacts will occur as described above.

(2) The CPUC finds that specific economic, legal, social, technological, or other considerations make it infeasible to reduce Cumulative Impact B-2 to a less-than-significant level.

- **MM B-1a: Provide restoration/compensation for impacts to native vegetation communities.** (*See above for full text*)
- **MM B-1b: Implement a Worker Environmental Awareness Program.** (*See above for full text*)
- **MM B-2: Implement RCA Treatment Plan.** (*See above for full text*)
- **MM AQ-1a: Implement Construction Fugitive Dust Control Plan.** (*See above for full text*)
- **MM H-1a: Implement an Erosion Control Plan and demonstrate compliance with water quality permits.** (*See above for full text*)

Rationale for Finding. Riparian habitat will be impacted from the expansion of the existing access roads and creation of spur roads to structures. The incremental effect of the Project, when combined with the effects created by other past and reasonably foreseeable projects, will be significant, because the combined impact will reduce and/or degrade desert wash and riparian habitat types that are limited in distribution within southern California. There are no other feasible mitigation measures or alternatives available to reduce this significant cumulative impact to a level that will be less than significant.

Reference. Final EIR Section 3.4; Table ES-3

Cumulative Impact B-3: The Project would result in the establishment and spread of noxious weeds.

Noxious weeds often establish following disturbance and/or water or nutrient addition. In addition, once established, populations of weeds are extremely difficult to eradicate. The spread and establishment of weeds can have direct effects on special-status species as habitat is lost. The spread of existing weeds or the introduction of new weed populations is a significant Project impact and will also contribute to the cumulative spread of weeds when combined with weed population establishment and spread occurring from other past and reasonably foreseeable projects.

Finding.

(1) The CPUC finds that changes or alterations have been incorporated into the Project which mitigate significant effects on the environment from Cumulative Impact B-3. Specifically, Mitigation Measures B-1a, B-2, and B-3a through B-3c, as set forth in Section 3.4 (Biological Resources) of the Final EIR and as listed below, are hereby adopted to mitigate significant effects

from Cumulative Impact B-3. However, even with implementation of these measures, significant unavoidable impacts will occur as described above.

(2) The CPUC finds that specific economic, legal, social, technological, or other considerations make it infeasible to reduce Cumulative Impact B-3 to a less-than-significant level.

- **MM B-1a: Provide restoration/compensation for impacts to native vegetation communities.** (*See above for full text*)
- **MM B-2: Implement RCA Treatment Plan.** (*See above for full text*)
- **MM B-3a: Prepare and implement a Weed Control Plan.** (*See above for full text*)
- **MM B-3b: Remove weed seed sources from construction access routes.** (*See above for full text*)
- **MM B-3c: Remove weed seed sources from assembly yards, staging areas, tower pads, pull sites, landing zones, and spur roads.** (*See above for full text*)

Rationale for Finding. The habitat degradation resulting from the spread of weeds is significant and any cumulative effects of weed invasion will be significant. Other projects that promote new, or worsen existing, weed invasions are likely to occur concurrent with and in the vicinity of the Project. The incremental effect of the Project, when combined with the effects created by other past and reasonably foreseeable projects, will be significant, because it will contribute to the cumulative spread of weeds that are difficult to eradicate. There are no other feasible mitigation measures or alternatives available to reduce this significant cumulative impact to a level that will be less than significant.

Reference. Final EIR Section 3.4; Table ES-3

Cumulative Impact B-4: Construction activities, including the use of access roads and helicopter construction, would result in disturbance to wildlife and may result in wildlife mortality.

The Project will likely result in disturbance to wildlife and wildlife mortality, including special-status species, during construction activities. Past and foreseeable future actions in the North, Central, and Southern Regions will also result in considerable disturbance to wildlife, especially common species. Foreseeable future actions include various infrastructure and residential development projects proposed for the Antelope Valley (Table 3.4-25 of the Final EIR) and Chino and Puente Hills (Table 3.4-26 of the Final EIR), and 8,500 acres of fuel management and restoration projects within the ANF.

Finding.

(1) The CPUC finds that changes or alterations have been incorporated into the Project which mitigate significant effects on the environment from Cumulative Impact B-4. Specifically, Mitigation Measures B-1a, B-1b, B-2, B-3a, H-1a, and AQ-1a, as set forth in Section 3.4 (Biological Resources) of the Final EIR and as listed below, are hereby adopted to mitigate significant effects from Cumulative Impact B-4. However, even with implementation of these measures, significant unavoidable impacts will occur as described above.

(2) The CPUC finds that specific economic, legal, social, technological, or other considerations make it infeasible to reduce Cumulative Impact B-4 to a less-than-significant level.

- **MM B-1a: Provide restoration/compensation for impacts to native vegetation communities.** (*See above for full text*)

- **MM B-1b: Implement a Worker Environmental Awareness Program.** (*See above for full text*)
- **MM B-2: Implement RCA Treatment Plan.** (*See above for full text*)
- **MM B-3a: Prepare and implement a Weed Control Plan.** (*See above for full text*)
- **MM AQ-1a: Implement Construction Fugitive Dust Control Plan.** (*See above for full text*)
- **MM H-1a: Implement an Erosion Control Plan and demonstrate compliance with water quality permits.** (*See above for full text*)

Rationale for Finding. The incremental effect of the Project, when combined with the effects created by other past and reasonably foreseeable projects, will be potentially adverse and cumulatively significant because of the large amount of construction that is ongoing in the Project region. There are no other feasible mitigation measures or alternatives available to reduce this significant cumulative impact to a level that will be less than significant.

Reference. Final EIR Section 3.4; Table ES-3

Cumulative Impact B-5: Construction activities conducted during the breeding season would result in the loss of nesting birds or raptors.

The Project could result in loss of nesting birds, including special-status species, if construction activities are conducted during the breeding season. Past and foreseeable future actions in the Project region could also result in considerable loss of nesting birds if construction activities were spatially or temporally combined. Foreseeable future actions include numerous infrastructure and residential development projects proposed for the Antelope Valley (Table 3.4-25 of the Final EIR) and Chino and Puente Hills (Table 3.4-26 of the Final EIR), and 8,500 acres of fuel management and restoration projects within the ANF.

Finding.

(1) The CPUC finds that changes or alterations have been incorporated into the Project which mitigate significant effects on the environment from Cumulative Impact B-5. Specifically, Mitigation Measures B-1a, B-1b, B-3a, B-5, and AQ-1a, as set forth in Section 3.4 (Biological Resources) of the Final EIR and as listed below, are hereby adopted to mitigate significant effects from Cumulative Impact B-5. However, even with implementation of these measures, significant unavoidable impacts will occur as described above.

(2) The CPUC finds that specific economic, legal, social, technological, or other considerations make it infeasible to reduce Cumulative Impact B-5 to a less-than-significant level.

- **MM B-1a: Provide restoration/compensation for impacts to native vegetation communities.** (*See above for full text*)
- **MM B-1b: Implement a Worker Environmental Awareness Program.** (*See above for full text*)
- **MM B-3a: Prepare and implement a Weed Control Plan.** (*See above for full text*)
- **MM B-5: Conduct pre-construction surveys and monitoring for breeding birds.** (*See above for full text*)
- **MM AQ-1a: Implement Construction Fugitive Dust Control Plan.** (*See above for full text*)

Rationale for Finding. The incremental effect of the Project, when combined with the effects created by other past and reasonably foreseeable projects, is significant because the combined impact will substantially reduce the acreage of several habitat types that are important for nesting birds and limited in distribution in southern California, such as riparian habitats. There are no other feasible mitigation measures or alternatives available to reduce this significant cumulative impact to a level that will be less than significant.

Reference. Final EIR Section 3.4; Table ES-3

Cumulative Impact B-6: The Project would cause the loss of foraging habitat for wildlife.

The Project will result in the loss of foraging habitat for wildlife, including special-status species. Past and foreseeable future actions in the Project region will also result in considerable loss of foraging habitat. Foreseeable future actions include numerous infrastructure and residential development projects proposed for the Antelope Valley (Table 3.4-25 of the Final EIR) and Chino and Puente Hills (Table 3.4-26 of the Final EIR), and 8,500 acres of fuel management and restoration projects within the ANF.

Finding.

(1) The CPUC finds that changes or alterations have been incorporated into the Project which mitigate significant effects on the environment from Cumulative Impact B-6. Specifically, Mitigation Measures B-1a, B-1b, B-2, B-3a, H-1a, and AQ-1a, as set forth in Section 3.4 (Biological Resources) of the Final EIR and as listed below, are hereby adopted to mitigate significant effects from Cumulative Impact B-6. However, even with implementation of these measures, significant unavoidable impacts will occur as described above.

(2) The CPUC finds that specific economic, legal, social, technological, or other considerations make it infeasible to reduce Cumulative Impact B-6 to a less-than-significant level.

- **MM B-1a: Provide restoration/compensation for impacts to native vegetation communities.** (*See above for full text*)
- **MM B-1b: Implement a Worker Environmental Awareness Program.** (*See above for full text*)
- **MM B-2: Implement RCA Treatment Plan.** (*See above for full text*)
- **MM B-3a: Prepare and implement a Weed Control Plan.** (*See above for full text*)
- **MM AQ-1a: Implement Construction Fugitive Dust Control Plan.** (*See above for full text*)
- **MM H-1a: Implement an Erosion Control Plan and demonstrate compliance with water quality permits.** (*See above for full text*)

Rationale for Finding. The incremental effect of the Project, when combined with the effects created by other past and reasonably foreseeable projects, will be significant because the combined impact will substantially reduce the acreage of several habitat types that are important for wildlife and limited in distribution in southern California. There are no other feasible mitigation measures or alternatives available to reduce this significant cumulative impact to a level that will be less than significant.

Reference. Final EIR Section 3.4; Table ES-3

Cumulative Impact B-7: The Project could disturb endangered, threatened, or proposed plant species or their habitat.

Project construction activities could disturb, degrade, or cause permanent loss of habitat for endangered, threatened, or proposed plant species and could also cause loss of endangered, threatened, or proposed plant individuals or populations, if present. Proposed construction locations were surveyed in 2007, 2008, and 2009, and most areas comprised unsuitable habitat for listed plant species. However, some listed plants may occur within the alignment, particularly within the ANF, and thus, Project implementation may result in permanent loss of suitable habitat for these species due to the construction of permanent structures and/or roads and temporary loss of habitat from construction activities. Past actions and natural events (e.g., development, urbanization, recreation, introduced species, fire, drought) have resulted in considerable incremental adverse impacts to State and federally listed plants and their habitats. Foreseeable future actions in this area will also result in considerable adverse impacts to these plants and their habitats. Foreseeable future actions include numerous infrastructure and residential development projects proposed for the Antelope Valley (Table 3.4-25 of the Final EIR) and Chino and Puente Hills (Table 3.4-26 of the Final EIR) and fuel treatment and infrastructure projects within the ANF.

Finding.

(1) The CPUC finds that changes or alterations have been incorporated into the Project which mitigate significant effects on the environment from Cumulative Impact B-7. Specifically, Mitigation Measures B-1a, B-1b, B-3a, B-7, H-1a, and AQ-1a, as set forth in Section 3.4 (Biological Resources) of the Final EIR and as listed below, are hereby adopted to mitigate significant effects from Cumulative Impact B-7. However, even with implementation of these measures, significant unavoidable impacts will occur as described above.

(2) The CPUC finds that specific economic, legal, social, technological, or other considerations make it infeasible to reduce Cumulative Impact B-7 to a less-than-significant level.

- **MM B-1a: Provide restoration/compensation for impacts to native vegetation communities.** (*See above for full text*)
- **MM B-1b: Implement a Worker Environmental Awareness Program.** (*See above for full text*)
- **MM B-3a: Prepare and implement a Weed Control Plan.** (*See above for full text*)
- **MM B-7: Conduct preconstruction surveys for State and federally Threatened, Endangered, Proposed, Petitioned, and Candidate plants and avoid any located occurrences of listed plants.** (*See above for full text*)
- **MM AQ-1a: Implement Construction Fugitive Dust Control Plan.** (*See above for full text*)
- **MM H-1a: Implement an Erosion Control Plan and demonstrate compliance with water quality permits.** (*See above for full text*)

Rationale for Finding. The incremental effect of the Project, when combined with the effects created by other past and reasonably foreseeable projects, will be significant, because the combined impact may substantially reduce the acreage of suitable habitat for multiple listed plants in the region. There are no other feasible mitigation measures or alternatives available to reduce this significant cumulative impact to a level that will be less than significant.

Reference. Final EIR Section 3.4; Table ES-3

Cumulative Impact B-8: The Project could result in the loss of California red-legged frogs and mountain yellow-legged frogs.

Construction activities within suitable habitat in the Project area may result in "take" of California red-legged frogs and mountain yellow-legged frogs. Take may occur through direct mortality, harassment, entrapment, and/or the loss of habitat due to permanent structures and/or roads. California red-legged frogs may occur within the Amargosa Creek watershed in the vicinity of the Amargosa Creek alignment crossing in the Northern Region. California red-legged frogs and mountain yellow-legged frogs are presumed absent from the Southern Region and may occur within the Central Region, where suitable habitat is present at Lynx Gulch, Alder Creek, Big Tujunga Creek (Segment 6), and West Fork San Gabriel River. Past actions and natural events in the Northern and Central regions (e.g., road construction, development, recreational activities, fire, drought) have resulted in considerable adverse effects to California red-legged frogs and mountain yellow-legged frogs. Foreseeable future actions in the Central Region are limited and are expected to have minimal effects on red-legged and yellow-legged frogs; however, foreseeable future actions that could adversely affect these species in the Northern Region include the Amargosa Creek Improvements Project, which includes road and flood control improvements.

Finding.

(1) The CPUC finds that changes or alterations have been incorporated into the Project which mitigate significant effects on the environment from Cumulative Impact B-8. Specifically, Mitigation Measures B-1a, B-1b, B-2, B-3a, B-8a, B-8b, H-1a, H-1b, and AQ-1a, as set forth in Section 3.4 (Biological Resources) of the Final EIR and as listed below, are hereby adopted to mitigate significant effects from Cumulative Impact B-8. However, even with implementation of these measures, significant unavoidable impacts will occur as described above.

(2) The CPUC finds that specific economic, legal, social, technological, or other considerations make it infeasible to reduce Cumulative Impact B-8 to a less-than-significant level.

- **MM B-1a: Provide restoration/compensation for impacts to native vegetation communities.** (*See above for full text*)
- **MM B-1b: Implement a Worker Environmental Awareness Program.** (*See above for full text*)
- **MM B-2: Implement RCA Treatment Plan.** (*See above for full text*)
- **MM B-3a: Prepare and implement a Weed Control Plan.** (*See above for full text*)
- **MM B-8a: Conduct protocol surveys for California red-legged frogs and implement avoidance measures.** (*See above for full text*)
- **MM B-8b: Conduct biological monitoring.** (*See above for full text*)
- **MM AQ-1a: Implement Construction Fugitive Dust Control Plan.** (*See above for full text*)
- **MM H-1a: Implement an Erosion Control Plan and demonstrate compliance with water quality permits.** (*See above for full text*)
- **MM H-1b: Dry weather construction.** (*See above for full text*)

Rationale for Finding. Project impacts, should they occur, will contribute substantially to the incremental take of and loss of habitat for these species when combined with the effects of take and loss of habitat caused by other past and reasonably foreseeable projects. These impacts will be cumulatively significant because the aforementioned past actions and natural events have so severely impacted California red-legged

frog and mountain yellow-legged frog populations that both species are now at the brink of extirpation in southern California. There are no other feasible mitigation measures or alternatives available to reduce this significant cumulative impact to a level that will be less than significant.

Reference. Final EIR Section 3.4; Table ES-3

Cumulative Impact B-9: The Project would result in the loss of arroyo toads.

Construction activities within suitable habitat in the Project area may result in "take" of arroyo toads. Take may occur through direct mortality, harassment, entrapment, and/or the loss of habitat due to the construction of permanent structures and/or roads. Arroyo toads occur in the Central Region of the Project. Past actions and natural events in the Central Region (e.g., road construction, development, recreational activities, fire, drought) have resulted in considerable adverse effects to arroyo toads.

Finding.

(1) The CPUC finds that changes or alterations have been incorporated into the Project which mitigate significant effects on the environment from Cumulative Impact B-9. Specifically, Mitigation Measures B-1a, B-1b, B-2, B-3a, B-8b, B-9, H-1a, H-1b, and AQ-1a, as set forth in Section 3.4 (Biological Resources) of the Final EIR and as listed below, are hereby adopted to mitigate significant effects from Cumulative Impact B-9. However, even with implementation of these measures, significant unavoidable impacts will occur as described above.

(2) The CPUC finds that specific economic, legal, social, technological, or other considerations make it infeasible to reduce Cumulative Impact B-9 to a less-than-significant level.

- **MM B-1a: Provide restoration/compensation for impacts to native vegetation communities.** (*See above for full text*)
- **MM B-1b: Implement a Worker Environmental Awareness Program.** (*See above for full text*)
- **MM B-2: Implement RCA Treatment Plan.** (*See above for full text*)
- **MM B-3a: Prepare and implement a Weed Control Plan.** (*See above for full text*)
- **MM B-8b: Conduct biological monitoring.** (*See above for full text*)
- **MM B-9: Conduct protocol surveys for arroyo toads and implement avoidance measures in occupied areas.** (*See above for full text*)
- **MM AQ-1a: Implement Construction Fugitive Dust Control Plan.** (*See above for full text*)
- **MM H-1a: Implement an Erosion Control Plan and demonstrate compliance with water quality permits.** (*See above for full text*)
- **MM H-1b: Dry weather construction.** (*See above for full text*)

Rationale for Finding. Project impacts will contribute substantially to the incremental take of, and loss of habitat for, the arroyo toad when combined with the effects of take and loss of habitat caused by other past and reasonably foreseeable projects, and therefore, will be cumulatively significant. There are no other feasible mitigation measures or alternatives available to reduce this significant cumulative impact to a level that will be less than significant.

Reference. Final EIR Section 3.4; Table ES-3

Cumulative Impact B-10: The Project could result in the loss of desert tortoises.

Construction and operations/maintenance activities within suitable habitat in the Project area may result in "take" of desert tortoise. Take may occur through direct mortality, harassment, entrapment, and/or the loss of habitat due to the construction of permanent structures and/or roads. Desert tortoises are known to occur in the northernmost portions of the Northern Region. Past actions and natural events within the Northern Region (e.g., development, urbanization, drought) have resulted in considerable adverse effects to desert tortoises. Foreseeable future actions that could adversely affect desert tortoises in the Northern Region include projects such as the PdV, Alta, and Pine Tree wind farms; El Paso Line 1903 Pipeline Conversion Project; Route 58 Mojave Alignment Project; Hyundai Corporation Test Track Facility and Habitat Conservation Plan; California High-Speed Train System; and at least 12 separate small- and large-scale residential and planned community developments in southern and central Kern County. These projects will result in considerable incremental adverse effects to desert tortoises.

Finding.

(1) The CPUC finds that changes or alterations have been incorporated into the Project which mitigate significant effects on the environment from Cumulative Impact B-10. Specifically, Mitigation Measures B-1a, B-1b, B-3a, B-10, and AQ-1a, as set forth in Section 3.4 (Biological Resources) of the Final EIR and as listed below, are hereby adopted to mitigate significant effects from Cumulative Impact B-10. However, even with implementation of these measures, significant unavoidable impacts will occur as described above.

(2) The CPUC finds that specific economic, legal, social, technological, or other considerations make it infeasible to reduce Cumulative Impact B-10 to a less-than-significant level.

- **MM B-1a: Provide restoration/compensation for impacts to native vegetation communities.** (*See above for full text*)
- **MM B-1b: Implement a Worker Environmental Awareness Program.** (*See above for full text*)
- **MM B-3a: Prepare and implement a Weed Control Plan.** (*See above for full text*)
- **MM B-10: Conduct presence or absence surveys for desert tortoise, preserve habitat, and implement avoidance measures.** (*See above for full text*)
- **MM AQ-1a: Implement Construction Fugitive Dust Control Plan.** (*See above for full text*)

Rationale for Finding. Project impacts will contribute substantially to the incremental take of, and loss of habitat for, desert tortoises when combined with the effects of take and loss of habitat caused by other past and reasonably foreseeable projects, and therefore, will be cumulatively significant. There are no other feasible mitigation measures or alternatives available to reduce this significant cumulative impact to a level that will be less than significant.

Reference. Final EIR Section 3.4; Table ES-3

Cumulative Impact B-12: The Project could result in the loss of special-status fish.

The Santa Ana sucker, arroyo chub, and Santa Ana speckled dace are known to occur in Big Tujunga Creek and the San Gabriel River. Santa Ana suckers occur downstream of the Big Tujunga and Cogswell reservoirs. Project effects to the Big Tujunga population are not expected; however, the Santa Ana sucker is present along the West Fork Cogswell Road which could be used as an access route during Project construction. While sediment analysis studies indicate there will be no regional effect on water quality from

erosion, small localized effects could result in adverse effects to these species. In addition, fuel treatments proposed by the USDA Forest Service for both Mill Creek Summit and Upper Big Tujunga Canyon will directly overlap with Segment 6. These fuel treatments will remove upland vegetation bordering Big Tujunga Creek and could increase stream sedimentation through the deposition of erosional silt adjacent to the creek.

Finding.

(1) The CPUC finds that changes or alterations have been incorporated into the Project which mitigate significant effects on the environment from Cumulative Impact B-12. Specifically, Mitigation Measures B-1a, B-1b, B-2, B-3a, B-8b, B-12, H-1a, and H-1b, as set forth in Section 3.4 (Biological Resources) of the Final EIR and as listed below, are hereby adopted to mitigate significant effects from Cumulative Impact B-12. However, even with implementation of these measures, significant unavoidable impacts will occur as described above.

(2) The CPUC finds that specific economic, legal, social, technological, or other considerations make it infeasible to reduce Cumulative Impact B-12 to a less-than-significant level.

- **MM B-1a: Provide restoration/compensation for impacts to native vegetation communities.** (*See above for full text*)
- **MM B-1b: Implement a Worker Environmental Awareness Program.** (*See above for full text*)
- **MM B-2: Implement RCA Treatment Plan.** (*See above for full text*)
- **MM B-3a: Prepare and implement a Weed Control Plan.** (*See above for full text*)
- **MM B-8b: Conduct biological monitoring.** (*See above for full text*)
- **MM B-12: Implement avoidance and minimization measures for Santa Ana sucker and other aquatic organisms.** (*See above for full text*)
- **MM H-1a: Implement an Erosion Control Plan and demonstrate compliance with water quality permits.** (*See above for full text*)
- **MM H-1b: Dry weather construction.** (*See above for full text*)

Rationale for Finding. Project impacts could contribute substantially to the incremental take of, and loss of habitat for, special-status fish when combined with the effects of take and loss of habitat caused by other past and reasonably foreseeable projects, and therefore, will be cumulatively significant. There are no other feasible mitigation measures or alternatives available to reduce this significant cumulative impact to a level that will be less than significant.

Reference. Final EIR Section 3.4; Table ES-3

Cumulative Impact B-14: The Project could result in the loss of California condors.

Project-related construction activities could result in impacts to California condors, if present. The most likely scenario for harm to condors due to Project implementation is the ingestion of microtrash left behind in work areas. In addition, helicopter construction on the ANF could result in disturbance to any condors foraging in the area. Condors may also collide with transmission lines. Past and foreseeable future actions in the Project region could also result in impacts to California condors if present. Foreseeable future actions include numerous infrastructure and residential development projects proposed for the Antelope Valley (Table 3.4-25 of the Final EIR) and Chino and Puente Hills (Table 3.4-26 of the Final EIR), and 8,500 acres

of fuel management and restoration projects within the ANF. While restoration projects on the ANF may increase potential foraging habitat for this species, on a regional scale, loss of habitat continues to occur.

Finding.

(1) The CPUC finds that changes or alterations have been incorporated into the Project which mitigate significant effects on the environment from Cumulative Impact B-14. Specifically, Mitigation Measures B-1a, B-1b, B-2, B-3a, B-8b, and B-14, as set forth in Section 3.4 (Biological Resources) of the Final EIR and as listed below, are hereby adopted to mitigate significant effects from Cumulative Impact B-14. However, even with implementation of these measures, significant unavoidable impacts will occur as described above.

(2) The CPUC finds that specific economic, legal, social, technological, or other considerations make it infeasible to reduce Cumulative Impact B-14 to a less-than-significant level.

- **MM B-1a: Provide restoration/compensation for impacts to native vegetation communities.** (*See above for full text*)
- **MM B-1b: Implement a Worker Environmental Awareness Program.** (*See above for full text*)
- **MM B-2: Implement RCA Treatment Plan.** (*See above for full text*)
- **MM B-3a: Prepare and implement a Weed Control Plan.** (*See above for full text*)
- **MM B-8b: Conduct biological monitoring.** (*See above for full text*)
- **MM B-14: Monitor construction in condor habitat and remove trash and micro-trash from the work area daily.** (*See above for full text*)

Rationale for Finding. The incremental effect of the Project, when combined with the effects created by other past and reasonably foreseeable projects, will be significant, because construction activities and operation of the Project have the potential to impact and result in the loss of California condors. There are no other feasible mitigation measures or alternatives available to reduce this significant cumulative impact to a level that will be less than significant.

Reference. Final EIR Section 3.4; Table ES-3

Cumulative Impact B-15: The Project would disturb nesting southwestern willow flycatchers, least Bell's vireos, yellow-billed cuckoos, or their habitat.

Impacts to least Bell's vireos are cumulatively significant within the Whittier Narrows and Rio Hondo portions of the Project. A storage facility expansion project is planned for the city of Irwindale, adjacent to the Project near the Rio Hondo. The combined effect of this commercial project, other past projects, and the TRTP will be significant, because their impacts increase the level of disturbance to least Bell's vireos within the Rio Hondo and Whittier Narrows. Disturbance to southwestern willow flycatchers and yellow-billed cuckoos, if present, will also occur in riparian areas of the Project.

Finding.

(1) The CPUC finds that changes or alterations have been incorporated into the Project which mitigate significant effects on the environment from Cumulative Impact B-15. Specifically, Mitigation Measures B-1a, B-1b, B-2, B-3a, B-5, B-15, H-1a, and AQ-1a, as set forth in Section 3.4 (Biological Resources) of the Final EIR and as listed below, are hereby adopted to mitigate

significant effects from Cumulative Impact B-15. However, even with implementation of these measures, significant unavoidable impacts will occur as described above.

(2) The CPUC finds that specific economic, legal, social, technological, or other considerations make it infeasible to reduce Cumulative Impact B-15 to a less-than-significant level.

- **MM B-1a: Provide restoration/compensation for impacts to native vegetation communities.** (*See above for full text*)
- **MM B-1b: Implement a Worker Environmental Awareness Program.** (*See above for full text*)
- **MM B-2: Implement RCA Treatment Plan.** (*See above for full text*)
- **MM B-3a: Prepare and implement a Weed Control Plan.** (*See above for full text*)
- **MM B-5: Conduct pre-construction surveys and monitoring for breeding birds.** (*See above for full text*)
- **MM B-15: Conduct protocol or focused surveys for listed riparian birds and avoid occupied habitat.** (*See above for full text*)
- **MM AQ-1a: Implement Construction Fugitive Dust Control Plan.** (*See above for full text*)
- **MM H-1a: Implement an Erosion Control Plan and demonstrate compliance with water quality permits.** (*See above for full text*)

Rationale for Finding. The incremental effect of the Project, when combined with the effects created by other past and reasonably foreseeable projects, will be significant, because construction activities and operation of the Project have the potential to impact and result in the loss of southwestern willow flycatchers, least Bell's vireos, yellow-billed cuckoos, or their habitat. There are no other feasible mitigation measures or alternatives available to reduce this significant cumulative impact to a level that will be less than significant.

Reference. Final EIR Section 3.4; Table ES-3

Cumulative Impact B-16: The Project would result in the loss of coastal California gnatcatchers.

Impacts to coastal California gnatcatchers are cumulatively significant within the Montebello, Puente, and Chino Hills portions of the Project. There are six residential development projects proposed or in progress within the Chino and Puente Hills, between 0 and 2.6 miles from the Project (Table 3.4-26 of the Final EIR). These projects include large community developments in areas that are currently undeveloped, including 4,902 acres of grasslands, coastal scrub, and woodlands. These collective projects will result in the loss of suitable coastal sage scrub habitat for the coastal California gnatcatcher. Continued loss and fragmentation of suitable coastal sage scrub habitat in the Montebello, Chino, and Puente Hills from ongoing development will contribute to the regional decline of this species.

Finding.

(1) The CPUC finds that changes or alterations have been incorporated into the Project which mitigate significant effects on the environment from Cumulative Impact B-16. Specifically, Mitigation Measures B-1b, B-16, and AQ-1a, as set forth in Section 3.4 (Biological Resources) of the Final EIR and as listed below, are hereby adopted to mitigate significant effects from Cumulative Impact B-16. However, even with implementation of these measures, significant unavoidable impacts will occur as described above.

(2) The CPUC finds that specific economic, legal, social, technological, or other considerations make it infeasible to reduce Cumulative Impact B-16 to a less-than-significant level.

- **MM B-1b: Implement a Worker Environmental Awareness Program.** (*See above for full text*)
- **MM B-16: Conduct protocol or focused surveys for coastal California gnatcatcher and implement avoidance measures.** (*See above for full text*)
- **MM AQ-1a: Implement Construction Fugitive Dust Control Plan.** (*See above for full text*)

Rationale for Finding. The incremental effect of the Project, when combined with the effects created by other past and reasonably foreseeable projects, will be significant, because the combined impacts substantially reduce the acreage of suitable habitat in the region. Further, disturbance to coastal California gnatcatchers due to construction activities for this and other cumulative projects will be significant. There are no other feasible mitigation measures or alternatives available to reduce this significant cumulative impact to a level that will be less than significant.

Reference. Final EIR Section 3.4; Table ES-3

Cumulative Impact B-17: The Project would result in the loss of critical and/or occupied habitat of the coastal California gnatcatcher.

The FWS designated two areas along Segment 7 (Montebello Hills and Whittier Narrows Recreation Area) and several portions along Segment 8A in the Montebello, Puente, and Chino Hills as critical habitat for the coastal California gnatcatcher (all within Critical Habitat Unit 9). Construction activities, including the installation of permanent structures and/or roads, will result in the loss of an estimated 2.4 acres of critical habitat on Segment 7 and 44.8 acres on Segment 8. As mentioned above, there are six residential development projects proposed or in progress within the Montebello, Puente, and Chino Hills, between 0 and 2.6 miles from the Project (Table 3.4-26 of the Final EIR). Some of these areas may be adjacent to or within designated critical habitat and/or occupied habitat for the coastal California gnatcatcher.

Finding.

(1) The CPUC finds that changes or alterations have been incorporated into the Project which mitigate significant effects on the environment from Cumulative Impact B-17. Specifically, Mitigation Measures B-1a, B-3a, B-16, B-17, and AQ-1a, as set forth in Section 3.4 (Biological Resources) of the Final EIR and as listed below, are hereby adopted to mitigate significant effects from Cumulative Impact B-17. However, even with implementation of these measures, significant unavoidable impacts will occur as described above.

(2) The CPUC finds that specific economic, legal, social, technological, or other considerations make it infeasible to reduce Cumulative Impact B-17 to a less-than-significant level.

- **MM B-1a: Provide restoration/compensation for impacts to native vegetation communities.** (*See above for full text*)
- **MM B-3a: Prepare and implement a Weed Control Plan.** (*See above for full text*)
- **MM B-16: Conduct protocol or focused surveys for coastal California gnatcatcher and implement avoidance measures.** (*See above for full text*)
- **MM B-17: Preserve off-site habitat and/or habitat restoration for the coastal California gnatcatcher.** (*See above for full text*)
- **MM AQ-1a: Implement Construction Fugitive Dust Control Plan.** (*See above for full text*)

Rationale for Finding. The incremental effect of the Project, when combined with the effects created by other past and reasonably foreseeable projects, will be significant, because the combined impact will considerably reduce the acreage of critical and/or occupied habitat in the region. There are no other feasible mitigation measures or alternatives available to reduce this significant cumulative impact to a level that will be less than significant.

Reference. Final EIR Section 3.4; Table ES-3

Cumulative Impact B-18: The Project could disturb nesting Swainson's hawks.

Impacts to nesting Swainson's hawks are cumulatively significant within the Northern Region of the Project. The Antelope Valley is anticipated to grow substantially in the coming decades, and the cities of Lancaster and Palmdale are expected to increase by more than 308,000 people in the next 25 years. Included in these projects are three large-scale planned community developments, totaling 2,303 acres, located within 1.5 miles from the Project at the existing Antelope Substation. Another sizeable project with potential to disturb nesting Swainson's hawks is the Antelope Valley Water Bank Project, a 640-acre facility to store and distribute surface water located adjacent to the proposed Whirlwind Substation. Construction and operations activities associated with the cumulative projects in the region are likely to disturb nesting Swainson's hawks.

Finding.

(1) The CPUC finds that changes or alterations have been incorporated into the Project which mitigate significant effects on the environment from Cumulative Impact B-18. Specifically, Mitigation Measures B-1b, B-18a, B-18b, and AQ-1a, as set forth in Section 3.4 (Biological Resources) of the Final EIR and as listed below, are hereby adopted to mitigate significant effects from Cumulative Impact B-18. However, even with implementation of these measures, significant unavoidable impacts will occur as described above.

(2) The CPUC finds that specific economic, legal, social, technological, or other considerations make it infeasible to reduce Cumulative Impact B-18 to a less-than-significant level.

- **MM B-1b: Implement a Worker Environmental Awareness Program.** (*See above for full text*)
- **MM B-18a: Conduct pre-construction surveys for Swainson's hawks.** (*See above for full text*)
- **MM B-18b: Removal of nest trees for Swainson's hawks.** (*See above for full text*)
- **MM AQ-1a: Implement Construction Fugitive Dust Control Plan.** (*See above for full text*)

Rationale for Finding. The incremental effect of the Project, when combined with the effects of other past and reasonably foreseeable projects, will be significant because the combined impact will increase the potential for disturbance to nesting Swainson's hawks. There are no other feasible mitigation measures or alternatives available to reduce this significant cumulative impact to a level that will be less than significant.

Reference. Final EIR Section 3.4; Table ES-3

Cumulative Impact B-19: The Project would result in the loss of foraging habitat for Swainson's hawks.

Impacts to foraging habitat for Swainson's hawks are cumulatively significant within the Northern Region of the Project. Three large-scale planned community developments, totaling 2,303 acres, will be located

within 1.5 miles from the Project at the existing Antelope Substation. Another sizeable project with potential to remove foraging habitat for Swainson's hawks is the Antelope Valley Water Bank Project, a 640-acre facility to store and distribute surface water located adjacent to the proposed Whirlwind Substation.

Finding.

(1) The CPUC finds that changes or alterations have been incorporated into the Project which mitigate significant effects on the environment from Cumulative Impact B-19. Specifically, Mitigation Measures B-1a, B-3a, B-18a, B-19, and AQ-1a, as set forth in Section 3.4 (Biological Resources) of the Final EIR and as listed below, are hereby adopted to mitigate significant effects from Cumulative Impact B-19. However, even with implementation of these measures, significant unavoidable impacts will occur as described above.

(2) The CPUC finds that specific economic, legal, social, technological, or other considerations make it infeasible to reduce Cumulative Impact B-19 to a less-than-significant level.

- **MM B-1a: Provide restoration/compensation for impacts to native vegetation communities.** (*See above for full text*)
- **MM B-3a: Prepare and implement a Weed Control Plan.** (*See above for full text*)
- **MM B-18a: Conduct pre-construction surveys for Swainson's hawks.** (*See above for full text*)
- **MM B-19: Compensate for loss of foraging habitat for Swainson's hawks.** (*See above for full text*)
- **MM AQ-1a: Implement Construction Fugitive Dust Control Plan.** (*See above for full text*)

Rationale for Finding. The incremental effect of the Project, when combined with the effects of other past and reasonably foreseeable projects, will be significant because the combined impact will substantially reduce the acreage of suitable foraging habitat in the region. There are no other feasible mitigation measures or alternatives available to reduce this significant cumulative impact to a level that will be less than significant.

Reference. Final EIR Section 3.4; Table ES-3

Cumulative Impact B-21: The Project could result in collision with overhead wires by State and/or federally protected birds.

Impacts to State and federally protected birds as a result of transmission line strikes are potentially cumulatively significant within the Northern Region, where approximately 17 miles of transmission lines proposed in the Antelope Transmission Project Segment 2 will come within close proximity (>0.5 miles) to Segments 10 and 5 of the Project. Passerines and waterfowl are known to collide with wires particularly during nocturnal migrations or poor weather conditions. However, passerines and waterfowl have a lower potential for collisions than larger birds, such as raptors. Some behavioral factors contribute to a lower collision mortality rate for these birds. Passerines and waterfowl tend to fly under power lines, as opposed to larger species, which generally fly over the lines and risk colliding with the higher static lines, and many smaller birds tend to reduce their flight activity during poor weather conditions. Collision mortality will also be higher where the movements of susceptible species are the greatest such as along waterways or over riparian areas. Collision rates generally increase in low light conditions, during inclement weather, such as rain or snow, during strong winds, and during panic flushes when birds are startled by a disturbance or are

fleeing from danger. Collisions are more probable near wetlands, valleys that are bisected by power lines, and within narrow passes where power lines run perpendicular to flight paths.

Finding.

(1) The CPUC finds that specific economic, legal, social, technological, or other considerations make it infeasible to reduce Cumulative Impact B-21 to a less-than-significant level.

Rationale for Finding. Collision impacts from the Project are not expected to result in significant impacts to birds in the Project area due to the implementation of APM BIO-9 as part of the Project in accordance with the guidance on raptor protection found in Suggested Practices for Raptor Protection on Power Lines (APLIC, 2006), and the incorporation of raptor safety protection into the project design on NFS lands. However, as the flight paths become more constrictive and larger numbers of transmission lines, towers, structures, and vehicles occur in the region the numbers of birds subject to collision will continue to rise. When combined with impacts from past, present, or reasonable future projects, these impacts will be considered cumulatively significant and unavoidable. There are no other feasible mitigation measures or alternatives available to reduce this significant cumulative impact to a level that will be less than significant.

Reference. Final EIR Section 3.4; Table ES-3

Cumulative Impact B-22: The Project could result in disturbance to Mohave ground squirrels.

Impacts to Mohave ground squirrels are cumulatively significant within the Antelope Valley portion of the Project. The Antelope Valley is anticipated to grow substantially in the coming decades, and the cities of Lancaster and Palmdale are expected to increase by more than 308,000 people in the next 25 years. There are at least 16 projects comprising wind energy, electrical transmission, power plant, transportation, water, and residential housing that are proposed, planned, or in progress within the Antelope Valley (Table 3.4-25 of the Final EIR). Included in these projects are two wind energy developments located within 0.1 to 3 miles from the Project in Kern County with a combined impact of 38,435 acres. Another sizeable project is the Antelope Valley Water Bank Project, a 640-acre facility to store and distribute surface water located near the county line separating Los Angeles and Kern counties. Several residential construction projects are proposed or in progress near Lancaster (Table 3.4-25 of the Final EIR). Collectively, these projects will result in the loss of more than 98,808 acres in the Antelope Valley and a significant cumulative loss of more than 65,858 acres of suitable habitat for Mohave ground squirrel.

Finding.

(1) The CPUC finds that changes or alterations have been incorporated into the Project which mitigate significant effects on the environment from Cumulative Impact B-22. Specifically, Mitigation Measures B-1a, B-1b, B-3a, B-22a through B-22c, and AQ-1a, as set forth in Section 3.4 (Biological Resources) of the Final EIR and as listed below, are hereby adopted to mitigate significant effects from Cumulative Impact B-22. However, even with implementation of these measures, significant unavoidable impacts will occur as described above.

(2) The CPUC finds that specific economic, legal, social, technological, or other considerations make it infeasible to reduce Cumulative Impact B-22 to a less-than-significant level.

- **MM B-1a: Provide restoration/compensation for impacts to native vegetation communities.** (*See above for full text*)
- **MM B-1b: Implement a Worker Environmental Awareness Program.** (*See above for full text*)

- **MM B-3a: Prepare and implement a Weed Control Plan.** (*See above for full text*)
- **MM B-22a: Conduct protocol surveys for Mohave ground squirrels.** (*See above for full text*)
- **MM B-22b: Implement construction monitoring for Mohave ground squirrels.** (*See above for full text*)
- **MM B-22c: Preserve off-site habitat for the Mohave ground squirrel.** (*See above for full text*)
- **MM AQ-1a: Implement Construction Fugitive Dust Control Plan.** (*See above for full text*)

Rationale for Finding. Continued loss and fragmentation of suitable habitat in the Antelope Valley will continue to contribute to the decline of this species within the region. The incremental effect of the Project on Mohave ground squirrels (if present), when combined with the effects created by other past and reasonably foreseeable projects, will be significant, because the combined impact substantially reduces the acreage of suitable habitat in the region. There are no other feasible mitigation measures or alternatives available to reduce this significant cumulative impact to a level that will be less than significant.

Reference. Final EIR Section 3.4; Table ES-3

Cumulative Impact B-23: The Project would result in the loss of candidate, Forest Service Sensitive, or special-status plant species.

Construction activities will most likely disturb, degrade, or cause permanent loss of habitat for candidate, USDA Forest Service Sensitive, or special-status plant species in the Project area, and could also cause loss of rare individuals or populations. Several species of special-status plants are known to occur within the alignment, particularly within the ANF, and Project implementation will thus result in permanent loss of suitable habitat for these species due to installation of permanent structures and/or roads and temporary loss of habitat from construction activities. Past actions and natural events (e.g., development, urbanization, recreation, fire, drought) have resulted in considerable incremental adverse impacts to special-status plants and their habitats. Foreseeable future actions in this area will also result in considerable adverse impacts to special-status plants and their habitats. Foreseeable future actions include numerous infrastructure and residential development projects proposed for the Antelope Valley (Table 3.4-25 of the Final EIR) and Chino and Puente Hills (Table 3.4-26 of the Final EIR), and fuel treatment and infrastructure projects within the ANF.

Finding.

(1) The CPUC finds that changes or alterations have been incorporated into the Project which mitigate significant effects on the environment from Cumulative Impact B-23. Specifically, Mitigation Measures B-1a, B-1b, B-3a, B-7, B-23, H-1a, and AQ-1a, as set forth in Section 3.4 (Biological Resources) of the Final EIR and as listed below, are hereby adopted to mitigate significant effects from Cumulative Impact B-23. However, even with implementation of these measures, significant unavoidable impacts will occur as described above.

(2) The CPUC finds that specific economic, legal, social, technological, or other considerations make it infeasible to reduce Cumulative Impact B-23 to a less-than-significant level.

- **MM B-1a: Provide restoration/compensation for impacts to native vegetation communities.** (*See above for full text*)

- **MM B-1b: Implement a Worker Environmental Awareness Program.** (*See above for full text*)
- **MM B-3a: Prepare and implement a Weed Control Plan.** (*See above for full text*)
- **MM B-7: Conduct preconstruction surveys for State and federally Threatened, Endangered, Proposed, Petitioned, and Candidate plants and avoid any located occurrences of listed plants.** (*See above for full text*)
- **MM B-23: Preserve off-site habitat/management of existing populations of special-status plants.** (*See above for full text*)
- **MM AQ-1a: Implement Construction Fugitive Dust Control Plan.** (*See above for full text*)
- **MM H-1a: Implement an Erosion Control Plan and demonstrate compliance with water quality permits.** (*See above for full text*)

Rationale for Finding. The incremental effects of the Project, when combined with the effects created by other past and reasonably foreseeable projects, are significant because the combined impact substantially reduces the acreage of suitable habitat for candidate, USDA Forest Service Sensitive, and special-status plant in the region. There are no other feasible mitigation measures or alternatives available to reduce this significant cumulative impact to a level that will be less than significant.

Reference. Final EIR Section 3.4; Table ES-3

Cumulative Impact B-24: The Project could result in mortality or injury of, and loss of nesting habitat for, southwestern pond turtles.

Construction activities may result in mortality or injury of individual southwestern pond turtles within suitable habitat at the following locations: Amargosa Creek, Lynx Gulch, San Gabriel River (Segment 6 and 7), Big Tujunga Creek, Rio Hondo, Brea Canyon, and Tonner Creek. Furthermore, Project implementation may result in permanent loss of nesting habitat in limited areas due to construction of permanent structures and/or roads and temporary loss of habitat from construction activities. Past actions and natural events (e.g., development, urbanization, recreation, fire, drought) have resulted in considerable incremental adverse impacts to southwestern pond turtles and their nesting habitat. Foreseeable future actions in this area will also result in considerable adverse impacts to southwestern pond turtles and their nesting habitat. Foreseeable future actions include projects such as the Amargosa Creek Improvements Project; Corridor Management Plan - Angeles Crest Scenic Byway, CA State Route 2 Enhancement; and California High Speed Train System and Maglev. Numerous small- and large-scale residential and planned community developments are also planned within the geographic extent of the cumulative analysis.

Finding.

(1) The CPUC finds that changes or alterations have been incorporated into the Project which mitigate significant effects on the environment from Cumulative Impact B-24. Specifically, Mitigation Measures B-1a, B-1b, B-3a, B-12, B-24, H-1a, H-1b, and AQ-1a, as set forth in Section 3.4 (Biological Resources) of the Final EIR and as listed below, are hereby adopted to mitigate significant effects from Cumulative Impact B-24. However, even with implementation of these measures, significant unavoidable impacts will occur as described above.

(2) The CPUC finds that specific economic, legal, social, technological, or other considerations make it infeasible to reduce Cumulative Impact B-24 to a less-than-significant level.

- **MM B-1a: Provide restoration/compensation for impacts to native vegetation communities.** (*See above for full text*)
- **MM B-1b: Implement a Worker Environmental Awareness Program.** (*See above for full text*)
- **MM B-3a: Prepare and implement a Weed Control Plan.** (*See above for full text*)
- **MM B-12: Implement avoidance and minimization measures for Santa Ana sucker and other aquatic organisms.** (*See above for full text*)
- **MM B-24: Conduct focused presence/absence surveys for southwestern pond turtle and implement monitoring, avoidance, and minimization measures.** (*See above for full text*)
- **MM H-1a: Implement an Erosion Control Plan and demonstrate compliance with water quality permits.** (*See above for full text*)
- **MM H-1b: Dry weather construction.** (*See above for full text*)
- **MM AQ-1a: Implement Construction Fugitive Dust Control Plan.** (*See above for full text*)

Rationale for Finding. Project impacts will contribute substantially to the incremental mortality, injury, and loss of nesting habitat for southwestern pond turtles when combined with these effects resulting from other past and reasonably foreseeable projects, and therefore, will be cumulatively significant. There are no other feasible mitigation measures or alternatives available to reduce this significant cumulative impact to a level that will be less than significant.

Reference. Final EIR Section 3.4; Table ES-3

Cumulative Impact B-25: The Project could result in injury or mortality of, and loss of habitat for, two-striped garter snakes and south coast garter snakes.

Construction activities may result in mortality or injury of individual two-striped garter snakes and south coast garter snakes within suitable habitat in the Project area. Furthermore, Project implementation may result in loss of habitat due to the construction of permanent structures and/or roads and temporary loss of habitat from construction activities. Past actions and natural events (e.g., development, urbanization, recreation, fire, drought) within the geographic extent have resulted in considerable incremental injury or mortality of, and loss of habitat for, these species. Foreseeable future actions in this area will also result in considerable impacts of this kind to these species. Foreseeable future actions include projects such as the Amargosa Creek Improvements Project; Corridor Management Plan - Angeles Crest Scenic Byway, CA State Route 2 Enhancement; and California High Speed Train System and Maglev. Numerous small- and large-scale residential and planned community developments are also planned within the geographic extent of the cumulative analysis.

Finding.

(1) The CPUC finds that changes or alterations have been incorporated into the Project which mitigate significant effects on the environment from Cumulative Impact B-25. Specifically, Mitigation Measures B-1a, B-1b, B-3a, B-12, B-25, H-1a, H-1b, and AQ-1a, as set forth in Section 3.4 (Biological Resources) of the Final EIR and as listed below, are hereby adopted to mitigate significant effects from Cumulative Impact B-25. However, even with implementation of these measures, significant unavoidable impacts will occur as described above.

(2) The CPUC finds that specific economic, legal, social, technological, or other considerations make it infeasible to reduce Cumulative Impact B-25 to a less-than-significant level.

- **MM B-1a: Provide restoration/compensation for impacts to native vegetation communities.** (*See above for full text*)
- **MM B-1b: Implement a Worker Environmental Awareness Program.** (*See above for full text*)
- **MM B-3a: Prepare and implement a Weed Control Plan.** (*See above for full text*)
- **MM B-12: Implement avoidance and minimization measures for Santa Ana sucker and other aquatic organisms.** (*See above for full text*)
- **MM B-25: Conduct focused surveys for two-striped garter snakes and south coast garter snakes and implement monitoring, avoidance, and minimization measures.** (*See above for full text*)
- **MM H-1a: Implement an Erosion Control Plan and demonstrate compliance with water quality permits.** (*See above for full text*)
- **MM H-1b: Dry weather construction.** (*See above for full text*)
- **MM AQ-1a: Implement Construction Fugitive Dust Control Plan.** (*See above for full text*)

Rationale for Finding. Project impacts will contribute substantially to the incremental injury or mortality of, and loss of habitat for, two-striped garter snakes and south coast garter snakes when combined with these effects resulting from other past and reasonably foreseeable projects, and therefore, will be cumulatively significant. There are no other feasible mitigation measures or alternatives available to reduce this significant cumulative impact to a level that will be less than significant.

Reference. Final EIR Section 3.4; Table ES-3

Cumulative Impact B-26: The Project could result in injury or mortality of, and loss of habitat for, Coast Range newts.

Construction activities occurring within or near suitable habitat or vehicular crossings at wet fords across occupied drainages have the potential to result in mortality or injury to Coast Range newts. Furthermore, Project implementation may result in permanent loss of habitat due to the construction of permanent structures and/or roads and temporary loss of habitat due to disturbance from construction activities. Past actions and natural events (e.g., development, urbanization, recreation, fire, drought) have resulted in considerable incremental adverse effects to Coast Range newts, particularly in the San Gabriel Valley, where effects of development and urbanization have been most intense. However, foreseeable future actions in this region are limited and are expected to have minimal effects on this species.

Finding.

(1) The CPUC finds that changes or alterations have been incorporated into the Project which mitigate significant effects on the environment from Cumulative Impact B-26. Specifically, Mitigation Measures B-1a, B-1b, B-3a, B-26, H-1a, H-1b, and AQ-1a, as set forth in Section 3.4 (Biological Resources) of the Final EIR and as listed below, are hereby adopted to mitigate significant effects from Cumulative Impact B-26. However, even with implementation of these measures, significant unavoidable impacts will occur as described above.

(2) The CPUC finds that specific economic, legal, social, technological, or other considerations make it infeasible to reduce Cumulative Impact B-26 to a less-than-significant level.

- **MM B-1a: Provide restoration/compensation for impacts to native vegetation communities.** (*See above for full text*)

- **MM B-1b: Implement a Worker Environmental Awareness Program.** (*See above for full text*)
- **MM B-3a: Prepare and implement a Weed Control Plan.** (*See above for full text*)
- **MM B-26: Conduct focused surveys for coast range newts and implement monitoring, avoidance, and minimization measures.** (*See above for full text*)
- **MM H-1a: Implement an Erosion Control Plan and demonstrate compliance with water quality permits.** (*See above for full text*)
- **MM H-1b: Dry weather construction.** (*See above for full text*)
- **MM AQ-1a: Implement Construction Fugitive Dust Control Plan.** (*See above for full text*)

Rationale for Finding. Primarily as a result of considerable past effects, Project impacts will contribute substantially to the incremental injury or mortality of, and loss of habitat for, Coast Range newts when combined with these effects resulting from other past and reasonably foreseeable projects, and therefore, will be cumulatively significant. There are no other feasible mitigation measures or alternatives available to reduce this significant cumulative impact to a level that will be less than significant.

Reference. Final EIR Section 3.4; Table ES-3

Cumulative Impact B-27: The Project could result in injury or mortality of, and loss of habitat for, terrestrial California Species of Special Concern and Forest Service Sensitive amphibian and reptile species.

Project-related construction activities could result in injury or mortality of 11 terrestrial California Species of Special Concern and USDA Forest Service Sensitive amphibian and reptile species (the special-status terrestrial herpetofauna). Furthermore, Project implementation may result in permanent loss of habitat due to the construction of permanent structures and/or roads and temporary loss of habitat from construction activities such as preparation and use of staging areas. Individuals of one or more of the special-status terrestrial herpetofauna could be injured or killed during ground-disturbing Project activities in undeveloped upland habitats and in some developed areas throughout the Project. Past actions and natural events (e.g., development, urbanization, recreation, fire, drought) within the geographic extent have resulted in considerable incremental injury or mortality of, and loss of habitat for, these species. Foreseeable future actions throughout the region will also result in considerable impacts of this kind to these species. Foreseeable future actions include projects such as the PdV, Alta, and Pine Tree wind farms; El Paso Line 1903 Pipeline Conversion Project; Route 58 Mojave Alignment Project; Hyundai Corporation Test Track Facility and Habitat Conservation Plan; California High-Speed Train System; Amargosa Creek Improvements Project; Corridor Management Plan - Angeles Crest Scenic Byway, CA State Route 2 Enhancement; 465 residence recreation permit issuances on 18 tracts within the ANF, California High Speed Train System and Maglev; and numerous small- and large-scale residential and planned community developments.

Finding.

(1) The CPUC finds that changes or alterations have been incorporated into the Project which mitigate significant effects on the environment from Cumulative Impact B-27. Specifically, Mitigation Measures B-1a, B-1b, B-3a, B-27, and AQ-1a, as set forth in Section 3.4 (Biological Resources) of the Final EIR and as listed below, are hereby adopted to mitigate significant effects from Cumulative Impact B-27. However, even with implementation of these measures, significant unavoidable impacts will occur as described above.

(2) The CPUC finds that specific economic, legal, social, technological, or other considerations make it infeasible to reduce Cumulative Impact B-27 to a less-than-significant level.

- **MM B-1a: Provide restoration/compensation for impacts to native vegetation communities.** (*See above for full text*)
- **MM B-1b: Implement a Worker Environmental Awareness Program.** (*See above for full text*)
- **MM B-3a: Prepare and implement a Weed Control Plan.** (*See above for full text*)
- **MM B-27: Monitoring, avoidance, and minimization measures for special-status terrestrial herpetofauna.** (*See above for full text*)
- **MM AQ-1a: Implement Construction Fugitive Dust Control Plan.** (*See above for full text*)

Rationale for Finding. Project impacts will contribute substantially to the incremental injury or mortality of, and loss of habitat for, the special-status terrestrial herpetofauna when combined with these effects resulting from other past and reasonably foreseeable projects, and therefore, will be cumulatively significant. There are no other feasible mitigation measures or alternatives available to reduce this significant cumulative impact to a level that will be less than significant.

Reference. Final EIR Section 3.4; Table ES-3

Cumulative Impact B-28: The Project could disturb wintering mountain plovers.

Impacts to wintering mountain plovers are cumulatively significant within the Northern Region of the Project. Three large-scale planned community developments, totaling 2,303 acres, are planned within 1.5 miles from the Project at the existing Antelope Substation. Another sizeable project with potential to disturb wintering mountain plovers is the Antelope Valley Water Bank Project, a 640-acre facility to store and distribute surface water located adjacent to the proposed Whirlwind Substation.

Finding.

(1) The CPUC finds that specific economic, legal, social, technological, or other considerations make it infeasible to reduce Cumulative Impact B-28 to a less-than-significant level.

Rationale for Finding. The incremental effect of the Project, when combined with the effects of other past and reasonably foreseeable projects, will be significant, because the combined impact substantially reduces the total amount of suitable wintering habitat in the region. There are no other feasible mitigation measures or alternatives available to reduce this significant cumulative impact to a level that will be less than significant.

Reference. Final EIR Section 3.4; Table ES-3

Cumulative Impact B-29: The Project would result in the loss of occupied burrowing owl habitat.

Impacts to occupied burrowing owl habitat are cumulatively significant within the Northern Region of the Project. Three large-scale planned community developments, totaling 2,303 acres, are planned for a location near the existing Antelope Substation, within 1.5 miles from the Project. Two other sizeable projects with the potential to reduce occupied burrowing owl habitat in the Northern Region are the 6,400-acre PdV Wind Energy facility planned for a location just east of Segment 10 and the 640-acre Antelope Valley Water Bank facility to be located adjacent to the proposed Whirlwind Substation. Impacts to occupied burrowing owl habitat are also cumulatively significant within the Southern Region of the Project, where 6,454 acres will be developed in the Chino and Puente Hills near Segment 8.

Finding.

(1) The CPUC finds that changes or alterations have been incorporated into the Project which mitigate significant effects on the environment from Cumulative Impact B-29. Specifically, Mitigation Measures B-1a, B-1b, B-3a, B-29, and AQ-1a, as set forth in Section 3.4 (Biological Resources) of the Final EIR and as listed below, are hereby adopted to mitigate significant effects from Cumulative Impact B-29. However, even with implementation of these measures, significant unavoidable impacts will occur as described above.

(2) The CPUC finds that specific economic, legal, social, technological, or other considerations make it infeasible to reduce Cumulative Impact B-29 to a less-than-significant level.

- **MM B-1a: Provide restoration/compensation for impacts to native vegetation communities.** (*See above for full text*)
- **MM B-1b: Implement a Worker Environmental Awareness Program.** (*See above for full text*)
- **MM B-3a: Prepare and implement a Weed Control Plan.** (*See above for full text*)
- **MM B-29: Implement CDFG protocol for burrowing owls.** (*See above for full text*)
- **MM AQ-1a: Implement Construction Fugitive Dust Control Plan.** (*See above for full text*)

Rationale for Finding. The incremental effect of the Project, when combined with the effects created by other past and reasonably foreseeable projects, will be significant, because construction activities will result in loss of suitable and possibly occupied burrowing owl habitat in the Northern and Southern regions of the Project. There are no other feasible mitigation measures or alternatives available to reduce this significant cumulative impact to a level that will be less than significant.

Reference. Final EIR Section 3.4; Table ES-3

Cumulative Impact B-30: The Project would result in the loss of occupied California spotted owl habitat.

Impacts to occupied California spotted owl habitat are cumulatively significant in Upper Big Tujunga Creek and Mill Creek. Fuel treatments are proposed by the USDA Forest Service for both Mill Creek Summit and Upper Big Tujunga Canyon, and both of these areas directly overlap with Segment 6. Fuel treatments at these sites will substantially reduce the amount of tree cover around USDA Forest Service Administrative Sites within the ANF. These include the treatment of forest habitats at Mill Creek Station (Mill Creek Summit along Angeles Crest Highway) and at Shortcut Station in Upper Big Tujunga Canyon (0.6 miles east-northeast of the intersection of Angeles Crest Highway and Upper Big Tujunga Canyon Road).

Finding.

(1) The CPUC finds that changes or alterations have been incorporated into the Project which mitigate significant effects on the environment from Cumulative Impact B-30. Specifically, Mitigation Measures B-1a, B-3a, B-30, and AQ-1a, as set forth in Section 3.4 (Biological Resources) of the Final EIR and as listed below, are hereby adopted to mitigate significant effects from Cumulative Impact B-30. However, even with implementation of these measures, significant unavoidable impacts will occur as described above.

(2) The CPUC finds that specific economic, legal, social, technological, or other considerations make it infeasible to reduce Cumulative Impact B-30 to a less-than-significant level.

- **MM B-1a: Provide restoration/compensation for impacts to native vegetation communities.** (*See above for full text*)
- **MM B-3a: Prepare and implement a Weed Control Plan.** (*See above for full text*)
- **MM B-30: Conduct pre- and during construction nest surveys for spotted owls.** (*See above for full text*)
- **MM AQ-1a: Implement Construction Fugitive Dust Control Plan.** (*See above for full text*)

Rationale for Finding. The incremental effect of the Project, when combined with the effects created by other past and reasonably foreseeable projects, will be significant, because construction activities will result in loss of suitable and possibly occupied California spotted owl habitat in the Central Region of the Project. There are no other feasible mitigation measures or alternatives available to reduce this significant cumulative impact to a level that will be less than significant.

Reference. Final EIR Section 3.4; Table ES-3

Cumulative Impact B-32: The Project could disturb nesting avian "species of special concern."

The Project will result in the loss of nesting avian Species of Special Concern if construction activities are conducted during the breeding season in suitable habitat. Past and foreseeable future actions in these areas will also result in considerable loss of nesting birds if construction activities were spatially or temporally combined. Foreseeable future actions include numerous infrastructure and residential development projects proposed for the Antelope Valley (Table 3.4-25 of the Final EIR) and Chino and Puente Hills (Table 3.4-26 of the Final EIR), and 8,500 acres of fuel management and restoration projects within the ANF.

Finding.

(1) The CPUC finds that changes or alterations have been incorporated into the Project which mitigate significant effects on the environment from Cumulative Impact B-32. Specifically, Mitigation Measures B-1a, B-1b, B-2, B-3a, B-5, and AQ-1a, as set forth in Section 3.4 (Biological Resources) of the Final EIR and as listed below, are hereby adopted to mitigate significant effects from Cumulative Impact B-32. However, even with implementation of these measures, significant unavoidable impacts will occur as described above.

(2) The CPUC finds that specific economic, legal, social, technological, or other considerations make it infeasible to reduce Cumulative Impact B-32 to a less-than-significant level.

- **MM B-1a: Provide restoration/compensation for impacts to native vegetation communities.** (*See above for full text*)
- **MM B-1b: Implement a Worker Environmental Awareness Program.** (*See above for full text*)
- **MM B-2: Implement RCA Treatment Plan.** (*See above for full text*)
- **MM B-3a: Prepare and implement a Weed Control Plan.** (*See above for full text*)
- **MM B-5: Conduct pre-construction surveys and monitoring for breeding birds.** (*See above for full text*)
- **MM AQ-1a: Implement Construction Fugitive Dust Control Plan.** (*See above for full text*)

Rationale for Finding. The incremental effect of the Project, when combined with the effects created by other past and reasonably foreseeable projects, will be significant, because construction activities will take place within or adjacent to habitats that are important for nesting avian Species of Special Concern in

southern California. There are no other feasible mitigation measures or alternatives available to reduce this significant cumulative impact to a level that will be less than significant.

Reference. Final EIR Section 3.4; Table ES-3

Cumulative Impact B-33: The Project could result in mortality of, and loss of habitat for, special-status bat species.

Impacts to pallid bat, western red bat, hoary bat, spotted bat, western mastiff bat, and pocketed free-tailed bat are cumulatively significant within the ANF and the Puente and Chino Hills portions of the Project. There are six residential development projects proposed or in progress within the Chino and Puente Hills, between 0 and 2.6 miles from the Project (Table 3.4-26 of the Final EIR). These projects include large community developments, including 4,902 acres of habitat for these special-status species. These collective projects will result in the loss of suitable roosting habitat for pallid bat, western red bat, hoary bat, spotted bat, and western mastiff bat. Continued loss and fragmentation of suitable habitat in the Chino and Puente Hills from ongoing development will contribute to the regional decline of these species.

Impacts to pallid bat, western red bat, and hoary bat are cumulatively significant in Upper Big Tujunga Canyon on the ANF. Fuel treatments proposed by the USDA Forest Service for Upper Big Tujunga Canyon overlaps with Segment 6 of the Project, approximately 0.6 miles east-northeast of the intersection of Angeles Crest Highway and Upper Big Tujunga Canyon Road. At this site, the USDA Forest Service will remove shrubs and understory fuels from 50.4 acres of Coulter pine forest and mixed chaparral.

Finding.

(1) The CPUC finds that changes or alterations have been incorporated into the Project which mitigate significant effects on the environment from Cumulative Impact B-33. Specifically, Mitigation Measures B-1a, B-1b, B-2, B-3a, B-33a through B-33c, and AQ-1a, as set forth in Section 3.4 (Biological Resources) of the Final EIR and as listed below, are hereby adopted to mitigate significant effects from Cumulative Impact B-33. However, even with implementation of these measures, significant unavoidable impacts will occur as described above.

(2) The CPUC finds that specific economic, legal, social, technological, or other considerations make it infeasible to reduce Cumulative Impact B-33 to a less-than-significant level.

- **MM B-1a: Provide restoration/compensation for impacts to native vegetation communities.** (*See above for full text*)
- **MM B-1b: Implement a Worker Environmental Awareness Program.** (*See above for full text*)
- **MM B-2: Implement RCA Treatment Plan.** (*See above for full text*)
- **MM B-3a: Prepare and implement a Weed Control Plan.** (*See above for full text*)
- **MM B-33a: Maternity colony or hibernaculum surveys for roosting bats.** (*See above for full text*)
- **MM B-33b: Provision of substitute roosting bat habitat.** (*See above for full text*)
- **MM B-33c: Exclude bats prior to demolition of roosts.** (*See above for full text*)
- **MM AQ-1a: Implement Construction Fugitive Dust Control Plan.** (*See above for full text*)

Rationale for Finding. The incremental effect of the Project, when combined with the effects created by other past and reasonably foreseeable projects, will be significant, because the combined impact

substantially reduces the acreage of suitable roosting habitat in the region. There are no other feasible mitigation measures or alternatives available to reduce this significant cumulative impact to a level that will be less than significant.

Reference. Final EIR Section 3.4; Table ES-3

Cumulative Impact B-35: The Project could result in mortality of, and loss of habitat for, special-status mammals.

Impacts to the Los Angeles pocket mouse, Tehachapi pocket mouse, San Joaquin pocket mouse, Northwestern San Diego pocket mouse, Southern grasshopper mouse, Tulare grasshopper mouse, and San Diego black-tailed jackrabbit are cumulatively significant. The cumulative projects identified in the Final EIR will combine within the regions of occurrence for these species. The Project will not eliminate suitable habitat for Los Angeles pocket mouse, San Joaquin pocket mouse, Tulare grasshopper mouse, and Tehachapi pocket mouse. However, the Project will result in the loss of habitat for northwestern San Diego pocket mouse, southern grasshopper mouse, and San Diego black-tailed jackrabbit.

Finding.

(1) The CPUC finds that changes or alterations have been incorporated into the Project which mitigate significant effects on the environment from Cumulative Impact B-35. Specifically, Mitigation Measures B-1a, B-1b, B-2, B-3a, and AQ-1a, as set forth in Section 3.4 (Biological Resources) of the Final EIR and as listed below, are hereby adopted to mitigate significant effects from Cumulative Impact B-35. However, even with implementation of these measures, significant unavoidable impacts will occur as described above.

(2) The CPUC finds that specific economic, legal, social, technological, or other considerations make it infeasible to reduce Cumulative Impact B-35 to a less-than-significant level.

- **MM B-1a: Provide restoration/compensation for impacts to native vegetation communities.** (*See above for full text*)
- **MM B-1b: Implement a Worker Environmental Awareness Program.** (*See above for full text*)
- **MM B-2: Implement RCA Treatment Plan.** (*See above for full text*)
- **MM B-3a: Prepare and implement a Weed Control Plan.** (*See above for full text*)
- **MM AQ-1a: Implement Construction Fugitive Dust Control Plan.** (*See above for full text*)

Rationale for Finding. The incremental effect of the Project, when combined with the effects created by other past and reasonably foreseeable projects, will be significant, because the combined impact substantially reduces the acreage of suitable habitat for these species in the region. There are no other feasible mitigation measures or alternatives available to reduce this significant cumulative impact to a level that will be less than significant.

Reference. Final EIR Section 3.4; Table ES-3

Cumulative Impact B-36: The Project could result in mortality of San Diego desert woodrats.

Impacts to San Diego desert woodrat are cumulatively significant within the Puente and Chino Hills portion of the Project. There are six residential development projects proposed or in progress within the Chino and Puente Hills, between 0 and 2.6 miles from the Project (Table 3.4-26 of the Final EIR). These projects include large community developments, including 4,902 acres of grassland, shrub, or woodland habitat that

will be impacted. These collective projects will result in the loss of suitable habitat for the San Diego desert woodrat. Continued loss and fragmentation of suitable habitat in the Chino and Puente Hills from ongoing development will contribute to the regional decline of this species.

Finding.

(1) The CPUC finds that changes or alterations have been incorporated into the Project which mitigate significant effects on the environment from Cumulative Impact B-36. Specifically, Mitigation Measures B-1a, B-1b, B-3a, B-36, and AQ-1a, as set forth in Section 3.4 (Biological Resources) of the Final EIR and as listed below, are hereby adopted to mitigate significant effects from Cumulative Impact B-36. However, even with implementation of these measures, significant unavoidable impacts will occur as described above.

(2) The CPUC finds that specific economic, legal, social, technological, or other considerations make it infeasible to reduce Cumulative Impact B-36 to a less-than-significant level.

- **MM B-1a: Provide restoration/compensation for impacts to native vegetation communities.** (*See above for full text*)
- **MM B-1b: Implement a Worker Environmental Awareness Program.** (*See above for full text*)
- **MM B-3a: Prepare and implement a Weed Control Plan.** (*See above for full text*)
- **MM B-36: Conduct focused surveys for San Diego desert woodrats and passively relocate.** (*See above for full text*)
- **MM AQ-1a: Implement Construction Fugitive Dust Control Plan.** (*See above for full text*)

Rationale for Finding. The incremental effect of the Project, when combined with the effects created by other past and reasonably foreseeable projects, will be significant, because the combined impact substantially reduces the acreage of suitable habitat in the region. There are no other feasible mitigation measures or alternatives available to reduce this significant cumulative impact to a level that will be less than significant.

Reference. Final EIR Section 3.4; Table ES-3

Cumulative Impact B-37: The Project could result in mortality of, and loss of habitat for the ringtail.

Impacts to the ringtail are cumulatively significant within Amargosa Creek, Upper Big Tujunga Creek, Mill Creek, San Gabriel River, Fall Creek, and Tonner Canyon. The Amargosa Creek Improvements Project includes road improvements to Elizabeth Lake Road and flood control improvements to approximately 5 miles of Amargosa Creek in the Leona Valley. This infrastructure improvement project intersects the Project at Amargosa Creek and Elizabeth Lake Road.

Fuel treatments are proposed by the USDA Forest Service for both Mill Creek Summit and Upper Big Tujunga Canyon, and both of these areas directly overlap with Segment 6. Ongoing vehicle and recreation access on the West Fork of the San Gabriel River to access Cogswell Reservoir could also cumulatively contribute to the decline of this species. Fuel treatments at these sites will substantially reduce the amount of shrub and tree cover around USDA Forest Service Administrative Sites within the ANF. These include the treatment of 6.13 acres of Coulter pine forest at Mill Creek Station (Mill Creek Summit along Angeles Crest Highway) and 50.4 acres of Coulter pine forest and mixed chaparral at Shortcut Station in Upper Big Tujunga Canyon (0.6 miles east-northeast of the intersection of Angeles Crest Highway and Upper Big Tujunga Canyon Road). However, the amount of these habitats that will be cumulatively impacted by these

USDA Forest Service projects and the TRTP within the ANF will be small relative to the home range requirement of a ringtail and the availability of habitat in the ANF of the San Gabriel Mountains.

There is a total of 1,752 acres of grassland, shrub, and woodland habitat that will be lost due to residential development projects within one mile of Tonner Canyon within the Chino and Puente Hills (Table 3.4-26 of the Final EIR). However, the Project will impact a small amount of suitable ringtail habitat within Tonner Canyon, and the Tonner Canyon to Carbon Canyon region of the Chino Hills contains more than 2,047 acres of suitable woodland habitat.

Finding.

(1) The CPUC finds that changes or alterations have been incorporated into the Project which mitigate significant effects on the environment from Cumulative Impact B-37. Specifically, Mitigation Measures B-1a, B-1b, B-2, B-3a, B-37, H-1a, and AQ-1a, as set forth in Section 3.4 (Biological Resources) of the Final EIR and as listed below, are hereby adopted to mitigate significant effects from Cumulative Impact B-37. However, even with implementation of these measures, significant unavoidable impacts will occur as described above.

(2) The CPUC finds that specific economic, legal, social, technological, or other considerations make it infeasible to reduce Cumulative Impact B-37 to a less-than-significant level.

- **MM B-1a: Provide restoration/compensation for impacts to native vegetation communities.** (*See above for full text*)
- **MM B-1b: Implement a Worker Environmental Awareness Program.** (*See above for full text*)
- **MM B-2: Implement RCA Treatment Plan.** (*See above for full text*)
- **MM B-3a: Prepare and implement a Weed Control Plan.** (*See above for full text*)
- **MM B-37: Conduct focused surveys for ringtail and passively relocate during the non-breeding season.** (*See above for full text*)
- **MM AQ-1a: Implement Construction Fugitive Dust Control Plan.** (*See above for full text*)
- **MM H-1a: Implement an Erosion Control Plan and demonstrate compliance with water quality permits.** (*See above for full text*)

Rationale for Finding. The incremental effect of the Project, when combined with the effects created by other past and reasonably foreseeable projects, will be significant, because the combined impact substantially reduces the acreage of suitable ringtail habitat in the region. There are no other feasible mitigation measures or alternatives available to reduce this significant cumulative impact to a level that will be less than significant.

Reference. Final EIR Section 3.4; Table ES-3

Cumulative Impact B-38: The Project could result in mortality of American badgers.

Impacts to the American badger are cumulatively significant within the Northern and Southern Regions of the Project. In the Northern Region, three large-scale planned community developments, totaling 2,303 acres, are planned for a location near the existing Antelope Substation, within 1.5 miles from the Project. Two other sizeable projects with potential to reduce suitable American badger habitat in the Northern Region are the 6,400-acre PdV Wind Energy facility planned for a location just east of Segment 10 and the 640-acre Antelope Valley Water Bank facility to be located adjacent to the proposed Whirlwind Substation.

Impacts to American badger are also cumulatively significant within the Puente and Chino Hills portion of the Project. There are six residential development projects proposed or in progress within the Chino and Puente Hills, between 0 and 2.6 miles from the Project (Table 3.4-26 of the Final EIR). These projects include large community developments on currently undeveloped land, including 4,902 acres of grassland, shrub, or woodland habitat. Continued loss and fragmentation of suitable grassland and open shrub habitat in the Antelope Valley and Chino and Puente Hills from ongoing development will contribute to the regional decline of this species.

Finding.

(1) The CPUC finds that changes or alterations have been incorporated into the Project which mitigate significant effects on the environment from Cumulative Impact B-38. Specifically, Mitigation Measures B-1a, B-1b, B-3a, B-36, and AQ-1a, as set forth in Section 3.4 (Biological Resources) of the Final EIR and as listed below, are hereby adopted to mitigate significant effects from Cumulative Impact B-38. However, even with implementation of these measures, significant unavoidable impacts will occur as described above.

(2) The CPUC finds that specific economic, legal, social, technological, or other considerations make it infeasible to reduce Cumulative Impact B-38 to a less-than-significant level.

- **MM B-1a: Provide restoration/compensation for impacts to native vegetation communities.** (*See above for full text*)
- **MM B-1b: Implement a Worker Environmental Awareness Program.** (*See above for full text*)
- **MM B-3a: Prepare and implement a Weed Control Plan.** (*See above for full text*)
- **MM B-38: Conduct focused surveys for American badgers and passively relocate during the non-breeding season.** (*See above for full text*)
- **MM AQ-1a: Implement Construction Fugitive Dust Control Plan.** (*See above for full text*)

Rationale for Finding. The incremental effect of the Project, when combined with the effects created by other past and reasonably foreseeable projects, will be significant, because the combined impact substantially reduces the acreage of suitable habitat in these two regions. There are no other feasible mitigation measures or alternatives available to reduce this significant cumulative impact to a level that will be less than significant.

Reference. Final EIR Section 3.4; Table ES-3

Cumulative Impact B-39: The Project could result in the loss of wetland habitats.

Wetland habitats contain vegetation growing near permanent water sources or under conditions of prolonged saturation. There are approximately 1,116 acres of riparian habitats in the Project area, of these approximately 12 acres are anticipated to be affected by construction of the Project. Throughout California, wetland habitats have been degraded and lost at an alarming rate due to the placement of fill for development.

Finding.

(1) The CPUC finds that changes or alterations have been incorporated into the Project which mitigate significant effects on the environment from Cumulative Impact B-39. Specifically, Mitigation Measures B-1a, B-1b, B-2, B-3a, H-1a, and AQ-1a, as set forth in Section 3.4 (Biological

Resources) of the Final EIR and as listed below, are hereby adopted to mitigate significant effects from Cumulative Impact B-39. However, even with implementation of these measures, significant unavoidable impacts will occur as described above.

(2) The CPUC finds that specific economic, legal, social, technological, or other considerations make it infeasible to reduce Cumulative Impact B-39 to a less-than-significant level.

- **MM B-1a: Provide restoration/compensation for impacts to native vegetation communities.** (*See above for full text*)
- **MM B-1b: Implement a Worker Environmental Awareness Program.** (*See above for full text*)
- **MM B-2: Implement RCA Treatment Plan.** (*See above for full text*)
- **MM B-3a: Prepare and implement a Weed Control Plan.** (*See above for full text*)
- **MM AQ-1a: Implement Construction Fugitive Dust Control Plan.** (*See above for full text*)
- **MM H-1a: Implement an Erosion Control Plan and demonstrate compliance with water quality permits.** (*See above for full text*)

Rationale for Finding. The incremental effect of the Project, when combined with the effects created by other past and reasonably foreseeable projects, will be significant, because the combined impact substantially reduces the acreage of wetland habitats in the region. There are no other feasible mitigation measures or alternatives available to reduce this significant cumulative impact to a level that will be less than significant.

Reference. Final EIR Section 3.4; Table ES-3

Cumulative Impact B-42: The Project would result in effects to Management Indicator Species.

The Project will result in effects to Management Indicator Species (MIS). The ANF LRMP (USDA, 2005) requires forest-scale monitoring of habitat status and trend for select MIS on the ANF. MIS are likely to be subject to various levels of disturbance from implementation of the Project on NFS lands. The total area impacted by the Project is relatively small and includes up to approximately 268 acres of ground disturbance on the ANF. This represents less than one percent of the total Forest area. However, projects such as fuels treatments and special use permitted activities are proposed on the ANF. These cumulative projects will result in unknown acreages of habitat loss for MIS.

Finding.

(1) The CPUC finds that changes or alterations have been incorporated into the Project which mitigate significant effects on the environment from Cumulative Impact B-42. Specifically, Mitigation Measures B-1a through B-1c, B-2, B-3a through B-3c, B-5, B-8b, B-9, B-30, H-1a, H-1b, and AQ-1a, as set forth in Section 3.4 (Biological Resources) of the Final EIR and as listed below, are hereby adopted to mitigate significant effects from Cumulative Impact B-42. However, even with implementation of these measures, significant unavoidable impacts will occur as described above.

(2) The CPUC finds that specific economic, legal, social, technological, or other considerations make it infeasible to reduce Cumulative Impact B-42 to a less-than-significant level.

- **MM B-1a: Provide restoration/compensation for impacts to native vegetation communities.** (*See above for full text*)

- **MM B-1b: Implement a Worker Environmental Awareness Program.** (*See above for full text*)
- **MM B-1c: Treat cut tree stumps with Sporax.** (*See above for full text*)
- **MM B-2: Implement RCA Treatment Plan.** (*See above for full text*)
- **MM B-3a: Prepare and implement a Weed Control Plan.** (*See above for full text*)
- **MM B-3b: Remove weed seed sources from construction access routes.** (*See above for full text*)
- **MM B-3c: Remove weed seed sources from assembly yards, staging areas, tower pads, pull sites, landing zones, and spur roads.** (*See above for full text*)
- **MM B-5: Conduct pre-construction surveys and monitoring for breeding birds.** (*See above for full text*)
- **MM B-8b: Conduct biological monitoring.** (*See above for full text*)
- **MM B-9: Conduct protocol surveys for arroyo toads and implement avoidance measures in occupied areas.** (*See above for full text*)
- **MM B-30: Conduct pre- and during construction nest surveys for spotted owls.** (*See above for full text*)
- **MM H-1a: Implement an Erosion Control Plan and demonstrate compliance with water quality permits.** (*See above for full text*)
- **MM H-1b: Dry weather construction.** (*See above for full text*)
- **MM AQ-1a: Implement Construction Fugitive Dust Control Plan.** (*See above for full text*)

Rationale for Finding. The incremental effect of the Project, when combined with the effects created by other past and reasonably foreseeable projects, will be significant, because the combined impact substantially reduces the acreage of habitats for MIS in ANF. There are no other feasible mitigation measures or alternatives available to reduce this significant cumulative impact to a level that will be less than significant.

Reference. Final EIR Section 3.4; Table ES-3

III.4.4 Cultural Resources

Cumulative Impact C-1: Construction may diminish the integrity of properties eligible for inclusion in the National Register of Historic Places.

If the Project cannot be redesigned so that cultural sites are avoided, and the affected sites prove after evaluation to be historic properties eligible for the NRHP, if the impacts are extensive, and/or if the types of sites impacted by the Project are unique, unusual, or uncommon in the region, then the combination of those impacts with similar impacts of other projects would be cumulatively significant.

Finding.

(1) The CPUC finds that changes or alterations have been incorporated into the Project which mitigate significant effects on the environment from Cumulative Impact C-1. Specifically, Mitigation Measures C-1a through C-1i, as set forth in Section III.3.4, are feasible and are hereby adopted to mitigate significant effects from Cumulative Impact C-1. However, even with implementation of these measures, significant unavoidable impacts will occur as described above.

(2) The CPUC finds that specific economic, legal, social, technological, or other considerations make it infeasible to reduce Cumulative Impact C-1 to a less-than-significant level.

- **MM C-1a: Development and Execution of a Programmatic Agreement (PA).** (*See above for full text*)
- **MM C-1b: Inventory cultural resources in the APE.** (*See above for full text*)
- **MM C-1c: Avoid and protect resources.** (*See above for full text*)
- **MM C-1d: Evaluate the significance of cultural resources that cannot be avoided.** (*See above for full text*)
- **MM C-1e: Develop and implement Historic Properties/Historical Resources Treatment Plan.** (*See above for full text*)
- **MM C-1f: Conduct data recovery excavation or other actions to reduce adverse effects.** (*See above for full text*)
- **MM C-1g: Conduct cultural resources monitoring.** (*See above for full text*)
- **MM C-1h: Workers Environmental Awareness Program.** (*See above for full text*)
- **MM C-1i: Protect and monitor NRHP-eligible properties.** (*See above for full text*)

Rationale for Finding. The overall loss of cultural resources and cumulative degradation of the regional resource base would not be mitigated to less than significant by application of the Project APMs and other mitigation measures. While development of Programmatic Agreements, cultural resources inventories, avoidance and protection measures, treatment plans, data recovery excavation, and monitoring would help to protect cultural resources, if a project cannot be redesigned so that cultural sites are avoided, and the affected sites prove after evaluation to be historic properties eligible for the NRHP, if the impacts are extensive, and/or if the types of sites impacted by the project are unique, unusual, or uncommon in the region, then the combination of those impacts with similar impacts of other projects would be cumulatively significant. As a result, cumulative impacts would be significant and unavoidable.

Reference. Final EIR Section 3.5; Table ES-3

III.4.5 Hydrology and Water Quality

Cumulative Impact H-1: Construction activities would degrade surface water quality through erosion and sedimentation.

Construction of the overhead transmission line towers and substations will require several types of soil disturbance. Excavation and/or grading would be required at all tower sites where new pads or footings will be required and at all new and/or expanded substations. Additional clearing of vegetation and/or grading will be required for crane pads, pulling/stringing stations, staging areas, marshalling yards, concrete batch plants, helicopter staging areas, tower wreck-out staging areas, and access and spur roads. Without implementation of proper soil management practices, disturbance of soil during construction could result in soil erosion and short-term impacts to water quality through increased turbidity and sediment deposition into local streams. It is reasonable to assume that construction activities for other projects in the cumulative scenario would also result in erosion and sedimentation of surface waters in the Project Are, and that such impacts occur at the same time as they would for the Project's construction activities, thus resulting in cumulatively significant and unavoidable impacts to water quality.

Finding.

(1) The CPUC finds that changes or alterations have been incorporated into the Project which mitigate significant effects on the environment from Cumulative Impact H-1. Specifically, Mitigation Measures H-1a, H-1b, and B-2 as set forth in Section 3.8 (Hydrology and Water Quality) of the Final EIR and as listed below, are hereby adopted to mitigate significant effects from Cumulative Impact H-1. However, even with implementation of these measures, significant unavoidable impacts will occur as described above.

(2) The CPUC finds that specific economic, legal, social, technological, or other considerations make it infeasible to reduce Cumulative Impact H-1 to a less-than-significant level.

- **MM H-1a: Implement an Erosion Control Plan and demonstrate compliance with water quality permits.** (*See above for full text*)
- **MM H-1b: Dry weather construction.** (*See above for full text*)
- **MM B-2: Implement RCA Treatment Plan.** (*See above for full text*)

Rationale for Finding. Although mitigation measures will be implemented for the Project that will reduce this impact to a less-than-significant level for the Project itself, several residential development projects with construction activities substantial enough to contribute to erosion and sedimentation within the cumulative effects area, such as the Aera Master Planned Community near the City of Diamond Bar and the New Model Colony near the City of Ontario, which are currently scheduled to occur at the same time and in the same vicinity as the Project. These residential projects will likely implement best management practices that will reduce erosion and sedimentation impacts to less-than-significant levels. However, the effectiveness of best management practice implementation for these residential projects is unknown. Therefore, it is possible that this impact of the Project will combine with similar impacts of other projects to result in a cumulatively significant and unavoidable impact. There are no other feasible mitigation measures or alternatives available to reduce this significant cumulative impact to a level that will be less than significant.

Reference. Final EIR Section 3.8; Table ES-3

Cumulative Impact H-2: Construction activities would degrade water quality through the accidental release of potentially harmful or hazardous materials.

Surface water and groundwater quality could be degraded through the accidental release of hazardous materials during Project-related construction activities. Such materials include: lead-based paint flakes, diesel fuel, gasoline, lubricant oils, hydraulic fluid, antifreeze, transmission fluid, lubricant grease, cement slurry, and other fluids. The release of one or more hazardous materials could occur at tower installation locations, tower wreck-out staging areas, substation construction locations, staging areas, pulling/stringing stations, refueling stations, helicopter staging areas, concrete batch plants, stream crossings, and other locations where construction activities would occur. If construction activities for other projects in the area also result in the accidental release of potentially harmful or hazardous materials, and such impacts occur at the same time as they would for the Project's construction activities, the resulting impacts will be cumulatively significant.

Finding.

(1) The CPUC finds that mitigation identified in the Final EIR would be feasible and would mitigate significant effects on the environment from Cumulative Impact H-2. Specifically, Mitigation Measure H-1b, as set forth in Section 3.8 (Hydrology and Water Quality) of the Final EIR and as listed below, is hereby adopted to mitigate significant effects from Cumulative Impact H-2.

However, even with implementation of these measures, significant unavoidable impacts will occur as described above.

(2) The CPUC finds that specific economic, legal, social, technological, or other considerations make it infeasible to reduce Cumulative Impact H-2 to a less-than-significant level.

- **MM H-1b: Dry weather construction.** (*See above for full text*)

Rationale for Finding. Mitigation for the Project will reduce this impact to a less-than-significant level for the Project itself; however, several large residential development projects, such as the Aera Master Planned Community near the City of Diamond Bar and the New Model Colony near the City of Ontario, will occur at the same time and in the same vicinity as the Project. It is not possible to predict the accidental release of a hazardous material during construction of these residential development projects, nor is it possible to ensure proper implementation of best management practices for these projects. Therefore, this impact of the Project could combine with similar impacts of other projects to result in a cumulatively significant and unavoidable impact. There are no other feasible mitigation measures or alternatives available to reduce this significant cumulative impact to a level that will be less than significant.

Reference. Final EIR Section 3.8; Table ES-3

III.4.6 Noise

Data was extensively used from the TRTP Noise Technical Report, completed by CH2MHill in December 2007, which is provided in Appendix K of the Final EIR. Ambient noise surveys were conducted at 14 representative locations to assess the existing ambient noise levels of the representative locations from July 31, 2007, through August 3, 2007; and from August 13, 2007, through August 15, 2007. Continuous unattended long-term monitoring stations were established at 12 locations between Palmdale (North Region) and Chino Hills (South Region). Because long-term monitoring locations were unavailable in the northern rural area of the Project, short-term attended measurements were collected at two locations in the northern Antelope Valley. The study area for the noise environment is defined as the area extending 2,000 feet from each side of the centerline of the proposed alignment or 2,000 feet from the perimeter of each substation.

Impact N-1: Construction noise would substantially disturb sensitive receptors.

Construction of the Project will involve the use of heavy equipment, including helicopters, to transport material and install transmission line towers, conductors, and substation facilities for electrical tie-ins. Cranes and other heavy equipment will be used in the erection of towers and installation of conductors. Grading will be required for staging areas, transmission line tower foundation pads, conductor pull areas, and in creating spur roads and/or improving access along some roads. In addition, grading will be required at proposed new (Whirlwind) and expanded substations (Vincent). Due to these construction activities, construction will result in temporary yet substantial increases in ambient noise levels in the vicinity of the Project route, substation locations, marshalling yards, staging locations, and along all access routes.

Mobile construction noise will be generated by vehicle and helicopter use. All materials associated with construction efforts will be delivered by truck or helicopter to established marshalling yards. Delivery activities requiring major street use will be scheduled to occur during off-peak traffic hours. In the event that there are no existing access roads to tower locations, approximately one or two small helicopters will be used to transport equipment to tower sites for conductor and associated hardware removal. These mobile noise sources, and particularly the helicopters, will generate substantial noise that will affect nearby sensitive receptors.

A large, heavy lift helicopter will be used for removal of the existing 220-kV towers. It is estimated that the small helicopter will generally operate from Monday through Friday for up to 8 hours per day, while the large helicopter will operate approximately 6 to 8 hours per day. Helicopter staging areas will include SCE-identified staging areas (such as Fox Field or Rio Hondo Substation), material and equipment yards, and positions along the utility corridors that have previously been used for this purpose and that SCE has determined are safe locations for landing, including those identified in Table 2.6-1 (Candidate Helicopter Staging Areas in the ANF) of the Final EIR. In addition, it is anticipated that a helicopter may be used for installation of new 500-kV LSTs or TSPs. The location of staging areas will likely change as work progresses to minimize the length of required helicopter trips. The number of towers to be constructed by helicopter and the time required for the construction will depend upon final engineering, the determination of the appropriate construction methods to be used by SCE's contractor, and the construction schedule ultimately prepared by SCE's contractor. Sensitive noise receptors located in the vicinity of helicopter staging areas and along helicopter flight paths will be affected by substantial temporary noise increases generated by the helicopters.

All helicopter construction activities included under the Project will be conducted in compliance with regulations and restrictions applicable to aircraft, including as set forth by the Federal Aviation Administration (FAA), the USDA Forest Service, and all other applicable agencies. As such, helicopters used for Project construction will not land within the boundaries of designated Wilderness Areas (WAs), including the San Gabriel WA, which is adjacent to the east of a portion of Segment 6. Temporary construction noise from helicopters used in the construction of select transmission towers for the Project will potentially disturb recreationists and wildlife along the length of Segments 6 and 11 in the ANF.

Two portions of the 66-kV subtransmission line sections along Segment 7 will be constructed underground (due to the incorporation of Alternative 7 as part of the Project). This additional construction required for underground placement of the 66-kV subtransmission line will result in an increase to both stationary and mobile construction equipment noise used along these routes. Sensitive receptors along the re-routed and underground portions of this alternative include residences, a high school, and parks within the Whittier Narrows Recreation Area. In addition, trenching required for installation of the underground portions of this alternative will result in increased truck trips to haul excavated material from the alignment. These truck trips could generate noise levels that could impact receptors along truck routes.

Ground-borne vibration generated by construction vehicles, equipment, and related activities may also affect sensitive noise receptors. Some construction activities such as blasting, pile-driving, and operating heavy earth-moving equipment can cause ground borne vibration that results in perceptible movement of building floors, rattling of windows, shaking of items on shelves or hanging on walls, and rumbling sounds. However, there is relatively little of this type of construction activity associated with the Project.

Finding.

(1) The CPUC finds that changes or alterations have been incorporated into the Project which mitigate significant effects on the environment from Impact N-1. Specifically, Mitigation Measures N-1a and N-1b, as set forth below, are feasible and are hereby adopted to mitigate significant effects from Impact N-1. However, even with implementation of these measures, as well as APMs NOI-1 (Limit Hours and Days for Construction), NOI-3 (Advance Notification), and NOI-4 (Establish Toll Free Number), significant unavoidable impacts will occur as described above.

(2) The CPUC finds that specific economic, legal, social, technological, and other considerations make it infeasible to reduce Impact N-1 to a less than significant level.

- **MM N-1a Implement Best Management Practices for construction noise.** SCE shall implement the following noise-suppression techniques, at a minimum, to avoid possible violations of local rules, standards, and ordinances during construction:

  On construction equipment, use noise reduction features (e.g., mufflers and engine shrouds) that are no less effective than those originally installed by the manufacturer.

  Install temporary sound walls or acoustic blankets around stationary noise sources (e.g., generators, pumps) to shield adjacent sensitive receptors. Where feasible, these sound walls or acoustic blankets shall have a height of no less than 8 feet, a Sound Transmission Class (STC) of 27 or greater, and a surface with a solid face from top to bottom without any openings or cutouts.

  Minimize unnecessary construction vehicle idling time (see also Mitigation Measure AQ-1g, Restrict diesel engine idling to 5 minutes). The ability to limit construction vehicle idling time is dependent upon the sequence of construction activities and when and where vehicles are needed or staged. A "common sense" approach to vehicle use shall be applied; if a vehicle is not required for use immediately or continuously for construction activities, its engine shall be shut off. (Note: Certain equipment, such as large diesel powered vehicles, require extended idling for warm-up and repetitive construction tasks and would therefore not be subject to being shut off when not in use.)

- **MM N-1b Avoid sensitive receptors during mobile construction equipment use.** SCE shall route all construction traffic and helicopter flight away from residences, schools, and recreational facilities to the maximum extent feasible.

Rationale for Finding. Maximum construction noise levels associated with the Project will substantially exceed ambient noise conditions along the Project route, and will affect sensitive noise receptors throughout the Project area. Sensitive noise receptors are not located along every Project segment and therefore this impact will either not occur or will occur to a lesser magnitude for some Project segments (such as Segments 6 and 11 in the ANF). However, the CEQA impact significance determination for this impact is representative of the Project's overall affect. Although construction noise will be temporary and will be reduced by implementation of APMs NOI-1, NOI-3, and NOI-4, and Mitigation Measures N-1a (Implement Best Management Practices for construction noise) and N-1b (Avoid sensitive receptors during mobile construction equipment use), the level of construction noise will be substantially higher than ambient noise and will disturb sensitive receptors. Impacts will be significant and avoidable.

Reference. Final EIR Section 3.10; Table ES-3

Impact N-2: Construction noise levels would violate local standards.

A thorough review of all applicable ANF, county and city General Plans and Noise Control Ordinances was completed for all jurisdictions traversed by the Project. Construction noise that will occur within residential areas and within close distance to sensitive receptors will violate the ordinances of Los Angeles County, the City of Baldwin Park, the City of Duarte, the City of La Habra Heights, the City of Montebello, the City of Pasadena, and the City of South El Monte.

APMs NOI-1 (Limit Hours and Days for Construction), NOI-3 (Advance Notification), and NOI-4 (Establish Toll Free Number), which are included as part of the Project, will help to reduce construction noise levels. However, construction noise will still result in a substantial increase (greater than five dBA) in ambient noise levels along the Project route and will not be compliant with several local standards, as discussed above and in Table 3.10-9 (Noise Policy Compliance Table – Construction) of the Final EIR.

Finding.

(1) The CPUC finds that changes or alterations have been incorporated into the Project which mitigate significant effects on the environment from Impact N-2. Specifically, Mitigation Measures N-1a (Implement Best Management Practices for construction noise), N-1b (Avoid sensitive receptors during mobile construction equipment use), and L-2b (Aircraft flight path and safety provisions and consultations), as set forth below, are feasible and are hereby adopted to mitigate significant effects from Impact N-2. However, even with implementation of these measures and APMs NOI-1, NOI-3 and NOI-4, significant unavoidable impacts will occur as described above.

(2) The CPUC finds that specific economic, legal, social, technological, and other considerations make it infeasible to reduce Impact N-2 to a less than significant level.

- **MM N-1a: Implement Best Management Practices for construction noise.** (*See above for full text*)
- **MM N-1b: Avoid sensitive receptors during mobile construction equipment use.** (*See above for full text*)
- **MM L-2b: Aircraft flight path and safety provisions and consultations.** (*See above for full text*)

Rationale for Finding. To ensure construction equipment noise impacts to sensitive receptors will be reduced to the maximum extent feasible, the following APMs, which are included as part of the Project, will be implemented to reduce construction noise levels: NOI-1 (Limit Hours and Days for Construction), NOI-3 (Advance Notification), and NOI-4 (Establish Toll Free Number). In addition, Mitigation Measures N-1a (Implement Best Management Practices for construction noise), N-1b (Avoid sensitive receptors during mobile construction equipment use), and L-2b (Aircraft flight path and safety provisions and consultations), which is introduced and described in the Land Use analysis (Section 3.9) of the Final EIR, will also be required in order to ensure that all appropriate agencies, including the FAA, are consulted with prior to the onset of helicopter operations, thereby ensuring that policies and regulations applicable to helicopter use for Project construction are fully observed. This impact would not occur along Segments 6 and 11 in the ANF because the 2005 Forest Plan does not address noise levels in the Forest; however, the CEQA impact significance determinations are based on the Project as a whole, and not for individual segments of the project. Despite implementation of the Project APMs and mitigation measures listed above, the level of construction noise will violate several local noise ordinances and standards. Because local plan violations will occur regardless of mitigation measure implementation, this impact will be significant and unavoidable.

Reference. Final EIR Section 3.10; Table ES-3

Impact N-3: Permanent noise levels along the ROW would increase due to corona noise from operation of the transmission lines and substations.

Noise from operation of the Project will come from two primary sources: electrical and related equipment (e.g., transformers and fans) at the substations, and corona discharge associated with the 500-kV and 220-kV transmission lines. Noise will also be generated by vehicles and equipment during routine inspection and maintenance of the transmission line, which will be accomplished primarily by truck, but may also require helicopter access in some locations. Routine maintenance and inspection will occur on average once a year.

Finding.

(1) The CPUC finds that specific economic, legal, social, technological, and other considerations make it infeasible to reduce Impact N-3 to a less than significant level.

Rationale for Finding. Corona noise generated by operation of the Project along Segments 4, 5, 6, 7, 8, 10, and 11 will result in permanent and substantial increases to existing ambient noise levels along these

segments, with the accepted standard of five dBA representing a substantial increase. Of these segments, a minimal number of sensitive noise receptors will be affected along most of Segments 6 and 11 in the ANF, with the exception of scattered residences south of Vincent Substation (not in the ANF) and several scattered residential units within the ANF on private land inholdings. However, in accordance with CEQA, impact significance determinations must be provided for the project as a whole, and not for individual segments of the project. There is no feasible mitigation available to reduce or eliminate the permanent operational corona noise that will be generated by the Project. Therefore, Impact N-3 will be significant and unavoidable.

Reference. Final EIR Section 3.10; Table ES-3

Impact N-4: Operational noise levels would violate local standards.

A thorough review of all applicable ANF, county, and city General Plans and Noise Control Ordinances was completed for all jurisdictions traversed by the Project.

Segments 4, 5, 6, 7, 8, 9 (substations), and 11 will be located within Los Angeles County. Under future wet-weather conditions, corona noise at the edge of the ROW within these Project segments will not be in full compliance with the Los Angeles County ordinance.

Segment 8 will be located within the City of Chino. Under future wet-weather conditions, the range of corona noise along Segment 8 will not be in compliance with the City of Chino ordinance based on potential 30-minute exposure thresholds. The increase in operational corona noise generated by the Project could substantially increase existing ambient noise conditions by more than 5 dBA for a cumulative period of more than fifteen minutes in any hour. Additionally, Segment 8 will be located within the City of Chino Hills. Under future wet-weather conditions, the range of future corona noise along Segment 8 will not be in compliance with the City of Chino Hills ordinance based on potential cumulative 5-minute exposure thresholds. Segment 8 will also be located within the City of Whittier. Under future wet-weather conditions, the range of future corona noise along Segment 8 will not be in full compliance with the City of Whittier ordinance for single-family residences from 10pm to 7am.

Segment 7 will be located within the City of Rosemead. Under future wet-weather conditions, the range of corona noise along Segment 7 could violate evening noise standards and not be in compliance with the City of Rosemead ordinance. Segment 7 is also located within the City of South El Monte. Under future wet-weather conditions, the range of corona noise at the Segment 7 ROW edge with implementation of the Project could substantially increase existing ambient noise conditions by more than 5 dBA for a cumulative period of more than fifteen minutes in any hour. The Project will not be in full compliance with the City of South El Monte ordinance.

Finding.

(1) The CPUC finds that specific economic, legal, social, technological, and other considerations make it infeasible to reduce Impact N-4 to a less than significant level.

Rationale for Finding. Corona noise generated by the Project will not be in compliance with noise standards of Los Angeles County, or the Cities of Chino, Chino Hills, Rosemead, South El Monte, and Whittier. This impact will not occur along Segments 6 and 11 in the ANF because the governing 2005 Forest Land Management Plan does not address noise levels in the Forest; however, as previously described and in accordance with CEQA, impact significance determinations must be provided for the project as a whole, and not for individual segments of the project. No feasible mitigation is available to reduce or eliminate the corona noise that will be generated by the Project. Therefore, because Project operation will

result in local plan violations regardless of mitigation measure implementation, this impact will be significant and unavoidable.

Reference. Final EIR Section 3.10; Table ES-3

Cumulative Impact N-1: Construction noise would substantially disturb sensitive receptors.

Project construction will temporarily substantially increase ambient noise levels in the vicinity of the ROW and will disturb sensitive receptors. Similarly, construction activities associated with other projects in close proximity to the Project could occur at the same time as the Project and also disturb nearby sensitive receptors. Sensitive receptors located directly adjacent to multiple construction sites will experience temporary noise impacts from construction activities. When construction activities of the Project and other nearby projects occur concurrently, the combined effect of construction noise will be cumulatively significant.

Finding.

(1) The CPUC finds that changes or alterations have been incorporated into the Project which mitigate significant effects on the environment from Impact N-1. Specifically, Mitigation Measures N-1a (Implement Best Management Practices for construction noise), N-1b (Avoid sensitive receptors during mobile construction equipment use), and L-2b (Aircraft flight path and safety provisions and consultations), as set forth below, are feasible and are hereby adopted to mitigate significant effects from Impact N-1. However, even with implementation of these measures, and APMs NOI-1 (Limit Hours and Days for Construction), NOI-3 (Advance Notification), and NOI-4 (Establish Toll Free Number), included as part of the Project, significant unavoidable cumulative impacts will occur as described above.

(2) The CPUC finds that specific economic, legal, social, technological, and other considerations make it infeasible to reduce Impact N-1 to a less than significant level.

- **MM N-1a: Implement Best Management Practices for construction noise.** (*See above for full text*)
- **MM N-1b: Avoid sensitive receptors during mobile construction equipment use.** (*See above for full text*)
- **MM L-2b: Aircraft flight path and safety provisions and consultations.** (*See above for full text*)

Rationale for Finding. APMs NOI-1 (Limit Hours and Days for Construction), NOI-3 (Advance Notification), and NOI-4 (Establish Toll Free Number), as well as Mitigation Measures N-1a (Implement Best Management Practices for construction noise), N-1b (Avoid sensitive receptors during mobile construction equipment use), and L-2b (Aircraft flight path and safety provisions and consultations), will reduce the Project's contribution to cumulative impacts, but not to a less-than-significant level. Therefore, this impact will combine with impacts of other past, present and reasonably foreseeable projects to result in a significant and unavoidable cumulative impact.

Reference. Final EIR Section 3.10; Table ES-3

Cumulative Impact N-2: Construction noise levels would violate local standards.

Project construction will temporarily substantially increase ambient noise levels in the vicinity of the ROW and will violate local noise standards. Similarly, construction activities associated with other projects in close proximity to the Project could occur at the same time as the Project also violating local standards and increasing construction noise to nearby sensitive receptors. When construction activities of the Project and

other nearby projects occur concurrently, the combined effect of construction noise will be cumulatively significant.

Finding.

(1) The CPUC finds that changes or alterations have been incorporated into the Project which mitigate significant effects on the environment from Impact N-2. Specifically, Mitigation Measures N-1a (Implement Best Management Practices for construction noise), N-1b (Avoid sensitive receptors during mobile construction equipment use), and as set forth below, are feasible and are hereby adopted to mitigate significant effects from Impact N-2. However, even with implementation of these measures, mitigation measure L-2b, and APMs NOI-1, NOI-3 and NOI-4, significant unavoidable cumulative impacts will occur as described above.

(2) The CPUC finds that specific economic, legal, social, technological, and other considerations make it infeasible to reduce Impact N-2 to a less than significant level.

- **MM N-1a: Implement Best Management Practices for construction noise.** (*See above for full text*)
- **MM N-1b: Avoid sensitive receptors during mobile construction equipment use.** (*See above for full text*)
- **MM L-2b: Aircraft flight path and safety provisions and consultations.** (*See above for full text*)

Rationale for Finding. APMs NOI-1 (Limit Hours and Days for Construction), NOI-3 (Advance Notification), and NOI-4 (Establish Toll Free Number) as well as Mitigation Measures N-1a (Implement Best Management Practices for construction noise), N-1b (Avoid sensitive receptors during mobile construction equipment use), and L-2b (Aircraft flight path and safety provisions and consultations) will reduce the Project's contribution to cumulative impacts, but not to a less-than-significant level. Therefore, this impact will combine with impacts of other past, present and reasonably foreseeable projects to result in a significant cumulative impact.

Reference. Final EIR Section 3.10; Table ES-3

Cumulative Impact N-3: Permanent noise levels along the ROW would increase due to corona noise from operation of the transmission lines and substations.

Sensitive receptors located directly adjacent to the Project will be disturbed by operational noise generated by the Project. Past residential, commercial and industrial projects (including the existing transmission lines in the proposed ROW) have resulted in the development of residences, businesses, roadways, and other noise-generating uses along the Project route. These past projects have introduced people, automobile and truck traffic, and industrial land uses that have resulted in increased noise within the developed portions of the proposed ROW. Similarly, several of the future projects identified to be constructed within 0.25 mile of the Project, such as the Aera Master Planned Community near the City of Diamond Bar and the New Model Colony near the City of Ontario will also be expected to result in noise-generating uses and vehicle traffic that will disturb sensitive receptors. Corona noise from the Project will combine with noise from past, present, and reasonably foreseeable projects within 0.25 mile to result in a cumulative significant impact to sensitive receptors.

Finding.

(1) The CPUC finds that specific economic, legal, social, technological, and other considerations make it infeasible to reduce Impact N-3 to a less than significant level.

Rationale for Finding. Corona noise from the Project will combine with noise from past, present, and reasonably foreseeable projects within 0.25 mile to result in a cumulative significant impact to sensitive receptors. No feasible mitigation is available to reduce this impact. Impact N-3 will be cumulatively significant and unavoidable.

Reference. Final EIR Section 3.10; Table ES-3

Cumulative Impact N-4: Operational noise levels would violate local standards.

Permanent noise levels along the ROW will increase due to corona noise from operation of the transmission lines. Residential receptors located directly adjacent to the Project will be impacted by operational noise from the transmission ROW. Because the operational noise generated by the Project alone will result in an increase to the ambient noise levels at sensitive receptor locations along the lines, additional further development and vehicle-related traffic within proximity of these receptors will combine with this impact to further increase ambient noise levels. There is not sufficient information to assess the degree to which the numerous present and foreseeable residential development projects, such as the Aera Master Planned Community near the City of Diamond Bar and the New Model Colony near the City of Ontario, will generate traffic noise impacting ambient conditions. However ,the combined effect of operational corona noise combined with other noise sources located within close proximity to the proposed transmission line and substation facilities to noise sensitive receptors will be cumulatively significant and likely further impact sensitive receptors and further escalate ambient noise conditions in excess of identified local policies and ordinance standards.

Finding.

(1) The CPUC finds that specific economic, legal, social, technological, and other considerations make it infeasible to reduce Impact N-4 to a less than significant level.

Rationale for Finding. The impact of the Project will likely combine with similar impacts of other projects to result in a cumulative operational noise impact. While the Project will not generate substantial corona noise along each of the Project segments, the Project's cumulative contribution to an elevation in ambient noise levels is considered to be significant and unavoidable.

Reference. Final EIR Section 3.10; Table ES-3

III.4.7 Visual Resources

Impact V-1: Temporary visibility of construction activities and equipment involved with the Project would alter the landscape character and visual quality of landscape views.

Construction impacts on visual resources will result from the presence of equipment, materials, and work force at the substation sites, staging areas, pulling locations, tensioner locations, splicing locations, and along the access/ spur roads and overhead transmission line route. Construction impacts on visual resources will also result from the temporary alteration of landforms and vegetation along the utility corridor. Vehicles, heavy equipment, helicopters, materials, and workers will be visible during site clearing, grading, substation expansion and construction, structure erection, conductor stringing, cable placement, and site/ROW clean-up and restoration. Construction equipment and activities will be seen by various viewers in close proximity to the sites and utility corridor including adjacent and nearby residents and recreationists on roads and trails (including the PCT). View durations will vary from brief to extended periods. Construction of the transmission line, construction of the new Whirlwind Substation, expansion and improvements at existing Antelope, Vincent, Gould, Mesa, and Mira Loma Substations, and use of construction staging areas

will result in the visual intrusion of construction vehicles, helicopters, equipment, storage materials, and workers.

There are no APMs for Aesthetics that address the temporary visibility of construction equipment or personnel at staging areas, storage areas, marshalling yards, helicopter staging areas, access and spur roads, and/or structure locations. Impact V-1 will require implementation of Mitigation Measure V-1 (Clean up staging areas, storage areas, marshalling yards, helicopter staging areas, access and spur roads, and structure locations on a regular periodic basis). With implementation of this mitigation measure, the effects of Impact V-1 will be reduced somewhat. However, temporary visibility of construction activities and equipment will remain a significant and unavoidable adverse visual impact.

Finding.

(1) The CPUC finds that changes or alterations have been incorporated into the Project which mitigate significant effects on the environment from Impact V-1. Specifically, Mitigation Measure V-1 (Clean up staging areas, storage areas, marshalling yards, helicopter staging areas, access and spur roads, and structure locations on a regular periodic basis), as set forth in Section 3.44 (Visual Resources) of the Final EIR and as listed below, is hereby adopted to mitigate significant effects from Impact V-1. However, even with implementation of this measure, significant unavoidable impacts will occur as described above.

(2) The CPUC finds that specific economic, legal, social, technological, or other considerations make it infeasible to reduce Impact V-1 to a less-than-significant level.

- **MM V-1 Clean up staging areas, storage areas, marshalling yards, helicopter staging areas, access and spur roads, and structure locations on a regular periodic basis.** SCE shall keep construction-related operations areas clean and tidy by storing building materials and equipment within the proposed construction staging areas and/or generally away from public view when feasible. SCE shall remove construction debris promptly at regular intervals.

  For areas of non-NFS lands where cleared vegetation would be visible from sensitive viewing locations, SCE shall dispose of cleared vegetation and woody material in a manner that is not visually evident and does not create visual contrasts. For NFS lands, in areas where cleared vegetation would be visible from sensitive viewing locations, SCE shall dispose of cleared vegetation and woody material off-site (not necessarily off-NFS lands), or the cleared vegetation shall be chipped and stored for restoration work, as approved by the FS, and in a manner that is not visually evident and does not create visual contrasts.

Rationale for Finding. Due to construction of the Project, short-term visual impacts on landscape character and visual quality of landscape views as seen from various vantage points will be significant and unavoidable. There are no mitigation measures available to make vehicles, heavy equipment, helicopters, and other related components less visible during construction. To reduce the consequence of these potential visual impacts, the following mitigation measure has been identified: Mitigation Measure V-1 (Clean up staging areas, storage areas, marshalling yards, helicopter staging areas, access and spur roads, and structure locations on a regular periodic basis).

Mitigation Measure V-1 will help to minimize the adverse visual effects of construction activities and equipment as seen from sensitive receptor locations by minimizing and containing the visual clutter associated with construction. Mitigation Measure V-1 is similar to APM AES-15 and APM AES-17, and will augment these APMs by requiring specific procedures such as establishing a regular periodic interval for cleanup, not to exceed one week in duration. Mitigation Measure V-1 will create natural-appearing vegetation clearing shapes and patterns, instead of un-natural square or rectangular openings in vegetation.

Implementation of Mitigation Measure V-1, as described above, will reduce Impact V-1 somewhat, but temporary visibility of construction activities and equipment will remain a significant and unavoidable adverse visual impact. There are no other feasible mitigation measures or alternatives available to reduce this significant impact to a level that will be less than significant.

Reference. Final EIR Section 3.14; Table ES-3

Impact V-2: For a landscape that currently has no transmission lines, introduction of a new transmission line in a new ROW would adversely affect landscape character and visual quality.

Landscape character is determined by its unique combination of physical, biological, and cultural attributes. Landscape character is an overall visual impression of landscape attributes; it is the physical appearance of a landscape that gives it an identity and sense of place. Visual quality of a landscape is a measure of the degree to which a landscape is visually perceived to be complete. The highest visual quality ratings are given to those landscapes that have little or no deviation from the landscape character valued by constituents for its aesthetic quality.

All of Segment 10 and portions of Segments 4 and 8A will be constructed in new ROWs where there is no existing transmission line; therefore, the existing natural-appearing landscape character will be modified to an industrial character by the presence of the Project.

An indirect visual effect of the Project in existing natural-appearing landscapes is the potential new visual impact of OHV use in undeveloped landscapes, especially those new OHV trails that will emanate from new access and spur roads along Segment 10 and Segment 4 from MP 14.9 to S4 MP 19.6.

There are no Aesthetic APMs that specifically address the introduction of a new transmission line into a landscape that currently has no transmission lines. Aesthetic APMs could apply to this situation, except those that specifically relate to existing structures, existing ROWs, existing roads, or existing substations (i.e., APMs AES-5, AES-9, AES-11, and AES-13 through AES-23). Impact V-2 will require implementation of the following mitigation measures in the North and South Areas: V-2a (Use tubular steel poles instead of lattice steel towers in designated areas); V-2b (Treat surfaces with appropriate colors, textures, and finishes); V-2c (Establish permanent screen); and V-2d (At road crossings, structures should be offset so that they are equidistant on each side of the road where feasible). In addition, impacts will be further reduced with implementation of the following mitigation measure: V-1 (Clean up staging areas, storage areas, marshalling yards, helicopter staging areas, access and spur roads, and structure locations on a regular periodic basis). With implementation of these mitigation measures, the effects of Impact V-2 will be reduced somewhat; however, in the North and South Areas (areas outside of the ANF), the presence of new transmission line structures, conductors, access and spur roads, and new ROWs in landscapes that currently have no transmission line facilities will remain a significant and unavoidable adverse visual impact.

Finding.

(1) The CPUC finds that changes or alterations have been incorporated into the Project which mitigate significant effects on the environment from Impact V-2. Specifically, Mitigation Measures V-1 (Clean up staging areas, storage areas, marshalling yards, helicopter staging areas, access and spur roads, and structure locations on a regular periodic basis), V-2a (Use tubular steel poles instead of lattice steel towers in designated areas), V-2b (Treat surfaces with appropriate colors, textures, and finishes), V-2c (Establish permanent screen), and V-2d (At road crossings, structures should be offset so that they are equidistant on each side of the road where feasible), as set forth in Section 3.44 (Visual Resources) of the Final EIR and as listed below, are hereby adopted to mitigate signifi-

cant effects from Impact V-2. However, even with implementation of these measures, significant unavoidable impacts will occur as described above.

(2) The CPUC finds that specific economic, legal, social, technological, or other considerations make it infeasible to reduce Impact V-2 to a less-than-significant level.

- **MM V-1 Clean up staging areas, storage areas, marshalling yards, helicopter staging areas, access and spur roads, and structure locations on a regular periodic basis.** (*See above for full text*)

- **MM V-2a Use tubular steel poles instead of lattice steel towers in designated areas**. When feasible, SCE shall use tubular steel poles, rather than lattice steel towers, in locations designated by the CPUC to reduce visual impacts as seen from sensitive receptor locations and/or to match existing and/or future wind turbine generator monopoles and/or to accomplish community desires. SCE shall submit a Structure Type and Treatment Plan to the CPUC as soon as possible after Project approval, demonstrating compliance with this.

- **MM V-2b Treat surfaces with appropriate colors, textures, and finishes.** For all structures that are visible from sensitive viewing locations outside NFS lands, and for all NFS lands, SCE shall treat surfaces with appropriate galvanizing treatments, per APM AES-1, to most effectively blend the structures with the visible backdrop landscape, as determined by the CPUC (for non-NFS lands) and the FS (for NFS lands). For structures that are visible from more than one sensitive viewing location, if backdrops are substantially different when viewed from different vantage points, the darker color shall be selected, because dark colors tend to blend into landscape backdrops more effectively than lighter colors, which may contrast and reflect light, producing glare. At locations where a lattice steel tower or a tubular steel pole would be silhouetted against the skyline, non-reflective, light gray colors shall be selected to blend with the sky. The transmission line conductors shall be non-specular and non-reflective, per APM AES-4, and the insulators shall be non-reflective and non-refractive, per APM AES-3. SCE shall consult with the CPUC and the FS to ensure that the objectives of this measure are achieved. SCE shall submit a Structure Type and Treatment Plan for the lattice steel towers, tubular steel poles, conductors, insulators, substation structures, fences/walls, retaining walls, and any other visible structures, to the CPUC and FS, as appropriate, after Project approval, demonstrating compliance with this measure.

- **MM V-2c Establish permanent screen.** At Vincent Substation, SCE shall establish a permanent screen of sufficient height for immediate visual screening around the new expansion area of the Vincent Substation. Plant materials selected for screening shall be locally appropriate, wind-resistant, non-invasive, and acclimated to the particular environment and micro-climate. Other screening materials shall blend in with the local landscape. SCE shall consult with the CPUC to ensure that the objectives of this measure are achieved. SCE shall submit a landscaping plan for Vincent Substation that demonstrates compliance with this measure to the CPUC for review and approval at least 60 days prior to the start of construction at this substation.

- **MM V-2d At road crossings, structures should be offset so that they are equidistant on each side of the road where feasible.** To the extent practical, in locations designated by the CPUC and the FS (for NFS lands), SCE shall relocate new transmission line structures at road crossings and trail crossings so that conductors are approximately mid-span at the road or trail and structures are kept away from the roadway or trail as far as possible. V-2d is compatible and complementary to APM AES-6 (Transmission Structures Set Back from Major Roadways).

Rationale for Finding. The goal of Mitigation Measures V-2a through V-2d is to select appropriate structure types and colors, and add vegetative screening through thoughtful planning and design, such that the new structures (substations, lattice steel towers "LSTs", or tubular steel poles "TSPs") will blend into the landscape to the greatest extent possible, with the least impact to landscape character and visual quality.

In Segment 10 at the northern end of the North Area, implementation of Mitigation Measure V-2a will allow the new structures to set an architectural tone for the existing and soon-to-be enlarged wind resource area. In the future, development of new wind turbine generators with sleek monopoles are expected to add to the architectural tone of the area and will help make the 500-kV monopole structures seem to be a congruent visual part of the enlarged TWRA; and conversely, use of lattice structures for TRTP will appear incongruent.

The introduction of new transmission lines (Segment 10) and the new Whirlwind Substation into existing natural-appearing landscapes with no existing transmission lines or substations will create adverse but not significant visual impacts in the North Area. There is no mitigation available to make new transmission lines or a new substation disappear or become inconspicuous. Implementation of Mitigation Measures V-2a and V-2c will help to minimize the adverse visual effects of new transmission line alignments and structures as seen from sensitive receptor locations by minimizing visual impacts through careful planning and design.

Implementation of Mitigation Measure V-2c around the existing and expanded Antelope and Vincent Substations will lead to an overall improved visual environment at both substation sites. APM AES-23 (Landscape Plan) has been incorporated into the Project, but it specifically mentions only the expansion area at Vincent Substation; therefore, Mitigation Measure V-2c is required to address visual impacts at both the Antelope and Vincent Substations. Measure V-2c will augment APMs AES-18 through AES-22 at Antelope and Vincent Substations, and visual impacts in the areas of the expansions will remain adverse but not significant.

A portion of Segment 4 (S4 MP 14.9 to 19.6) will be constructed in a new ROW where there is no existing transmission line (Alternative 3), leading to significant and unavoidable adverse impacts. Implementation of Mitigation Measures V-2a (Use tubular steel poles instead of lattice steel towers in designated areas), V-2b (Treat surfaces with appropriate colors, textures, and finishes), and V-2d (At road crossings, structures should be offset so that they are equidistant on each side of the road where feasible) will reduce visual impacts somewhat, but the presence of new transmission line structures, conductors, access and spur roads, and new ROWs in landscapes that currently have no transmission line facilities will remain a significant and unavoidable adverse visual impact.

In the Rose Hills Memorial Park, Segment 8A will relocate the transmission line from an existing ROW that is midslope onto a skyline ridge, and will be very visible from sensitive receptor locations to the south (inside Rose Hills) and to the north (various residential areas and the Pomona Freeway [Highway 60]). Implementation of Mitigation Measures V-1 (Clean up staging areas, storage areas, marshalling yards, helicopter staging areas, access and spur roads, and structure locations on a regular periodic basis), V-2a (Use tubular steel poles instead of lattice steel towers in designated areas), and V-2b (Treat surfaces with appropriate colors, textures, and finishes) will reduce Impact V-2 in the Rose Hills Memorial Park. Use of TSPs instead of LSTs on a skyline ridge will result in a significant adverse visual impact that can be reduced to less than significant through application of feasible mitigation measures. Additionally, under the Alternative 7 section of the Project, a portion of Segment 8A (S8A MP 2.2 to 3.8) will be constructed in a new ROW where there is no existing transmission line, along San Gabriel Boulevard and Durfee Avenue. Therefore, the existing natural-appearing landscape character will be slightly modified by the introduction of light weight steel poles along a portion of the Alternative 7 re-routes.

While the use of TSPs (Mitigation Measure V-2a) may reduce certain adverse impacts in Segments 4, 8, and 10, installation of TSPs will not be feasible in all locations. There are various technical constraints that limit the ability to utilize TSPs in some locations, including the additional ice loading that can occur at elevations above 3,000 feet in elevation. Most of Segment 10 and portions of Segment 4 are above 3,000 feet in

elevation. Also, structural design standards dictate that LSTs, rather than TSPs, will be required for 500-kV angle structures and dead-end structures. In addition, TSPs are comprised of much larger individual components than LSTs, which introduces many more constraints related to their construction. Therefore, the feasibility of constructing TSPs must be determined on a site-by-site basis based on detailed engineering design as well as construction planning. In order to implement Mitigation Measure V-2a, the Lead Agencies will need to determine appropriate and feasible locations for the use of TSPs instead of LSTs.

Similar to Mitigation Measure V-2a, implementation of Mitigation Measure V-2b (Treat surfaces with appropriate colors, textures, and finishes) requires the Lead Agencies to identify appropriate locations for the use of colored galvanizing treatments, ranging from light to dark, on transmission structures (LSTs and TSPs). In order to reduce the visibility of transmission structures in the landscape, colored galvanizing treatments will need to be selected that enable the transmission structures to blend with backgrounds (typically landforms and sky) as seen from sensitive viewing locations. Unless the Lead Agencies approve colored galvanizing treatments for individual structures or specific groups of structures, SCE's standard galvanizing treatment, which is light gray in color, will be used by default. Appropriate colored galvanizing treatments will be determined through the development and review of the Structure Type and Treatment Plan called for in Mitigation Measure V-2b.

In addition to the measures described above, implementation of the following mitigation measure is recommended for the entire route of the Project to minimize the effects of Impact V-2: V-1 (Clean up staging areas, storage areas, marshalling yards, helicopter staging areas, access and spur roads, and structure locations on a regular periodic basis).

While the mitigation measures described above will reduce the effects of Impact V-2, the presence of new transmission line structures, conductors, access and spur roads, and new ROWs in landscapes that currently have no transmission line facilities will remain a significant and unavoidable adverse visual impact. There are no other feasible mitigation measures or alternatives available to reduce this significant impact to a level that will be less than significant.

Reference. Final EIR Section 3.14; Table ES-3

Impact V-3: For a landscape with an existing transmission line, increased structure size and new materials would result in adverse visual effects.

For a landscape with one or more existing transmission lines, removal of smaller existing transmission line structures (e.g., 220 kV) and replacement with structures of increased size (e.g., 500 kV) made of new materials will result in adverse visual effects. Increased visual contrasts could be created by increased structure prominence, new or additional structure skylining, new or additional ridgeline obstruction, new or additional skyline intrusion, and/or view blockage to desirable landscape features. New, taller transmission line structures could also increase the predominance of industrial landscape character by introduction of larger structures with more pronounced geometric forms, unnatural straight lines, increased visual complexity, and increased visual clutter. New metal surfaces tend to stand out more than older, more weathered surfaces, thereby making the new, taller structures even more visually prominent.

Impact V-3 will occur throughout the entire Study Area because of increased structure heights and widths, as compared to existing structures and facilities. However, the removal of existing overhead subtransmission lines associated with the Alternative 7 component of the Project will improve the visual environment and viewsheds of the Duck Farm and Whittier Narrows and will create a beneficial effect in these areas.

Certain Aesthetic APMs specifically address the visual effects of introducing new structures with increased sizes and new materials into a landscape with an existing transmission line. APMs AES-1 through AES-8

specifically apply to this situation and were considered in the analysis of the Project. However, these APMs are general in nature and, except for the substation APMs, are not location-specific. To further reduce the impacts, Mitigation Measures V-2a (Use tubular steel poles instead of lattice steel towers in designated areas), V-2b (Treat surfaces with appropriate colors, textures, and finishes), V-3a (Match spans of existing transmission structures), and V-3b (On NFS lands, provide restoration/compensation for impacts to landscape character and visual quality) will be required. However, impacts will remain significant and adverse.

Finding.

(1) The CPUC finds that changes or alterations have been incorporated into the Project which mitigate significant effects on the environment from Impact V-3. Specifically, Mitigation Measures V-2a (Use tubular steel poles instead of lattice steel towers in designated areas), V-2b (Treat surfaces with appropriate colors, textures, and finishes), V-3a (Match spans of existing transmission structures), and V-3b (On NFS lands, provide restoration/compensation for impacts to landscape character and visual quality), as set forth in Section 3.44 (Visual Resources) of the Final EIR and as listed below, are hereby adopted to mitigate significant effects from Impact V-3. However, even with implementation of these measures, significant unavoidable impacts will occur as described above.

(2) The CPUC finds that specific economic, legal, social, technological, or other considerations make it infeasible to reduce Impact V-3 to a less-than-significant level.

- **MM V-2a Use tubular steel poles instead of lattice steel towers in designated areas.** (*See above for full text*)
- **MM V-2b Treat surfaces with appropriate colors, textures, and finishes.** (*See above for full text*)
- **MM V-3a Match spans of existing transmission structures.** If the new Pr**oject components are adjacent to an existing transmis**sion line, SCE shall, where feasible, match existing structure spacing and spans as closely as possible in order to reduce visual complexity as seen from sensitive receptor locations. All new structures should also match the heights of existing transmission line structures to the extent possible as dictated by variation in terrain and kV-capacity of lines.
- **MM V-3b On NFS lands, provide restoration/compensation for impacts to landscape character and visual quality.** All reasonable efforts shall be made to meet the Scenic Integrity Objectives (SIOs) shown on the SIO Map in the ANF Land Management Plan. SIO adjustments that exceed a drop of more than one SIO level would require a Project-specific amendment to Forest Plan (Part 3) Standards S9 and S10. In order to compensate for the Project's long-term visual impacts to the landscape character and visual quality, including but not limited to impacts to landscape character and visual quality of scenic highway and scenic trail viewsheds, SCE and the Forest Supervisor shall reach a consensus on what is a commensurate amount of restoration, monetary compensation, or landscape character/visual quality improvement.

Rationale for Finding. Implementation of Mitigation Measure V-2a (Use tubular steel poles instead of lattice steel towers in designated areas) will help make the two new 220-kV lines leading from Cottonwind Substation into the new Whirlwind Substation more visually congruent with planned wind turbines in this area. This will set an architectural style for the future enlarged TWRA and will allow the new Segment 4 structures to blend in with monopoles of existing and future wind turbine generators. Implementation of Mitigation Measures V-2a and V-3a (Match spans of existing transmission structures) in this area will

reduce visual impacts and improve the overall visual environment, and will result in visual effects in the area of the Cottonwind and Whirlwind Substations that are adverse but less than significant.

For Segment 4 from the Whirlwind Substation to S4 MP 15.8 and for all of Segment 5, use of LSTs and implementation of Mitigation Measures V-1 (Clean up staging areas, storage areas, marshalling yards, helicopter staging areas, access and spur roads, and structure locations on a regular periodic basis); V-2b (Treat surfaces with appropriate colors, textures, and finishes); V-3a (Match spans of existing transmission structures); V-4b (Slope-round and re-contour in areas as prescribed) [on Portal Ridge and Sierra Pelona Ridge]; and V-4d (Dispose of excavated materials as prescribed) will reduce visual impacts to an adverse but less-than-significant level.

For expansion of the Vincent Substation as part of Segment 9, APM AES-23 will provide for an appropriate landscape plan for the area on the west side of the Vincent Substation expansion to screen the equipment from view and blend the substation into the surroundings. To augment this APM, implementation of Mitigation Measure V-2c (Establish permanent screen) around the Antelope and Vincent Substations will help to improve the overall visual environment of these substations and will reduce visual contrasts. Because of the size and scale of the existing Vincent Substation facilities, and its existing industrial character in this rural environment, the substation expansion and newer, taller LSTs leading into and out of the substation will largely go unnoticed, resulting in an adverse, but less-than-significant visual effect. Introduction of the Whirlwind Substation into the North Area will create adverse but not significant visual impacts.

In the Center Area, removal of older existing 220-kV LSTs and conductors, and construction of new, taller, wider 500-kV LSTs with new, dull galvanized steel, will be very noticeable. In general, the existing 220-kV and 500-kV LSTs and conductors create strong contrasts of form, line, color, texture, and scale, and do not meet the High scenic integrity objective or the natural-appearing desired condition that has been adopted in the new Forest Plan. Scenic integrity levels that will be met by under the Project will be moderate, low, very low, and unacceptably low SIOs, and future landscape character will be industrial instead of natural-appearing. This represents scenic integrity levels that are one, two, three, and four levels below the High SIO and desired conditions of the Forest Plan. Although Project-specific amendments for Forest Plan (Part 3) Standards 9 and 10 will still be required, it will not reduce the physical impacts to landscape character or visual quality; therefore, implementation of Mitigation Measure V-3b (On NFS lands, provide restoration/ compensation for impacts to landscape character and visual quality) will still be required.

In the South Area, the Project will appear to dominate the existing landscape character(s) adjacent to the utility corridor, and the new increased height of structures will cause the industrial character to visually extend further into neighboring lands. The new and increased structure skylining and additional obstruction of the foreground landscapes and, in some cases, views to middleground and background landscapes, will result in a high degree of visual contrast, view blockage, and/or skyline impairment. Additional structure height also will cause additional structure skylining (towers and conductors extending above the horizon line), particularly for towers where, from some vantage points, the existing 220-kV structures remain below the skyline or only slightly extend above the horizon line. New 500-kV structures that protrude above the skyline will block more of the horizon and impair scenic views. Increased tower height will also raise the conductors such that more of the background landscapes in the South Area (San Gabriel Mountain Range, Hacienda Hills, and Chino Hills) will be visually obstructed, depending on view direction.

The goals of Mitigation Measures V-2a and V-2b are to reduce visual impacts in the immediate foreground of 110th Street West in the North Area, select appropriate structure types and heights near residential and recreation areas, and identify exact structure placement in the North, Center, and South Areas through

planning and design so that new structures (LSTs or TSPs) will blend into the landscape to the greatest extent possible and with the least impact to landscape character and visual quality. Implementation of all these mitigation measures will reduce Impact V-3 somewhat in the Study Area, but the presence of newer, taller, wider transmission line structures and conductors (in some cases, very tall double circuit structures) will remain a significant adverse visual impact.

As discussed under Impact V-2 above, installation of TSPs is not feasible in all locations. There are various technical constraints that limit the ability to utilize TSPs in some locations. Therefore, the feasibility of constructing TSPs must be determined on a site-by-site basis based on detailed engineering design as well as construction planning. In order to implement Mitigation Measure V-2a, the Lead Agencies will need to determine appropriate and feasible locations for the use of TSPs instead of LSTs. While no final determinations have been made regarding the use of TSPs as visual mitigation, Appendix J describes candidate locations for the installation of TSPs on non-NFS lands (no additional TSPs are recommended for NFS lands). These candidate locations were identified based on consideration of the recommendations made in the *Visual Resources Specialist Report* and various engineering limitations and construction constraints that must be considered to determine the feasibility of installing TSPs at specific locations and under specific circumstances (e.g., angle structures, dead-end structures, ice loading). The CPUC, which has approval authority over the Project on non-federal lands, has developed a set of draft guidelines intended to help identify appropriate and feasible locations for the use of TSPs as visual mitigation. These draft guidelines are also provided in Appendix J. Unless the CPUC approves specific locations for the use of TSPs as mitigation, no additional TSPs will be installed as part of the Project.

As also discussed for Impact V-2 above, implementation of Mitigation Measure V-2b (Treat surfaces with appropriate colors, textures, and finishes) will require the Lead Agencies to identify appropriate locations for the use of colored galvanizing treatments, ranging from light to dark, on transmission structures (LSTs and TSPs). Colored galvanizing treatments will need to be selected that enable the transmission structures to blend with backgrounds (typically landforms and sky) as seen from sensitive viewing locations. Unless the Lead Agencies approve colored galvanizing treatments for individual structures or specific groups of structures, SCE's standard galvanizing treatment, which is light gray in color, will be used by default. Appropriate colored galvanizing treatments will be determined through the development and review of the Structure Type and Treatment Plan called for in Mitigation Measure V-2b. The *Visual Resources Specialist Report* primarily recommends the use of colored galvanizing treatments on NFS lands.

While the mitigation measures described above will reduce the effects of Impact V-3 along portions of the Project route, visual impacts to 110th Street West, a Priority 2 Los Angeles County Scenic Highway and the Angeles Crest Scenic Byway (SR2 – a State scenic highway), as well as the impacts from increased tower heights in the South Area, will remain significant and unavoidable.

The effects of Impact V-3 for the Alternative 3 portion of the Project will require implementation of the following mitigation measures, which are fully described in Section 3.14.6.1: V-2a (Use tubular steel poles instead of lattice steel towers in designated areas); V-2b (Treat surfaces with appropriate colors, textures, and finishes); V-3a (Match spans of existing transmission structures); and V-3b (On NFS lands, provide restoration/ compensation for impacts to landscape and visual quality). In addition, the effects of Impact V-3 of Alternative 3 will be somewhat reduced with implementation of Mitigation Measures V-1, V-2c, and V-2d, V-4b, and V-4d. However, the presence of newer, taller, wider transmission line structures, new conductors, newly constructed or re-opened access and spur roads, and enlarged substations will remain a significant adverse visual impact.

The presence of newer, taller, wider transmission line structures, new conductors, newly constructed or re-opened access and spur roads, and enlarged substations will remain a significant adverse visual impact. There are no other feasible mitigation measures or alternatives available to reduce this significant impact to a level that will be less than significant.

Reference. Final EIR Section 3.14; Table ES-3

Impact V-4: Vegetative clearing and/or earthwork associated with road improvements and pulling/splicing locations would adversely affect landscape character and visual quality.

This impact deals with all vegetative clearing and all earthwork that might be expected to occur with implementation of the Project, including the following locations: access roads, spur roads, access trails, spur trails, pulling/splicing locations, marshalling yards, helicopter staging areas (large, medium, and small), LST and TSP structure locations, substations, and ancillary facilities. This impact also deals with vegetative clearing and/or vegetative management along the ROW.

General Order-95 ("GO-95" – Rules for Overhead Electric Line Construction) specifies requirements for all overhead electric transmission lines in California (CPUC, 2009). Rule 35 specifies minimum clearances between energized conductors and vegetation. Final EIR Section 2.2.13, Operations and Maintenance, describes the typical vegetation management practices that SCE will implement. Vegetation management includes pruning and removal of trees, where only those trees that require trimming before the next planned trim cycle will be pruned. Pruning shall achieve clearance requirements plus one year's growth at time of trimming. Tree removal is the preferred method of vegetation management; however, consideration is given with respect to growth rates, species, environmental and regulatory constraints, property owner approval, and budgetary allowances. Vegetation clearances shall comply with regulations included in GO-95 Rule 35 and related appendices and the required clearances specified in the California Public Resources Code, Section 4292. Within the ANF it is assumed an approximately 20-foot radius from each tower footprint will be kept clear of vegetation. Herbicides nationally approved by the Forest Service will be used within the ANF for control of invasive species, subject to all applicable laws and regulations.

For Segment 10, vegetative clearing and earthwork to construct new access and spur roads and structure pads in the uniform brushfields of the Mojave Desert will adversely affect the existing natural-appearing and rural landscape character. New access and spur roads tend to follow the linear nature of the transmission line, not necessarily the natural contours of the landscape, and the combination of vegetative clearing, earthwork cuts and fills, and transmission line structures and conductors creates unnatural linear patterns in the landscape.

All of Segments 4 and 5 (except S4 MP 15.8 to S4 17.9) will be constructed in existing corridors or alongside existing transmission lines which have existing access and spur roads. Therefore, vegetative clearing and earthwork grading will be minimal for these two Segments of TRTP, and there will be no substantial changes in existing landscape character and visual quality.

Potential visual impacts resulting from vegetative clearing and earthwork modification to allow access for large equipment will be substantial in the Center Area. The existing corridors that contain Segments 6 and 11 in the Center Area have strong visual contrasts of unnatural forms, geometric lines, contrasting colors, and textures that stand out against the natural landscape, and do not meet the High SIO or the natural-appearing Desired Condition designated in the Forest Plan. New vegetative clearing and earthwork will reverse the natural revegetation that has already occurred, will increase road cut scars by creating soil color contrasts and vegetation/bare earth texture contrasts and thereby further decrease scenic integrity and visual quality. Re-opening access roads and spur roads, in general, will not achieve the Desired Condition of

natural-appearing landscapes in the ANF and will not meet the High scenic integrity objectives described in the Forest Plan. Increased Off Highway Vehicle (OHV) use is likely to occur on re-opened/widened access roads and re-opened/re-constructed spur roads. Increased OHV use in the ANF will thereby increase the potential for increased illegal OHV use, soil erosion, wildlife harassment, and additional visual scars in the landscape.

There are existing access roads and spur roads in the South Area that service Segments 7, 8, and 11, and provide access for maintenance of existing transmission structures. However, for the one occurrence of a new ROW in the South Area at Rose Hills Memorial Park, there are no existing SCE access or spur roads on the skyline ridge, rather existing ridgetop roads are in conjunction with the Puente Hills Landfill, administered by the Puente Hills Landfill Native Habitat Preservation Authority. In this location, construction of new access and spur roads to the two relocated transmission lines might entail additional vegetative clearing and earthwork modifications. Because the landforms are relatively gentle in this location, and because vegetation is generally grasses and low growing shrubs, very little visual contrast will be created. Existing landscape character and visual quality will, however, be greatly affected by the presence of the new and relocated transmission lines on this skyline, with these new access and spur roads, creating an overall industrial character in the landscape, and because of the skyline location, transmission lines will affect two viewsheds, seen from both the north and south.

APMs AES-8 (Transmission Lines - Regrade/Revegetate Construction Sites), AES-9 (Access Roads - Use Existing Access Roads), AES-10 (Access Roads - Helicopter Construction), AES-11 (Access Roads - Minimize Road Modifications), AES-12 (Access Roads - Dust Suppression), AES-13 (Access Roads - Cut and Fill Slope Revegetation), and AES-14 (Marshalling Yards and Laydown Areas - Reuse Previously Disturbed/Low Visibility, Low Sensitivity Areas for Marshalling Yards), which are included as part of the Project, address the visual effects of vegetative clearing and/or earthwork associated with road improvements, pulling/splicing locations, marshalling yards, and laydown areas. These Aesthetic APMs were considered in the analysis of the Project. However, the Aesthetic APMs are general in nature and are not location-specific. Impact V-4 for the Alternative 3 portion of the Projject will require implementation of the following mitigation measures, which are fully described in Section 3.14.6.1: V-4a (Construct, operate, and maintain the Project with existing access and spur roads where feasible); V-4b (Slope-round and re-contour in areas as prescribed); and V-4c (Avoid locating new roads in bedrock on NFS lands); and V-4d (Dispose of excavated materials as prescribed). However, the visual impacts associated with Alternative 3 will remain significant and adverse.

Finding.

(1) The CPUC finds that changes or alterations have been incorporated into the Project which mitigate significant effects on the environment from Impact V-4. Specifically, Mitigation Measures V-4a through V-4d, as set forth in Section 3.44 (Visual Resources) of the Final EIR and as listed below, are hereby adopted to mitigate significant effects from Impact V-4. However, even with implementation of these measures, significant unavoidable impacts will occur as described above.

(2) The CPUC finds that specific economic, legal, social, technological, or other considerations make it infeasible to reduce Impact V-4 to a less-than-significant level.

- **MM V-4a Construct, operate, and maintain the Project using existing access and spur roads where feasible.** For non-NFS lands and in locations designated by the CPUC, to protect landscape character and promote visual quality, SCE shall remove existing transmission line towers and conductors using existing and already maintained access roads and spur roads, and shall construct the new transmission line using the existing and already maintained network of access

roads and spur roads to the greatest practical extent. SCE shall submit plans for any new access roads and spur roads, and any maintenance plans for un-maintained access and spur roads, demonstrating compliance with this measure, to the CPUC for review and approval at least 60 days prior to the start of construction.

For NFS lands, to protect landscape character and promote visual quality, SCE shall use only those access roads and spur roads designated by the FS for that purpose.

For the new LST at Mill Creek Summit, SCE shall maintain vegetative screening as seen from the PCT, trailhead, and PCT feeder trail to the extent feasible and practical and as GO-95 allows. In an effort to protect the scenic integrity along the PCT, SCE and the FS have agreed that for the new LST at Mill Creek Summit, the existing vegetation around this tower and along the PCT, for the most part, shall not be cleared and will be preserved to the greatest degree possible without violating GO-95 Rule 35. The only sections that should be cleared of vegetation for operation and maintenance at this specific tower site is the area directly underneath the base of the new tower and the immediate space adjacent to FS Road 3N17 and the new tower (STR 34 M7-T2).

- **MM V-4b Slope-round and re-contour in areas as prescribed.** For areas of non-NFS lands where natural terrain includes rounded landforms, where soil types are conducive, and where cuts-and-fills and excavated materials would be visible from sensitive viewing locations, SCE shall employ slope-rounding techniques to blend earthwork with natural contours where feasible. Greater land area would be disturbed by this measure, possibly increasing exposure to soil erosion and possibly causing more vegetation disturbance, but the goal of this measure is a permanent landform that is natural-appearing in the long-term and may be more conducive to wildlife movement. During and following re-contouring, applicable mitigation measures of the other issue area sections shall be applied, including biological resources, cultural resources, geology and soils, hydrology and water resources, wilderness and recreation, land use, and possibly agricultural resources. SCE shall submit plans for proposed new, upgraded, or newly maintained access roads and spur roads or structure pads to the CPUC for approval at least 60 days prior to construction.

- **MM V-4c Avoid locating new roads in bedrock on NFS lands.** Where feasible, re-opened and/or new access road and spur road locations on NFS lands shall be designed to avoid bedrock cuts, and shall be located in soil material to protect landscape character, ensure revegetation opportunities, and promote visual quality. SCE shall submit road construction plans to the CPUC and FS for review and approval at least 60 days prior to the start of construction.

- **MM V-4d Dispose of excavated materials as prescribed.** For non-NFS lands, SCE shall dispose of excavated materials (soil, rocks, and concrete, and reinforcing steel) in a manner that is not visually evident and does not create visual contrasts. For NFS lands, SCE shall dispose of excavated materials (excess soil and rocks) in disposal areas (either on-NFS lands or off-NFS lands) as designated by the FS. For NFS lands, the FS will designate whether any footings from existing transmission structures need to be removed. Any designated footings designated for removal (concrete, reinforcing steel, angle steel, anchor bolts, etc.) shall be disposed off-NFS lands in disposal areas that do not create visual contrasts. These sites shall be pre-approved by the CPUC and FS.

Rationale for Finding. Because analysis of visual impacts associated with the Project indicate that APMs presented in Table 3.14-6 will not fully mitigate visual impacts associated with construction and operation of the Project, additional measures were developed to augment the APMs and more fully mitigate visual impacts. Implementation of Mitigation Measures V-4a (Construct, operate, and maintain the Project with existing access and spur roads where feasible); V-4b (Slope-round and re-contour in areas as prescribed); V-4c (Avoid locating new roads in bedrock on NFS lands); and V-4d (Dispose of excavated materials as prescribed) will decrease the amount of visual disturbance and will improve the visual environment as compared to the Project without mitigation. The combination of all these measures will lessen the adverse

visual impacts of the Project and will improve the visual attributes of the affected area. However, the visual impacts associated with access and spur roads and splicing and pulling locations throughout Segments 6, 10, and 11 will remain significant and adverse. There are no other feasible mitigation measures or alternatives available to reduce this significant impact to a level that will be less than significant.

Reference. Final EIR Section 3.14; Table ES-3

Impact V-7: The Project would conflict with established visual resource management plans or landscape conservation plans.

The Project will be inconsistent with Standards S9 and S10 of the governing 2005 Forest Land Management Plan, and thus will require Project-specific amendments. The Project will also conflict with Goal Visual-1 and Objective Visual-1.2 of the Puente Hills Landfill Native Habitat Preservation Authority Resource Management Plan. As such, Impact V-7 will be significant and unavoidable.

There are no APMs for Aesthetics that address the potential conflict of the Project with established visual resource management plans or landscape conservation plans.

Finding.

(1) The CPUC finds that changes or alterations have been incorporated into the Project which mitigate significant effects on the environment from Impact V-7. Specifically, Mitigation Measure V-3b (On NFS lands, provide restoration/compensation for impacts to landscape character and visual quality), as set forth in Section 3.44 (Visual Resources) of the Final EIR and as listed below, is hereby adopted to mitigate significant effects from Impact V-7. However, even with implementation of this measure, significant unavoidable impacts will occur as described above.

(2) The CPUC finds that specific economic, legal, social, technological, or other considerations make it infeasible to reduce Impact V-7 to a less-than-significant level.

- **MM V-3b On NFS lands, provide restoration/compensation for impacts to landscape character and visual quality.** (*See above for full text*)

Rationale for Finding. The Project will require Project-specific amendments for Forest Plan (Part 3) Standards 9 and 10. The Project will also conflict with Goal Visual-1 and Objective Visual-1.2 of the Puente Hills Landfill Native Habitat Preservation Authority Resource Management Plan. As such, Impact V-7 will be significant and unavoidable, even after implementation of Mitigation Measure V-3b (On NFS lands, provide restoration/compensation for impacts to landscape character and visual quality). There are no other feasible mitigation measures or alternatives available to reduce this significant impact to a level that will be less than significant.

Reference. Final EIR Section 3.14; Table ES-3

Cumulative Impact V-1: Temporary visibility of construction activities and equipment involved with the Project would alter the landscape character and visual quality of landscape views.

Construction activities associated with the Project will be visible and will attract attention temporarily. Ongoing development throughout the cumulative effects area for visual resources is dominated by residential developments, clustered in and around community developments on non-NFS lands, and also includes additional development of wind resources in the TWRA. All of these construction activities will be readily visible throughout the Project area, and will be cumulatively adverse and significant.

Finding.

(1) The CPUC finds that changes or alterations have been incorporated into the Project which mitigate significant effects on the environment from Impact V-1. Specifically, Mitigation Measure V-1, as set forth below, is feasible and is hereby adopted to mitigate significant effects from Impact V-1. However, even with implementation of this measure, significant unavoidable cumulative impacts will occur as described above.

(2) The CPUC finds that specific economic, legal, social, technological, and other considerations make it infeasible to reduce Impact V-1 to a less than significant level.

- **MM V-1: Clean up staging areas, storage areas, marshalling yards, helicopter staging areas, access and spur roads, and structure locations on a regular periodic basis.** (*See above for full text*)

Rationale for Finding. There are no mitigation measures available to reduce the visibility of vehicles, heavy equipment, helicopters, and other related components during construction. MM V-1 will reduce the Project's contribution to cumulative impacts, but not to a less-than-significant level. There are no other feasible mitigation measures or alternatives available to reduce this significant cumulative impact to a level that will be less than significant. Therefore, this impact will combine with impacts of other present and reasonably foreseeable projects to result in a significant cumulative impact.

Reference. Final EIR Section 3.14; Table ES-3

Cumulative Impact V-2: For a landscape that currently has no transmission lines, introduction of a new transmission line in a new ROW would adversely affect landscape character and visual quality.

Construction and operation of new transmission lines and a new substation in areas that currently do not have such industrial facilities will adversely affect natural-appearing landscape character and visual quality, and, when combined with existing and future wind developments in the TWRA, will be cumulatively adverse and significant. Future residential developments in West Lancaster and West Palmdale could encroach on undeveloped, natural-appearing landscapes in the Project area, further reducing natural-appearing landscape character and visual quality, which will also create cumulatively adverse and significant visual impacts.

Finding.

(1) The CPUC finds that changes or alterations have been incorporated into the Project which mitigate significant effects on the environment from Impact V-2. Specifically, Mitigation Measures V-1, and V-2a through V-2d, as set forth below, are feasible and are hereby adopted to mitigate significant effects from Impact V-2. However, even with implementation of these measures, significant unavoidable cumulative impacts will occur as described above.

(2) The CPUC finds that specific economic, legal, social, technological, and other considerations make it infeasible to reduce Impact V-2 to a less than significant level.

- **MM V-1: Clean up staging areas, storage areas, marshalling yards, helicopter staging areas, access and spur roads, and structure locations on a regular periodic basis.** (*See above for full text*)
- **MM V-2a: Use tubular steel poles instead of lattice steel towers in designated areas.** (*See above for full text*)
- **MM V-2b: Treat surfaces with appropriate colors, textures, and finishes.** (*See above for full text*)
- **MM V-2c: Establish permanent screen.** (*See above for full text*)

- **V-2d At road crossings, structures should be offset so that they are equidistant on each side of the road where feasible.** (*See above for full text*)

Rationale for Finding. There is no mitigation available to make new transmission lines or a new substation disappear or become inconspicuous. Mitigation Measures V-1, V-2a through V-2c will reduce the Project's contribution to cumulative impacts, but not to a less-than-significant level. There are no other feasible mitigation measures or alternatives available to reduce this significant cumulative impact to a level that will be less than significant. Therefore, this impact will combine with impacts of other present and reasonably foreseeable projects to result in a significant cumulative impact.

Reference. Final EIR Section 3.14; Table ES-3

Cumulative Impact V-3: For a landscape with an existing transmission line, increased structure size and new materials would result in adverse visual effects.

Increased visual contrasts could be created by increased structure prominence, new or additional structure skylining, new or additional ridgeline obstruction, new or additional skyline intrusion, and/or view blockage to desirable landscape features. Construction and operation of new transmission lines with increased structure size and new materials will detract from existing landscape character and visual quality, and combined with existing transmission lines in the same vicinity, and future transmission lines that may be proposed in the same viewsheds, will lead to cumulatively adverse and significant visual impacts.

Finding.

(1) The CPUC finds that changes or alterations have been incorporated into the Project which mitigate significant effects on the environment from Impact V-3. Specifically, Mitigation Measures V-2a, V-2b, V-2c, V-3a, V-3b, V-4b and V-4d, as set forth below, are feasible and are hereby adopted to mitigate significant effects from Impact V-3. However, even with implementation of these measures, significant unavoidable cumulative impacts will occur as described above.

(2) The CPUC finds that specific economic, legal, social, technological, and other considerations make it infeasible to reduce Impact V-3 to a less than significant level.

- **MM V-2a: Use tubular steel poles instead of lattice steel towers in designated areas.** (*See above for full text*)
- **MM V-2b: Treat surfaces with appropriate colors, textures, and finishes.** (*See above for full text*)
- **MM V-2c: Establish permanent screen.** (*See above for full text*)
- **MM V-3a: Match spans of existing transmission structures.** (*See above for full text*)
- **MM V-3b: On NFS lands, provide restoration/compensation for impacts to landscape character and visual quality.** (*See above for full text*)
- **MM V-4b: Slope-round and re-contour in areas as prescribed.** (*See above for full text*)
- **MM V-4d: Dispose of excavated materials as prescribed.** (*See above for full text*)

Rationale for Finding. Mitigation Measures V-2a through V-2c, V-3a, V-3b, V-4b and V-4d, will reduce the Project's contribution to cumulative impacts, but not to a less-than-significant level. There are no other feasible mitigation measures or alternatives available to reduce this significant cumulative impact to a level that will be less than significant. Therefore, this impact will combine with impacts of other present and reasonably foreseeable projects to result in a significant cumulative impact.

Reference. Final EIR Section 3.14; Table ES-3

Cumulative Impact V-4: Vegetative clearing and/or earthwork associated with road improvements and pulling/splicing locations would adversely affect landscape character and visual quality.

This impact deals with all vegetative clearing and all earthwork that might be expected to occur with implementation of the Project, including the following locations: access roads, spur roads, access trails, spur trails, pulling/splicing locations, marshalling yards, helicopter staging areas (large, medium, and small), LST and TSP structure locations, substations, and ancillary facilities. This impact also deals with vegetative clearing and/or vegetative management along the ROW.

Construction, operation, and maintenance of existing and Project transmission lines in the Project corridors will create permanent visual scars that will be visible and will attract attention. Combined with future transmission lines that may be proposed in the same viewsheds, but in same or different ROWs, the Project will lead to cumulatively adverse and significant visual impacts.

Finding.

(1) The CPUC finds that changes or alterations have been incorporated into the Project which mitigate significant effects on the environment from Impact V-4. Specifically, Mitigation Measures V-4a through V-4d, as set forth below, are feasible and are hereby adopted to mitigate significant effects from Impact V-4. However, even with implementation of these measures, significant unavoidable cumulative impacts will occur as described above.

(2) The CPUC finds that specific economic, legal, social, technological, and other considerations make it infeasible to reduce Impact V-4 to a less than significant level.

- **MM V-4a: Construct, operate, and maintain the Project using existing access and spur roads where feasible.** (*See above for full text*)
- **MM V-4b: Slope-round and re-contour in areas as prescribed.** (*See above for full text*)
- **MM V-4c: Avoid locating new roads in bedrock on NFS lands.** (*See above for full text*)
- **MM V-4d: Dispose of excavated materials as prescribed.** (*See above for full text*)

Rationale for Finding. Mitigation Measures V-4a through V-4d will reduce the Project's contribution to cumulative impacts, but not to a less-than-significant level. There are no other feasible mitigation measures or alternatives available to reduce this significant cumulative impact to a level that will be less than significant. Therefore, this impact will combine with impacts of other present and reasonably foreseeable projects to result in a significant cumulative impact.

Reference. Final EIR Section 3.14; Table ES-3

Cumulative Impact V-5: New metal surfaces associated with transmission infrastructure would potentially reflect sunlight and produce glare in certain lighting conditions.

New materials used in construction of existing and future projects within the Project area viewshed have created and have the potential to produce, respectively, daytime glint and glare and new sources of nighttime light and glare. Combined with the Project, these existing and future projects will lead to cumulatively adverse and significant visual impacts.

Finding.

(1) The CPUC finds that changes or alterations have been incorporated into the Project which mitigate significant effects on the environment from Impact V-5. Specifically, Mitigation

Measure V-2b, as set forth below, is feasible and is hereby adopted to mitigate significant effects from Impact V-5. However, even with implementation of this measure, significant unavoidable cumulative impacts will occur as described above.

(2) The CPUC finds that specific economic, legal, social, technological, and other considerations make it infeasible to reduce Impact V-5 to a less than significant level.

- **MM V-2b: Treat surfaces with appropriate colors, textures, and finishes.** (*See above for full text*)

Rationale for Finding. Mitigation Measure V-2b will reduce the Project's contribution to cumulative impacts, but not to a less-than-significant level. There are no other feasible mitigation measures or alternatives available to reduce this significant cumulative impact to a level that will be less than significant. Therefore, this impact will combine with impacts of other present and reasonably foreseeable projects to result in a significant cumulative impact.

Reference. Final EIR Section 3.14; Table ES-3

Cumulative Impact V-6: The Project would contribute to the long-term loss or degradation of a scenic highway viewshed or scenic trail viewshed.

As urban and suburban build-out continues in the North and South Areas, it is reasonably foreseeable that remaining open space areas will either be occupied by development-related infrastructure, including new residential developments, electric infrastructures, or commercial and industrial developments. This pressure may result in increased demands for specific protections of open space qualities by conservation groups and resource agencies such as the USDA Forest Service, State Scenic Highways, the Puente Hills Landfill Native Habitat Authority, or other agencies. In the Center Area, no projects in the ANF threaten the viewsheds of the Angeles Crest Scenic Byway, the PCT, Silver Moccasin National Recreation Trail, or West Fork National Scenic Bikeway, except for the Project. This impact will be cumulatively adverse and significant.

Finding.

(1) The CPUC finds that changes or alterations have been incorporated into the Project which mitigate significant effects on the environment from Impact V-6. Specifically, Mitigation Measure V-3b, as set forth below, is feasible and is hereby adopted to mitigate significant effects from Impact V-6. However, even with implementation of this measure, significant unavoidable cumulative impacts will occur as described above.

(2) The CPUC finds that specific economic, legal, social, technological, and other considerations make it infeasible to reduce Impact V-6 to a less than significant level.

- **MM V-3b: On NFS lands, provide restoration/compensation for impacts to landscape character and visual quality.** (*See above for full text*)

Rationale for Finding. Mitigation Measure V-3b will reduce the Project's contribution to cumulative impacts, but not to a less-than-significant level. There are no other feasible mitigation measures or alternatives available to reduce this significant cumulative impact to a level that will be less than significant. Therefore, this impact will combine with impacts of other present and reasonably foreseeable projects to result in a significant cumulative impact.

Reference. Final EIR Section 3.14; Table ES-3

Cumulative Impact V-7: The Project would conflict with established visual resource management plans or landscape conservation plans.

In the North Area, there are no established Visual Resource Management Plans or Visual Resource Conservation Plans; therefore, existing and future projects will not add cumulative visual effects for Impact V-7. In the Center Area, the majority of Segments 6 and 11 are situated within areas of natural-appearing landscapes designated with a High Scenic Integrity Objective (SIO) by the Forest Plan. Existing access and spur roads currently do not meet the Natural-Appearing Desired Condition or High SIO, and re-opening or reconstructing them to higher road maintenance standards will adversely impact visual resources, further degrade existing conditions, and continue to not meet the Desired Condition or established High Scenic Integrity Objectives. Therefore, Project-specific amendments to the 2005 Forest Plan, as described in Sections 3.14.2 and 3.14.6.1, will be required. Future projects that will upgrade the size of transmission lines or maintain/improve access and spur roads will add to adverse cumulative visual effects. In the South Area, the Project and future projects will cross lands administered by the Puente Hills Landfill Habitat Preservation Authority (PHLHPA). The Project will conflict with Goal Visual-1 and Objective Visual-1.2 of the PHLHPA) Resource Management Plan. PHLNHPA Resource Management Plan Goal Visual-1 states: Protect and enhance views and distinctive landscape features that contribute to the setting, character and visitor experience of the Preserve. Objective Visual-1.2 states: Protect views from within the Preserve to outlying properties. Evaluate proposed projects surrounding the Preserve with a priority to retain the visual quality of the Preserve's undeveloped landscape. Impact V-7 will be cumulatively adverse and significant.

Finding.

(1) The CPUC finds that changes or alterations have been incorporated into the Project which mitigate significant effects on the environment from Impact V-7. Specifically, Mitigation Measure V-3b, as set forth below, is feasible and is hereby adopted to mitigate significant effects from Impact V-7. However, even with implementation of this measure, significant unavoidable cumulative impacts will occur as described above.

(2) The CPUC finds that specific economic, legal, social, technological, and other considerations make it infeasible to reduce Impact V-7 to a less than significant level.

- **MM V-3b: On NFS lands, provide restoration/compensation for impacts to landscape character and visual quality.** (*See above for full text*)

Rationale for Finding. Mitigation Measure V-3b will reduce the Project's contribution to cumulative impacts, but not to a less-than-significant level. There are no other feasible mitigation measures or alternatives available to reduce this significant cumulative impact to a level that will be less than significant. Therefore, this impact will combine with impacts of other present and reasonably foreseeable projects to result in a significant cumulative impact.

Reference. Final EIR Section 3.14; Table ES-3

III.4.8 Wilderness and Recreation

Cumulative Impact R-1: Construction activities would restrict access to or disrupt activities within established recreational areas.

Construction activities associated with the Project would result in temporary access restrictions and/or disruption of existing activities associated with established recreational areas. If construction activities for other projects in the Project Study Area result in similar impacts to established recreational resources or opportunities and such impacts would occur at the same time as they would for those associated with the

Project's construction activities, the resulting impacts will be cumulatively significant. Due to the rapid growth that is current and ongoing in the North Region, in addition to the history of USDA Forest Service maintenance activities and other projects in the Central Region that are expected to continue into the future, it is reasonably foreseeable that Impact R-1 will be significant and unavoidable.

Finding.

(1) The CPUC finds that changes or alterations have been incorporated into the Project which mitigate significant effects on the environment from Cumulative Impact R-1. Specifically, Mitigation Measures R-1a through R-1e, as set forth in Section 3.15 (Wilderness and Recreation) of the Final EIR and as listed below, are hereby adopted to mitigate significant effects from Cumulative Impact R-1. However, even with implementation of these measures, significant unavoidable impacts will occur as described above.

(2) To the extent implementation of these measures are within the sole and exclusive jurisdiction of another public agency and not the CPUC, the CPUC finds that those changes and alterations are within the responsibility and jurisdiction of that other public agency, not the CPUC. Such changes can and should be adopted by such other agency.

(3) The CPUC finds that specific economic, legal, social, technological, or other considerations make it infeasible to reduce Cumulative Impact R-1 to a less-than-significant level.

- **MM R-1a: Coordinate construction schedule and maintenance activities with managing officer(s) for affected recreation areas.** (*See above for full text*)
- **MM R-1b: Identify and provide noticing of alternative recreation areas.** (*See above for full text*)
- **MM R-1c: Notification of temporary closure of OHV routes.** (*See above for full text*)
- **MM R-1d: Notification of temporary closure and reroute of the Pacific Crest National Scenic Trail (PCT).** (*See above for full text*)
- **MM R-1e: SCE shall compensate ANF for lost income from Adventure Pass sales due to recreation area closures associated with the Project.** (*See above for full text*)

Rationale for Finding. The Project will result in the temporary (construction-related) and periodic (operation-related) restriction of access to and disruption of activities within established recreational resources and areas within the North, Central, and South Regions. Past and reasonably foreseeable future actions and projects in these areas will also result in this impact. The incremental effect of the Project, when combined with the effects created by other past and reasonably foreseeable projects, will be significant because the combined impact will temporarily yet substantially reduce recreational opportunities during Project construction. With respect to activities that occur on land under the exclusive jurisdiction and control of the FS or the USACE, the CPUC does not have jurisdiction to impose the above-referenced mitigation measures. Therefore, to the extent implementation of the measures are within the sole and exclusive jurisdiction of either the FS or the USACE and not the CPUC, the CPUC recommends that they be adopted by those agencies. There are no other feasible mitigation measures or alternatives available to reduce this significant cumulative impact to a level that will be less than significant.

Reference. Final EIR Section 3.15; Table ES-3

Cumulative Impact R-4: The Project would cause or contribute to degradation of the Pacific Crest National Scenic Trail.

The Project route traverses the PCT in three locations: once in the North Region and twice in the Central Region. If other projects in the cumulative scenario introduce new infrastructure along the PCT or introduce construction impacts similar to the Project along the PCT and at the same time as those of the Project, it is possible that such impacts will combine with impacts of the Project and result in significant cumulative impacts. It is unlikely that the construction of other projects will occur at the same time as the Project and near the same locations where the Project will cross the PCT. However, long-term loss or degradation of the PCT could occur through effects to the unique recreational experience available to hikers along the PCT, as well as physical loss of trail access. Such effects to the recreational experience of the PCT could include the following: installation of infrastructure which would contrast substantially with natural aesthetics currently existing along the PCT; introduction of noise levels that would be substantially greater or have substantially different characteristics than that which currently exists along the PCT; any other Project-related activity that would substantially contrast with the existing backcountry experience of the PCT. As such, any past or reasonably foreseeable project that could affect the recreational experience for PCT users and could combine with this impact of the Project is considered cumulatively significant. Given the fact that urbanization is rapidly expanding throughout the Project Area, projects related to such urban expansion may affect the PCT and lead to the long-term loss or degradation of the trail. Although mitigation for the Project will help to reduce the Project's incremental contribution to the cumulative significance of Impact R-4, this impact will still have the potential to combine with other, similar impacts of projects in the cumulative scenario.

Finding.

(1) The CPUC finds that changes or alterations have been incorporated into the Project which mitigate significant effects on the environment from Cumulative Impact R-4. Specifically, Mitigation Measures R-1a (Coordinate construction schedule and maintenance activities with managing officer(s) for affected recreation areas), R-1d (Notification of temporary closure and reroute of the Pacific Crest National Scenic Trail (PCT)), and R-1e (SCE shall compensate ANF for lost income from Adventure Pass sales due to recreation area closures associated with the Project), as set forth in Section 3.15 (Wilderness and Recreation) of the Final EIR and as listed below, are hereby adopted to mitigate significant effects from Cumulative Impact R-4. However, even with implementation of these measures, significant unavoidable impacts will occur as described above.

(2) To the extent implementation of these measures are within the sole and exclusive jurisdiction of another public agency and not the CPUC, the CPUC finds that those changes and alterations are within the responsibility and jurisdiction of that other public agency, not the CPUC. Such changes can and should be adopted by such other agency.

(3) The CPUC finds that specific economic, legal, social, technological, or other considerations make it infeasible to reduce Cumulative Impact R-4 to a less-than-significant level.

- **MM R-1a: Coordinate construction schedule and maintenance activities with managing officer(s) for affected recreation areas.** (*See above for full text*)
- **MM R-1d: Notification of temporary closure and reroute of the Pacific Crest National Scenic Trail (PCT).** (*See above for full text*)
- **MM R-1e: SCE shall compensate ANF for lost income from Adventure Pass sales due to recreation area closures associated with the Project.** (*See above for full text*)

Rationale for Finding. The PCT is considered to be particularly valuable and unique recreational resource, and any combination of similar impacts that would affect the PCT in the Project Study Area would result in a significant cumulative impact. The Project will result in the temporary, construction-related disturbances to the PCT in three separate locations, as well as permanent disturbances associated with increased noise and visual effects. Past and reasonably foreseeable future actions in the vicinity of the PCT will also result in disturbances. The incremental effect of the Project, when combined with the effects created by other past and reasonably foreseeable projects, will be significant and unavoidable. With respect to activities that occur on land under the exclusive jurisdiction and control of the FS or the USACE, the CPUC does not have jurisdiction to impose the above-referenced mitigation measures. Therefore, to the extent implementation of the measures is within the sole and exclusive jurisdiction of either the FS or the USACE and not the CPUC, the CPUC recommends that they be adopted by those agencies. There are no other feasible mitigation measures or alternatives available to reduce this significant cumulative impact to a level that will be less than significant.

Reference. Final EIR Section 3.15; Table ES-3

Cumulative Impact R-6: The Project would facilitate unmanaged recreational uses that would contribute to the long-term loss or degradation of recreational opportunities.

Roadways that are improved or installed to facilitate Project construction or operation and maintenance activities could potentially be used by recreationists to gain unauthorized access to areas that are not designated or intended for certain recreational purposes, such as OHV use in a designated Wilderness Area. From a cumulative perspective, past projects throughout the Project Area and particularly in the Central Region have included the installation of roadways that facilitate unmanaged recreational uses. In light of aggressively expanding residential developments in the North Region, new roadways are expected to be installed throughout the region and such roads could be used for unauthorized recreational purposes in the future.

Finding.

(1) The CPUC finds that changes or alterations have been incorporated into the Project which mitigate significant effects on the environment from Cumulative Impact R-6. Specifically, Mitigation Measure R-5 (Avoid permanent upgrades to Forest System roads), as set forth in Section 3.15 (Wilderness and Recreation) of the Final EIR and as listed below, is hereby adopted to mitigate significant effects from Cumulative Impact R-6. However, even with implementation of these measures, significant unavoidable impacts will occur as described above.

(2) The CPUC finds that specific economic, legal, social, technological, or other considerations make it infeasible to reduce Cumulative Impact R-6 to a less-than-significant level.

- **MM R-5 Avoid permanent upgrades to Forest System roads.** (*See above for full text*)

Rationale for Finding. The Project will result in temporary road improvements that could facilitate unmanaged recreational uses, which could lead to the long-term loss or degradation of recreational opportunities, particularly on ANF lands in the Central Region. Past and reasonably foreseeable future actions in the Project Area will require road improvements similar to the Project. The incremental effect of the Project, when combined with the effects created by other past and reasonably foreseeable projects, will be significant and unavoidable. There are no other feasible mitigation measures or alternatives available to reduce this significant cumulative impact to a level that will be less than significant.

Reference. Final EIR Section 3.15; Table ES-3

Cumulative Impact F-6: Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread.

Project construction and maintenance 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. Construction and maintenance of the Project will contribute to the introduction and proliferation of non-native, invasive plants. Certain invasive plants, like cheatgrass, medusa head and Saharan mustard, can contribute to changes in wildfire frequency, timing and spread (Cal-IPC, 2007). Cheatgrass and medusa head, for example, dry out earlier in the season than native grasses, extending the length of the fire season and creating fine fuels that are easily ignited. These fine fuels increase the likelihood that the background sources of ignition in the environment will result in a wildfire ignition, resulting in wildfire ignitions earlier in the year and an increased level of fire recurrence. While the introduction of non-native plants will not increase the background rate of ignition sources, it will increase the ignition potential, or the likelihood that an ignition source will result in an actual wildfire ignition. 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 (Wiedinmyer and Neff, 2007). The introduction and spread of specific invasive plants within the Project ROW will adversely influence fire behavior by increasing the fuel load, fire frequency and fire spread.

Finding.

(1) The CPUC finds that changes or alterations have been incorporated into the Project which mitigate significant effects on the environment from Cumulative Impact F-6. Specifically, implementation of Mitigation Measure B-3a (Prepare and implement a Weed Control Plan) is hereby adopted to mitigate Project-specific significant effects from Cumulative Impact F-6. However, even with implementation of this measure, significant unavoidable impacts will occur as described above.

(2) The CPUC finds that specific economic, legal, social, technological, or other considerations make it infeasible to reduce Cumulative Impact F-6 to a less-than-significant level.

- **MM B-3a Prepare and implement a Weed Control Plan** *(see above for full text)*

Rationale for Finding. Implementation of the Weed Control Plan will prevent or substantially reduce the potential for ignition potential or increased fire spread as a result of non-native, invasive plants introduced during to the Project area during construction or maintenance activities. Implementation of this mitigation measure will reduce Project-level Impact F-6 to a less-than-significant level. Similar mitigation measures would be expected to be implemented for many of the reasonably foreseeable housing development and fuel reduction projects in the Tehachapi Fireshed that have the potential to introduce and spread non-native species, reducing the cumulative impact of invasive plant cover on wildfire behavior to a less than significant level. However, because invasive plant introductions to wildland areas will occur despite best efforts at mitigation, and because Mitigation Measure B-3a (Prepare and implement a Weed Control Plan) will not completely eliminate the risk of non-native species introduction, the incremental effects of the Project on non-native species introduction will make a cumulatively considerable contribution to a cumulatively significant impact.

Reference. Final EIR Section 3.16; Table ES-3

IV. Findings Regarding the Station Fire

In late August 2009, a major wildfire broke out in the Angeles National Forest (ANF). This fire, named the Station Fire, was the largest wildfire in the recorded history of the ANF and burned most of the area traversed by Segments 6 and 11 of the Project in the ANF. Therefore, the CPUC undertook an evaluation to determine whether any changed conditions caused by the Station Fire would result in new significant project-related environmental effects or call for new or revised mitigation measures, in compliance with CEQA.

Findings.

(1) The CPUC hereby finds that changed conditions caused by the Station Fire would not result in any new significant project-related environmental effects with implementation of the mitigation measures identified in the Final EIR.

(2) The CPUC hereby finds that minor modifications to Mitigation Measures B-8a and B-9 have been required in the project on all non-ANF lands and these modifications will avoid or substantially lessen the significant environmental effects identified in the Final EIR. These revised mitigation measures are equivalent or more effective than the original measures and have been made conditions of project approval on all non-ANF land.

(3) The CPUC hereby finds that, on ANF lands, such modifications are within the responsibility and jurisdiction of the Forest Service and not the CPUC. The revised mitigation measures can and should be adopted by the Forest Service.

(4) The CPUC hereby Station Fire evaluation and the minor modifications to Mitigation Measures B-8a and B-9 merely clarify and amplify the analysis presented in the Final EIR and do not trigger the need to recirculate, per CEQA Guidelines §15088.5.

Rationale. The CPUC conducted a site visit of the ANF, under the supervision of the Forest Service, on October 20, 2009 to review the change in environmental conditions resulting from the Station Fire. This site visit, along with the Station Fire Burned Area Emergency Response (BAER) reports prepared by the Forest Service, provided the basis for an evaluation, included in Appendix L of the Final EIR, which examined each environmental resource area potentially affected by the fire. This evaluation demonstrated that, with implementation of the mitigation measures identified and recommended in the Final EIR, the changed conditions resulting from the Station Fire would not substantially alter the nature or magnitude of project-related impacts. This is, in part, because construction would not be permitted on affected ANF lands until repairs (e.g., of roads) are completed and because conditions damaged by the fire will improve over time. Additionally, in all but two instances, the mitigation identified in the EIR is sufficient to address project-related impacts, even in light of the changed conditions. In two cases, the CPUC's Station Fire evaluation demonstrated the need for minor modifications to mitigation measures. Specifically, Mitigation Measure B-8a has been revised to require approved protocol surveys for California red-legged frogs if suitable habitat is present near the proposed construction sites at Aliso Canyon (Segment 11), and Mitigation Measure B-9 has been revised to require a qualified biologist with demonstrated expertise with arroyo toads to monitor all construction activities full time in occupied arroyo toad habitat and to inspect the roadway, all Arizona crossings, and work sites throughout the day and log the time and weather conditions in the area. These revised mitigation measures are equivalent or more effective than the original measures and have been made conditions of project approval on all affected non-ANF land. On ANF land, approval of the project and all relevant mitigation measures are within the responsibility and jurisdiction of the Forest Service and not the CPUC.

V. Findings Regarding Other CEQA Considerations

V.1 Socioeconomics

According to CEQA, "Economic and social changes resulting from a project shall not be treated as significant effects on the environment" (CEQA Guidelines Sec. 15064[e]); therefore economic and social effects of a project may not be treated as significant environmental effects (per CEQA). As described in Section 3.12 of the Final EIR, socioeconomic impacts were instead assessed with regard to five Issues of Concern where the Project could potentially introduce socioeconomic impacts. These Issues of Concern include the following:

- Population and Housing
- Quality of Life
- Employment
- Private Property Value
- Local Business Revenue
- Public Revenue

Population and Housing. Both locally and regionally, the Project area is experiencing substantial population growth, which is reflected in the large number of future residential development projects that are currently proposed and planned in the Project area. As discussed in Section 3.12.2.1 (Regional Setting) of the Final EIR, population and housing are expected to increase concurrently and dramatically throughout the Project area, and particularly in the North and South Regions. This growth is expected to occur with or without implementation of the Project.

The Project ROW does not contain any habitable housing structures and will not require the removal of any housing units. While residential developments do occur along the route, all such developments are located outside of the Project ROW and will not require removal or relocation. It is not expected that any existing residents or housing units will be displaced as a result of the Project and the Project will not necessitate replacement housing.

The Project will traverse areas where multiple residential developments are planned to occur. Segment 10 will be situated in an entirely new ROW through a portion of southern Kern County and the ROW utilized by Segment 4 will be widened by about 180 feet through northern Los Angeles County and a small portion of the City of Lancaster. However, the transmission line and associated ROW areas will not preclude proposed or approved residential development. Implementation of the Project is not expected to permanently convert planned residential areas to non-residential uses in any of the three Project Regions. As such, none of the current or future planned residential developments will be altered or precluded by implementation of the Project.

Quality of Life. Quality of Life is a multi-faceted and intangible concept which individuals develop through a combination of many different factors, in addition to the environmental issue area factors described here. A variety of temporary impacts associated with construction of the Project could have an adverse effect on Quality of Life. For instance, construction of transmission towers will require the use of heavy machinery, equipment, and vehicles that will be expected to introduce temporary impacts to aesthetics, noise, air quality, and traffic. These factors may have an adverse effect on Quality of Life for individuals who choose to live in quiet or undeveloped locations within the Project area due to the lack of noise, traffic, and industrial aesthetics associated with more developed areas. In addition, construction activities and construction-related traffic may result in temporary access restrictions to recreational areas, which may have an adverse effect on Quality of Life for individuals who value the availability of such resources in their

community, or for individuals who have chosen to reside in the Project area due to the accessibility and availability of such resources.

Operation and maintenance of the Project will also introduce permanent Project features and the potential for impacts that may have an adverse effect on Quality of Life. For instance, there is a great deal of public interest and concern regarding the potential health and safety effects of Electric and Magnetic Fields (EMF) that will be introduced or intensified through implementation of the Project. EMF could have an indirect adverse effect on Quality of Life by resulting in an alteration of the perception of safety and/or security that members of the public have of their communities, regardless of the fact that, as described in Section 5.3.1 (Other Required NEPA and CEQA Considerations) of the Final EIR, there remains a lack of consensus in the scientific community regarding public health impacts of EMF at the levels expected from electric power facilities.

Under the Quality of Life Issue of Concern, it is expected that some features of Project construction (such as noise associated with the use of helicopters, particularly in or near the ANF) will have the potential to temporarily effect factors which an individual will consider to contribute to quality of life, but that such Project effect(s) will be temporary in nature and will not result in a socioeconomic impact.

Employment. With regards to the Employment Issue of Concern, it was determined in the Final EIS/EIR that sufficient workforce is available in the Project Area to accommodate construction needs and that the Project will not result in a socioeconomic impact to employment.

Construction employment for the Project will include skilled or semi-skilled positions such as line workers, welders, heavy equipment operators, surveyors, engineers, utility equipment workers, truck drivers, warehouse workers, clerical workers, and laborers. As described in Section 3.12.2.1 (Regional Setting) of the Final EIR, there is a substantial construction workforce available throughout the Project area, particularly within the North and South Regions. The Project construction schedule is estimated to extend for approximately 59 months and will require an average daily workforce of approximately 75 persons (actual workforce will range between 10 and 300 workers, as needed). As described in Section 3.12.2.2 (Affected Environment: Alternative 2) of the Final EIR, total construction workforce available in the Counties of Kern, Los Angeles, and San Bernardino are respectively as follows: 13,300, 134,500, and 90,900. As such, total construction workforce available in the Project area is approximately 238,700 personnel. The maximum required construction workforce of 300 personnel for the Project will comprise approximately 0.12 percent of the total construction workforce available in the Project area. No workers will be required to relocate into the Project area for construction of the Project and no new workers are required for operation of the Project.

Private Property Value. The issue category of Private Property Value addresses concerns related to the potential effect of transmission lines on the value of private property in proximity to the transmission infrastructure. The Project will introduce an impact to private property value if any aspect of Project construction or operation will be reasonably expected to cause a substantial change in existing property values.

Impact S-1: Operation and maintenance activities would affect property values along the Project alignment.

Relevant studies and documentation discussed in the Final EIR (see Section 3.12) demonstrate that the effects of transmission lines on private property value are generally smaller than anticipated, with property value being more largely determined by property-specific factors such as neighborhood features, square footage, size of lot, and irrigation potential. While it is possible that property owners near the Project route may have the

perception that their homes will diminish in value because of Project implementation, potential property value issues associated with the Project can only be tested through real data from actual home sales. Factors that have the potential to affect property value are numerous and varied; as a result, it is not possible to identify exactly how the Project will potentially affect private property values. Under the Project, it is possible that the placement and configuration of Project infrastructure could have an indirect effect on private property value; however, due to the multiple factors listed above, it is not possible to directly connect Project features with changes in private property value.

Local Business Revenue. The Project will cross through agricultural areas in the North Region of the Project Area, and will therefore have the potential to affect local business revenue for agricultural landowners, particularly during the construction period.

Impact S-2: Construction activities would cause a temporary decrease in revenues for agricultural landowners.

Segments of the Project that could potentially affect agricultural business revenue include Segment 10, which will require approximately 17 miles of new 330-foot ROW and Segment 4, which will require approximately 20 miles of new 200-foot ROW. Although these segments of the Project will not be routed entirely through agricultural lands, portions of the segments will cross through some areas used for agricultural purposes. Section 3.2 (Agricultural Resources) of the Final EIR provides detailed baseline conditions and analysis of all agricultural areas in the North Region, including specific areas that could be affected by the Project. If the construction of Segments 10 or 4 of the Project will occur during the growing season, this could temporarily restrict crop production or potentially damage crops, thereby introducing the potential to decrease local business revenues for the agricultural landowners whose crops will be affected. No new permanent roads will be constructed over agricultural lands in the Project area. Although new utility ROWs will be established for Segments 10 and 4, as described above, agricultural use of lands within the ROW will continue to be permitted. Mitigation Measure AG-1 (Coordinate construction activities with agricultural landowners), as described in Section 3.2 (Agricultural Resources) of the Final EIR, will minimize and/or avoid impacts to agricultural revenues by minimizing losses to crop production, thereby also minimizing any lost crop revenues associated with the Project.

Public Revenue. Completion of the Project will provide for the transfer of wind-generated electricity in the Tehachapi Wind Resource Area to SCE customers throughout southern California. The Project will not preclude or necessitate the supply or transfer of electricity between SCE and its customers. Additionally, the Project will also benefit the local economy through payment of property taxes.

Impact S-3: Project activities would affect public agency revenue.

Construction and operation of the Project will have the potential to result in short-term negative effects as well as long-term positive effects to public agency revenue. In the short-term, Project construction activities will have the potential to negatively affect Forest Service revenue through decreased sales of National Forest Adventure Passes as a result of temporary closures of Forest recreational areas during the construction period. Mitigation Measure R-1e (SCE shall compensate ANF for lost income from Adventure Pass sales due to recreation area closures associated with the Project), as described in Section 3.15 (Wilderness and Recreation) of the Final EIR, will help to compensate for this temporary revenue loss by requiring that SCE coordinate with the Forest Service to agree upon an acceptable level of compensation relevant to loss of Adventure Pass revenue. As mentioned, the Project will also have the potential to result in long-term positive effects to public agency revenue. The positive effect will occur in the form of property taxes paid to local agencies, as SCE's property taxes are expected to increase as a result of the Project. Local property tax revenues are a function of tax rates charged within the affected jurisdictions, with infrastructure

facilities assessed annually by the State of California Board of Equalization (BOE). Property tax revenue is collected by the appropriate County Tax Collector and dispersed to local agencies. Any increase in property tax revenue, such as expected to occur under the Project, will be a benefit to the local government agencies that receive a share of the property tax revenue. The Forest Service will not directly receive property tax revenue as a result of the Project being constructed on NFS lands.

V.2 Growth Inducing Impacts

Section 15126.2(d) of the CEQA Guidelines requires that an EIR discuss the ways in which a Project may foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment. The growth-inducing potential of a project would be considered significant if it fosters growth or a concentration of population above what is assumed in local and regional land use plans, or in projections made by regional planning authorities. Significant growth impacts could also occur if a project provides infrastructure or service capacity to accommodate growth levels beyond those permitted by local or regional plans and policies.

Finding/Rationale: As outlined in Section I.2 (Project Objectives / Purpose and Need), the primary purposes of the Project is to provide the electrical facilities necessary to interconnect and integrate up to approximately 4,500 MW of new wind generation in the Tehachapi Wind Resources Area (TWRA) currently being planned or expected in the future, thereby enabling SCE and other California utilities to comply with the California Renewables Portfolio Standard in an expedited manner; to address the reliability needs of the CAISO-controlled grid due to projected load growth in the Antelope Valley; and to address the South of Lugo transmission constraints, an ongoing source of concern for the Los Angeles Basin. The TWRA is considered to be one of the world's leading wind energy centers and SCE, pursuant to several State and federal goals and policies related to renewable energy sources, is obligated to accommodate future wind-generated electricity in southern California. Between the years 2000 and 2030, the population of Kern County is anticipated to increase by 68 percent, while the Los Angeles and San Bernardino County region will experience a population growth rate anywhere between 2.5 and 186.5 percent (see Section 2.2 of the Final EIR). Both locally and regionally, the Project area is experiencing substantial population growth, which is reflected in the large number of proposed and planned future residential development projects listed in Table 2.9-4 of the Final EIR. This growth is expected to occur with or without implementation of the Project.

Any growth that occurs with the availability of the additional power provided by the Project will need to conform to the local planning documents and policies. An assessment of the potential significant cumulative impacts of the Project and alternatives is provided for each of the issue areas discussed in Chapter 3 of the Final EIR. Although the Project will not directly result in growth in the Project area, its implementation will remove future obstacles to population growth by facilitating the transmission of future power generation in the TWRA (as described in Chapter 6 of the Final EIR).

V.3 Significant Irreversible Changes and Irretrievable Commitments of Resources

Pursuant to Section 15126.2(c) of the CEQA Guidelines, an EIR must address significant irreversible and irretrievable environmental changes that will be caused by a Project. These changes include uses of nonrenewable resources during construction and operation, long-term or permanent access to previously inaccessible areas, and irreversible damages that may result from project-related accidents.

Implementation of the Project will result in the consumption of energy as it relates to the fuel needed for construction-related activities. Total fossil fuels used for construction vehicles and equipment associated

with the Project will include approximately 623,964 gallons of gasoline; 2,029,333 gallons of diesel fuel; and 709,571 gallons of Jet A fuel. Alternative 6 portions of the Project are expected to use substantially more fuel during construction than the comparable portions of other alternatives (see Section 3.3 of the Final EIR) as a result of helicopter activities. Additionally, construction of the Project will require the manufacture of new materials, some of which will not be recyclable at the end of the Project's lifetime, and the energy required for the production of these materials, which will also result in an irretrievable commitment of natural resources. The anticipated equipment, vehicles, and materials required for construction of the TRTP are detailed in Section 2.2.12 (Project Construction) of the Final EIR. Maintenance and inspection of the Project will not change appreciably from SCE's existing activities in the Project area, and thus will not cause a substantial increase in the consumption or use of nonrenewable resources.

As described in Section 3.5 (Cultural Resources) of the Final EIR, impacts to cultural resources are site-specific, and properties that are eligible or potentially eligible for the National Register of Historic Places (NRHP) or the California Register of Historical Resources (CRHR) occur within and near the APE of several Project tower sites. Other eligible or potentially eligible cultural resource sites are located within or adjacent to the general transmission corridor. Direct impacts to cultural resources will result from ground-disturbing activities such as tower pad preparation and construction, grading of new access or spur roads, reconductoring, tower removal, transportation, storage, and maintenance of construction equipment and supplies, staging area and material yard preparation and use, and use or improvement of existing access roads. Indirect impacts to cultural resources from erosion may also occur within and in the vicinity of the Project area during operation and long-term presence of the Project.

The Project will adversely affect visual resources, and substantially degrade the desired visual character of the ANF (see Section 3.14 of the Final EIR). The southern portion of Segment 4 (S4 MP 14.9 to 17.9) will be in an entirely new 200-foot ROW immediately adjacent to 110th Street West, a County-designated Second Priority Scenic Highway. This new 500-kV transmission line will create adverse visual impacts to the existing rural landscape character and intact visual quality of West 110th Street. In the Center and South areas of the Project, existing towers will be replaced by new towers that are of a greater height and width, which will cause an increase in structural prominence, and create a visible increase in industrial character. As a result, future visual quality will be further reduced by contrasting, unnatural geometric forms and straight lines, and the resulting visual contrast will be very high. The Project will appear to dominate the existing natural-appearing landscape character adjacent to the utility corridor. The new and increased structure height will create additional obstruction of the foreground, middleground, and background landscapes and will result in a high degree of view blockage of high quality landscapes as seen from the KOPs that are described in Section 3.14 of the Final EIR. Additional structure height also will cause additional structure skylining (towers and conductors extending above the horizon line), particularly for towers where, from some vantage points, the existing shorter structures remain below the skyline or only slightly extend above the horizon line. New taller, wider structures that will protrude above the skyline or ridgeline will block more of the natural-appearing horizon and impair scenic views in the ANF.

During the Project's operational phase, the transport of electrical power generated from nonrenewable resources (e.g., natural gas, large hydroelectric, coal) will continue. The Project will facilitate the distribution of renewable wind energy from the TWRA and will accommodate the area's potential for renewable power generation in order to achieve the goals of the California Renewables Portfolio Standard, as well as address projected load growth in the Antelope Valley and transmission constraints in the greater Los Angeles Basin.

Finding/Rationale. The Project will result in the consumption of energy as it relates to the fuel needed for construction-related activities. New material required by the Project construction, some of which will not be recyclable at the end of the Project lifetime, will also be made using energy. Additional irretrievable commitment of natural resources will occur as a result of land disturbance, visual effects, potential cultural resources effects, and potential hazardous materials effects of the Project, as described above.

The CPUC finds that the consumption of these resources is justified for the reasons described in the Statement of Overriding Considerations set forth in Section 7.4 of the CPUC's adopted Decision on this Project.

VI. Findings on Rejected Mitigation Measures and Alternatives Suggested in Comments on the Draft EIR/EIS

VI.1 Air Quality

Proposed Modifications to Mitigation Measures AQ-1c, AQ-1g, AQ-1h, and AQ-6. The Watershed Conservation Authority (the Authority) suggested in their comment letter (see Appendix H, Comment Set A.17) that Impact AQ-3 (Construction of the Proposed Project would expose sensitive receptors to substantial pollutant concentrations) applies to all park and recreational areas such as the San Gabriel River and LARIO Bike trails both of which are in close proximity to Segments 7 and 11 of the Project. The Authority also requested that mitigation measures include scheduling construction during off-peak times of park use, to avoid the effects of air pollutants on park and trail users. The following specific changes were requested in the Authority's comment letter (see Appendix H, Comment Set A.17): (a) AQ-1c: Construction worker carpooling will be "incentivized" [rather than "encouraged"]…; (b) AQ-1g: Restrict idling for all vehicles [rather than diesel engines only] to five minutes; (c) AQ-1h: Add the provision that the applicant would obtain from the Angeles National Forest, Los Angeles County Parks information on peak recreational use and/or conduct a survey to fix specific, as appropriate, off peak hours for deliveries to either 6:00 to 9:30 am or 3:30 to 6:30 pm to reduce impacts to sensitive receptors; and (d) AQ-6: If emission reduction credits are obtained for this project the Authority recommended that one of credits should be a specific study of the impacts of air pollution on sensitive species of the Project area.

Finding. The CPUC finds that specific economic, legal, social, technological, or other considerations make these changes to the mitigation measures infeasible.

Rationale. Although SCAQMD's recommended application of localized significance thresholds includes parks as receptors, they do not consider park users to be any more sensitive to air quality impacts than other sensitive receptors, such as patients in a hospital, and in comparison to other sensitive receptors would have a more limited exposure time and would have the ability to avoid impacts by simply moving away from the active emissions sources. For example, a cyclist on a bike path would pass through the construction equipment downwind exhaust plume within a few seconds. Unlike more fixed locations such as schools, hospitals, or even residences, exposures in recreational areas can often be avoided by moving to another area of the park. As such, no additional air quality mitigation measures, for recreational areas, beyond that recommended to mitigate sensitive receptor impacts from the Project as a whole are considered feasible or would improve the effectiveness of the measures already recommended in the Final EIR. Specifically: (a) For AQ-1c (Limit Vehicle Traffic and Equipment Use), using the word "incentivized" rather than "encouraged" would not improve the effectiveness of the measure; (b) For AQ-1g (Restrict Engine Idling to 5 Minutes), it is infeasible to restrict vehicle idling for vehicles not directly under the control of the project (i.e., personal vehicles), gasoline engine idling would be less frequent since the majority of construction

vehicles would be diesel and gasoline engines have much lower health impacts than diesel engines as the emissions do not include diesel particulate matter and have greater emissions controls, and therefore the recommended changes to this measure would not have any substantial mitigating effect in practice; (c) For AQ-1h (Schedule Deliveries Outside of Peak Traffic Hours), the measure already restricts trips so that they would not occur during peak traffic times (6:00 to 9:30 a.m. and 3:30 to 6:30 p.m.), and limiting deliveries to these times or allowing them to occur during one of these periods as suggested by the Authority would have an overall negative impact to air quality as trucks would likely idle for greater periods due to stop-and-go traffic conditions that generally occur most during peak traffic times; (d) For AQ-6, the offset mitigation is in the form of banked emission credits as necessary to meet federal General Conformity requirements, which would reduce these impacts to less than significant (Class II). Other mitigation does not apply to meeting this federal statutory requirement and would not have any substantial mitigating effect in practice.

VI.2 Biological Resources

Proposed Modifications to Mitigation Measure B-1a. In addition to the Puente Hills Landfill Native Habitat Preservation Authority's (PHLNHPA's) July 24, 2009 proposal for additional mitigation and compensation (addressed in Section VI.2 of these CEQA Findings) the PHLNHPA suggested numerous mitigation measures related to biological resources in its April 2, 2009 comment letter on the Draft EIR/EIS including requesting authority to review and approve the restoration plan; use of only native, locally collected seed for restoration on Habitat Authority lands (same as on NFS lands); and increasing mitigation ratios for large oaks and sensitive vegetation communities.

Finding. The CPUC finds that specific economic, legal, social, technological, or other considerations make these changes to the mitigation measure infeasible.

Rationale. With respect to the request for approval authority over restoration plans adopted as part of the Project, no local government agencies have approval authority over the Project and there is no legal requirement to grant local government agencies approval authority over restoration plans. With respect to the request to use only native, locally collected seed for restoration on Habitat Authority lands, Mitigation Measure B-1a requires the Forest Service to prepare a Habitat Restoration and Revegetation Plan for NFS lands and for SCE to prepare a Habitat Restoration and Revegetation Plan for non-Federal lands. Both plans must include seed cutting and collecting guidelines. Mitigation Measure B-1a also specifies that the seed mix for each plan must be approved by the agencies with control over the lands. The seed mix for both plans must consist of native, locally occurring species collected for local seed sources. Mitigation ratios and restoration guidelines have also been specified for public and private lands within the context of Mitigation Measure B-1a. These ratios reflect a number of factors including direction from the Federal Lead Agency for mitigating effects to National Forest System lands and complying with land management guidelines identified by the Forest Plan. The measure does provide some flexibility in adjusting mitigation ratios to reflect actual site conditions consistent with CEQA requirements that mitigation be proportional to the impact. Therefore, the requested changes are not warranted. Furthermore, with implementation of the mitigation measures recommended in the Final EIR, impacts would be less than significant and no additional mitigation is required.

Proposed Modifications to Mitigation Measures B-3a and B-3b. The United State Environmental Protection Agency requested that Mitigation Measures B-3a (Prepare and Implement a Weed Control Plan) and B-3b (Remove weed seed sources from construction access routes) be revised to include ongoing control of noxious weeds and pre-construction noxious weed seed control in all areas of the Project ROW.

Finding. The CPUC finds that specific economic, legal, social, technological, or other considerations make infeasible the mitigation measure or project alternative identified.

Rationale. Revising the mitigation measures as requested would result in measures that are out of proportion to the Project's impacts. Such measures are required on NFS lands because control of weeds is a National Strategic Priority (USDA, 2005), and is reflected as an overall management goal and desired condition in the 2005 ANF Land Management Plan. However, requiring the same level of long term and pre-construction weed control off NFS lands is beyond the scope of Project impacts to such lands. Furthermore, requirements for controlling weeds during construction, such as washing of vehicles and equipment, are the same on and off NFS lands. The Final EIR concludes that implementation of Mitigation Measure B-1a (Provide restoration/ compensation for impacts to native vegetation communities), Mitigation Measure B-2 (Implement RCA Treatment Plan), and Mitigation Measures B-3a through B-3c (Prepare and implement a Weed Control Plan; Remove weed seed sources from construction routes; and Remove weed seed sources from assembly yards, staging areas, tower pads, pull sites, landing zones, and spur roads) will reduce impacts from the establishment and spread of noxious weeds to less-than-significant levels **(**Class II**).** **(**See Final EIR, Section 3.4.) As such, no additional mitigation is required, and the proposed modifications to Mitigation Measures B-3a and B-3b are rejected as infeasible.

Annual Mitigation Assessment. The California Department of Fish and Game (CDFG) requested that an annual mitigation assessment be implemented based on the miles of transmission line constructed for the estimated life of the TRTP. The annual assessment would be used to fund projects within the general environs for adaptive management and monitoring of impacts from the transmission lines, habitat restoration, and conservation land acquisition. This proposal would also include developing a mitigation assessment fee for the 232,198 acre Tehachapi Wind Resources Area to help insure future management and monitoring of impacts associated with wind energy generation.

Finding. The CPUC finds that specific economic, legal, social, technological, or other considerations make infeasible the mitigation measure or project alternative identified.

Rationale. The Final EIR identifies mitigation measures to address the long-term impacts of the Project. There is no evidence that an annual mitigation assessment as proposed by CDFG would have any mitigating effect in practice. Generally, contribution of funds towards unspecified future programs, improvements or actions is not appropriate mitigation under CEQA, and assessment of fees is only appropriate if it is linked to a specific mitigation program (See *Anderson First Coalition v. City of Anderson* (2005) 130 Cal.App.4th 1173; *Save Our Peninsula Comm. v. Monterey County Bd. of Supervisors* (2001) 87 Cal.App.4th 99, 141). CDFG does not identify a specific mitigation program and there is no evidence that mitigation would actually result from the applicant's contribution of fees as described by CDFG. Requiring a project applicant to pay an unspecified amount of money at an unspecified time to fund an unspecified plan is inadequate mitigation under CEQA (See *San Franciscans for Reasonable Growth v. City & County of San Francisco* (1984) 151 Cal.App.3d 61, 79). The proposed annual mitigation assessment is therefore rejected.

Habitat Restoration within Puente Hills Landfill Native Habitat Preservation Authority Preserve. The PHLNHPA requested further mitigation to off-set the impacts to the Preserve, which include its 25 miles of trails, including habitat restoration to be implemented through the Habitat Authority's in-lieu fee program (described on-line at http://www.habitatauthority.org/devdedmit.shtml).

Finding. The CPUC finds that specific economic, legal, social, technological, or other considerations make infeasible the mitigation measure identified.

Rationale. In order for fee-based programs to be adequate mitigation, there must be evidence that mitigation will actually result and there is a connection between the mitigation and the project (*Anderson First Coalition v. City of Anderson* (2005) 130 Cal. App. 4th 1173). The request for additional mitigation does not provide any evidence that the Habitat Authority's in-lieu fee program will mitigate significant visual impacts created by the Project. Requiring a project applicant to pay an unspecified amount of money at an unspecified time to fund an unspecified plan is inadequate mitigation under CEQA (See *San Franciscans for Reasonable Growth v. City & County of San Francisco* (1984) 151 Cal.App.3d 61, 79). Further, the nexus and proportionality between the proposed mitigation and the impacts of the Project is unclear. Therefore, the proposed in-lieu fee program is rejected.

VI.3 Land Use

Proposed Modifications to Mitigation Measures L-1a, L-1b, and L-2a. The Watershed Conservation Authority (Authority) requested that establishment of the construction liaison for property owners (MM L-1a), noticing of construction to property owners (MM L-1b), and coordination with non-residential property owners for construction plan provisions (MM L-2) for the Project be completed one year prior to the start of any construction-related activities, rather than 14 days as set forth in these mitigation measures.

Finding. The CPUC finds that specific economic, legal, social, technological, or other considerations make these modifications to the mitigation measures infeasible.

Rationale. The Final EIR concludes the impacts that Mitigation Measures L-1a, L-1b and L-2a are designed to address will be less than significant after implementation of the mitigation (Class II). This conclusion is based on the nature of pre-construction and construction-phase activities. Specifically, construction at any single location along a Project segment would not occur every day for the entire construction period. Transmission lines are both dismantled and constructed sequentially, as outlined in Final EIR Sections 2.2.12.4 (Removal of Existing Wire, Structures, and Footings) and 2.2.12.5 (Tower & Pole Construction). Additionally, there are typically periods of no activity at any single location between the completion of one construction phase (or sequence) and the start of the next. As such, residents adjacent to the Project ROW would not be subject to construction-related impacts continuously, nor would the intensity (e.g., work force and equipment requirements) of construction-related activities always be the same. Mitigation Measure L-1a will provide affected residents with a means of communicating construction-related concerns directly to SCE and a response would be required within a 72-hour period of the contact. The purpose of the mitigation is to provide a rapid mechanism for resolving property-specific disturbances related to construction that are considered to be unacceptable by the subject property owner; it is considered to be the most expeditious way of addressing property-specific impacts. Mitigation Measures L-1b will provide affected residents with advance notification of construction-related activities; the purpose of this mitigation measure is to provide residents with the time that may be needed to prepare for construction-related inconveniences and disturbances to minimize exposure to increased noise levels and construction-related equipment emissions. Mitigation Measure L-2a will provide provisions to minimize the length of time that construction-related activities occur in areas actively used for non-residential purposes, such as commercial and service uses, industrial uses, public/special uses, and educational facilities. These mitigation measures are adequate, practicable and can be successfully implemented to reduce temporary construction-related impacts residential and non-residential land uses to a level of less than significant. Therefore, no additional mitigation is required, and requiring completion of these measures one year prior to the start of any construction-related activities would be excessive and infeasible.

VI.4 Noise

Operational Corona Noise. The City of Chino Hills requested that a mitigation be added to the Project requiring the Lead Agencies to obtain noise variances from local agencies before construction work starts anywhere along the Project route. In addition, the City recommends implementing an alternative or additional mitigation detailing what actions the Project will undertake to comply with local noise standards should the affected local agencies decide not to grant the requested variances.

Finding. The CPUC finds that specific economic, legal, social, technological, or other considerations make infeasible the mitigation measure or project alternative identified.

Rationale. There is no evidence that requiring noise variances from local agencies would effectively reduce noise levels. The Applicant Proposed Measures and noise mitigation measures detailed in the Final EIR (see Section 3.10) will reduce noise impacts to the maximum extent feasible. Moreover, the CPUC has preemptive authority over local jurisdictions with regard to the regulation of electrical power lines and electric facilities constructed by public utilities. (See CPUC General Order 131-D.) Therefore, the Project and other projects subject to the CPUC's jurisdiction are not required to obtain approvals from local agencies, including variances from local noise ordinances.

VI.5 Wilderness and Recreation

Use of Trails During Construction. The PHLNHPA requested the use of flagmen and signage to ensure the safe use of Preserve trails during construction activities. In addition, the PHLNHPA requested that any signage on Preserve trails be approved by the Habitat Authority and installed through a coordinated effort with their rangers as least two weeks prior to any construction activities that will impact recreational use of the trail(s).

Finding. The CPUC finds that specific economic, legal, social, technological, or other considerations make infeasible the mitigation measure or project alternative identified.

Rationale. Section 3.15 (Wilderness and Recreation) of the Final EIR provides analysis and discussion of Project impacts that would affect recreational resources, including trails in the Puente Hills Landfill Native Habitat Preservation Area (PHLNHPA). As described in the impact analysis presented in Section 3.15, passive recreation and outdoor enjoyment opportunities in the PHLNHPA, including as related to use of trails along tower access roads and near towers, would be temporarily disrupted during construction activities (Impact R-1), as well as during site-specific maintenance activities (Impact R-2). Due to public safety concerns, it is not possible to entirely avoid the need to temporarily close portions of trails during the construction period and therefore, mitigation to avoid trail closures would be infeasible. However, as part of mitigation measure R-1a (Coordinate construction schedule and maintenance activities with managing officer(s) for affected recreation areas), SCE will develop and adhere to construction timetables developed in coordination with all affected resource agencies, including the PHLNHPA. Mitigation Measures R-1a, R-1b, R-1c, and R-1d will reduce impacts to recreation during construction to a less-than-significant level. In the event that a recreational area falls within one-half mile of a construction staging area and must be temporarily closed during construction, SCE will identify alternative recreational areas and post public notices informing recreationists of closures and alternatives. This documentation will be submitted to the CPUC and/or Forest Service at least 30 days prior to the start construction activities in that area to ensure the public receives sufficient notice. As such, Project-related disruptions of recreational resources and opportunities would be mitigated to a level of less than significant through implementation of Mitigation Measures R-1a through R-1d, which are presented in Section 3.15 of the Final EIR. These mitigation

measures have been edited in the Final EIR to clarify that implementation is required during operation and maintenance activities as well as during construction activities. Accordingly, as required by Mitigation Measure R-1a, SCE would coordinate with the Habitat Authority on matters such as use of signage on Preserve trails, and would coordinate efforts in installing such signage within an acceptable time period. Therefore, no additional mitigation is required.

VII. Findings on Modifications to Mitigation Measures Suggested in Comments on the Proposed Decision

In response to comments provided on the proposed Decision, modifications were made to thirteen mitigation measures presented in the Final EIR. Findings on these modifications are provided in this section.

VII.1 Biological Resources

Modifications to Mitigation Measure B-8a: Conduct protocol surveys for California red-legged frogs and implement avoidance measures. The language in Mitigation Measure B-8a regarding the Aliso Canyon crossing has been clarified to include only monitoring when the crossing is being actively used. Additionally, new restrictions on traffic speed along the access road and a requirement to use of the road only during daylight hours and dry weather have been added to clarify activities that will minimize potential for impacts to this species. Work restrictions during the active season for this species have been reduced from a one-mile buffer to a 0.5-mile buffer to better reflect the biology of the animal and the topography of the occupied area, and the language has been clarified to reflect that restrictions on activity would only occur if an authorized monitor was not present.

Finding. The CPUC finds that certain modifications to Mitigation Measure B-8a are required to ensure its feasibility. These changes will clarify the measure and ensure it accurately reflects the biology of the species, while ensuring it is feasible and effective at minimizing potential impacts. These modifications to Mitigation Measure B-8a do not result in a new significant impact or a substantial increase in the severity of an environmental impact. Mitigation Measure B-8a, as modified, is equivalent to or more effective in reducing or avoiding the project's significant environmental effects as it was prior to modification. The modifications to Mitigation Measure B-8a is not significant new information and will not cause any potentially significant effects on the environment. Therefore, the CPUC is not required to recirculate these modifications for public review per CEQA Guidelines § 15088.5.

Rationale. The decrease in buffer size around occupied habitat from one mile to 0.5 mile reflects the fact that this species is not known to range far into upland habitat, and the topography in the area where it is known to occur (Aliso Canyon) would further limit the potential for this species to occur large distances from the drainage. Therefore, because individuals are not likely to occur more than 0.5 mile from suitable occupied habitat, this buffer is still appropriately protective of the species. The changes to Mitigation Measure B-8a clarify the measure and ensure it accurately reflects the biology of the species, while ensuring it is feasible and effective at minimizing impacts.

The CPUC hereby adopts Mitigation Measure B-8a, as modified, as a condition of Project approval.

Modifications to Mitigation Measure B-16: Conduct protocol or focused surveys for coastal California gnatcatcher and implement avoidance measures. Mitigation Measure B-16 previously indicated that no "take" of California gnatcatchers would be acceptable within the Montebello Hills. The

measure has been revised to include the language "unless otherwise authorized by the USFWS" with regard to conducting Project activities outside of the breeding season in the Montebello Hills.

Finding. The CPUC finds that certain modifications to Mitigation Measure B-16 are required to ensure its feasibility. The modification to Mitigation Measure B-16 does not result in a new significant impact or a substantial increase in the severity of an environmental impact. Mitigation Measure B-16, as modified, is equivalent to or more effective in reducing or avoiding the Project's significant environmental effects as it was prior to modification. The modification to Mitigation Measure B-16 is not significant new information and will not cause any potentially significant effects on the environment. Therefore, the CPUC is not required to recirculate these modifications for public review per CEQA Guidelines § 15088.5.

Rationale. The revisions to Mitigation Measure B-16 clarify and acknowledge the role of the USFWS in the implementation of mitigation intended to reduce impacts to federally listed species for which consultation under Section 7 of the federal Endangered Species Act is being conducted. This modification would provide for the use of appropriate management measures based on specific types of operation and maintenance activities. For instance, removal of nonnative vegetation in disturbed areas could be accomplished with the use of non-mechanized tools resulting in little to no disturbance to breeding activities.

The CPUC hereby adopts Mitigation Measure B-16, as modified, as a condition of Project approval.

Modifications to Mitigation Measure B-29: Implement CDFG protocol for burrowing owls. Mitigation Measure B-29 previously required that any damaged or collapsed burrows be replaced with artificial burrows in adjacent habitat. As modified, it will require that any damaged or collapsed burrows be enhanced or replaced with artificial burrows in suitable habitat within the right of way consistent with CDFG guidelines.

Finding. The CPUC finds that certain modifications to Mitigation Measure B-29 are required to ensure its feasibility. Specifically, the language clarifies that artificial burrows and/or enhanced burrows shall be located within the right-of-way, and that the enhancement of existing burrows would be as effective as the provision of new artificial burrows in mitigating impacts to burrowing owl. This modification to Mitigation Measure B-29 does not result in a new significant impact or a substantial increase in the severity of an environmental impact. Mitigation Measure B-29, as modified, is equivalent to or more effective in reducing or avoiding the Project's significant environmental effects as it was prior to modification. The modification to Mitigation Measure B-29 is not significant new information and will not cause any potentially significant effects on the environment. Therefore, the CPUC is not required to recirculate these modifications for public review per CEQA Guidelines § 15088.5.

Rationale. Because SCE typically does not have property rights outside of its right-of-way, it is not feasible to construct burrows there. As such, the revisions to this measure make it feasible for SCE to implement. Furthermore, the revisions to the mitigation measure, which allow for enhancement of existing burrows rather than only replacement (with artificial burrows), do not decrease its effectiveness. According to California Department of Fish and Game (CDFG) protocol, when destruction of occupied burrowing owl burrows is unavoidable, impacts to burrows can be effectively mitigated by burrow enhancement (enlarged or cleared of debris) or burrow creation (by installing artificial burrows).This measure is now consistent with CDFG guidelines, which state that enhancement and burrow creation are both effective ways to mitigate impacts to burrowing owls.

The CPUC hereby adopts Mitigation Measure B-29, as modified, as a condition of Project approval.

VII.2 Environmental Contamination and Hazards

Modifications to Mitigation Measure E-3c: Verify location and status of abandoned oil and natural gas wells. Mitigation Measure E-3c has been modified to clarify that if documentation of proper abandonment of oil wells is not available from the California Department of Conservation, Division of Oil, Gas and Geothermal Resources (DOGGR), SCE shall provide a work plan outlining natural gas testing and venting for the work area and excavations.

Finding. The CPUC finds that certain modifications to Mitigation Measure E-3c are required to ensure its feasibility. These modification to Mitigation Measure E-3c are not significant new information and do not result in a new significant impact or a substantial increase in the severity of an environmental impact. Mitigation Measure E-3c, as modified, is equivalent to or more effective in reducing or avoiding the Project's significant environmental effects as it was prior to modification. Therefore, the CPUC is not required to recirculate these modifications for public review per CEQA Guidelines § 15088.5.

Rationale. Due to the age of some old oil wells, it may be difficult or impossible to obtain documentation of abandonment and/or well status. In addition, obtaining written confirmation on whether such wells have been abandoned correctly is highly dependent on recorded information provided by the California Department of Conservation, Division of Oil, Gas and Geothermal Resources (DOGGR). If documentation of proper abandonment is not available, the risk of harm to workers from explosions or exposure to toxic gas would be mitigated to below the level of significance with implementation of a work plan that would provide for worker safety and allow for accurate detection of any natural gas leaks from improperly sealed wells. The work plan would prescribe natural gas testing and controls for the work area and excavations consistent with OSHA standards. The modifications ensure that the implementation of Mitigation Measure E-3c is both effective and feasible.

The CPUC hereby adopts Mitigation Measure E-3c, as modified, as a condition of Project approval.

VII.3 Geology, Soils, and Paleontology

Modifications to Mitigation Measure G-4: Avoid placement of Project structures on active fault traces. The title of Mitigation Measure G-4 has been modified to clarify the intent of the mitigation requirements, to avoid the placement of Project structures on active fault traces.

Finding. The CPUC finds that certain modifications to Mitigation Measure G-4 are required to ensure its feasibility. The modification to the title of Mitigation Measure G-4 does not change the context or intent of the mitigation, and does not result in a new significant impact or a substantial increase in the severity of an environmental impact. Mitigation Measure G-4, as modified, is equivalent to or more effective in reducing or avoiding the Project's significant environmental effects as it was prior to modification. The modification to Mitigation Measure G-4 is not significant new information, and the CPUC is not required to recirculate these modifications for public review per CEQA Guidelines § 15088.5.

Rationale. Fault crossings, where multiple feet of displacement are expected along active faults, are best crossed as overhead lines with towers placed to avoid active traces, thus allowing for flex in the conductor lines to absorb offset. Fault-related damage to Project structures could result in power outages, damage to nearby roads of structures, and injury or death to people, a significant impact. The purpose of Mitigation Measure G-4 is to reduce significant Project impacts associated with overhead active fault crossings. The mitigation requires that for crossings of active faults, the Project design shall be planned so as not to locate towers or other Project structures on the traces of active faults, and that Project components shall be placed

as far as feasible outside the areas of mapped fault traces. As presented in the Final EIR, this mitigation measure was titled "Avoid placement of Project structures within active fault zones". However, due to the expanse of fault zones in the Project area, it is not technically feasible to avoid the placement of structures within a fault zone, whereas it is both feasible and effective to avoid the placement of structures on active fault traces within the fault zones.

The CPUC hereby adopts Mitigation Measure G-4, as modified, as a condition of Project approval.

VII.4 Land Use

Modifications to Mitigation Measure L-1a: Construction liaison – Property owners. This mitigation measure requires that SCE provides summary documentation of all complaints, comments, and concerns communicated to the local public liaisons every two months for the duration of construction and for one year following the completion of construction, and that the compliance documentation includes the name and address of the person contacting the local public liaison(s), the date of contact, and what actions were taken to rectify and/or address the complaints, comments or concerns expressed. However, individuals have expressed safety and privacy concerns to SCE, thus necessitating that personal information required to be included within the compliance documentation should be handled as confidential. In order to protect the privacy and safety of individuals who submit complaints, comments, and/or concerns regarding the Project to SCE's local public liaison(s), Mitigation Measure L-1a has been modified to clarify that the compliance documentation which includes individuals' name and address will be treated as confidential documentation, and will not be posted on the CPUC website.

Finding. The CPUC finds that certain modifications to Mitigation Measure L-1a are required to ensure its feasibility. This modification to Mitigation Measure L-1a does not result in a new significant impact or a substantial increase in the severity of an environmental impact. Mitigation Measure L-1a, as modified, is equivalent to or more effective in reducing or avoiding the Project's significant environmental effects as it was prior to modification. The modification to Mitigation Measure L-1a will not cause any potentially significant effects on the environment. Therefore, we are not required to recirculate these modifications for public review per CEQA Guidelines § 15088.5.

Rationale. The provision to treat compliance documentation as confidential has no potential to effect changes to the environment or limit the effectives of Mitigation Measure L-1a.

The CPUC hereby adopts Mitigation Measure L-1a, as modified, as a condition of Project approval.

Modifications to Mitigation Measure L-4: Consult with federal, State, and local agencies. Mitigation Measure L-4 has been revised to clarify that the intent of the mitigation measure is to "minimize" permanent restrictions or preclusions of land management practices.

Finding. The CPUC finds that certain modifications to Mitigation Measure L-4 are required to ensure its feasibility. The modification to Mitigation Measure L-4 does not result in a new significant impact or a substantial increase in the severity of an environmental impact. Mitigation Measure L-4, as modified, is equivalent to or more effective in reducing or avoiding the Project's significant environmental effects as it was prior to modification. The modification to Mitigation Measure L-4 is not significant new information and will not cause any new significant effects on the environment. Therefore, the CPUC is not required to recirculate these modifications for public review per CEQA Guidelines § 15088.5.

Rationale. In accordance with General Order (G.O.) 131-D, public utilities shall consult with local agencies regarding land use matters in electric power line projects, but are preempted from regulation by local

jurisdictions. The purpose of Mitigation Measure L-4 is to exceed existing legal requirements to reduce land use impacts of the Project. However, it may not be possible to "ensure" that there are no permanent restrictions or preclusions of local land management practices, as the mitigation was initially worded. Therefore, modification to this language is necessary to provide for the feasible implementation of Mitigation Measure L-4. As modified, Mitigation Measure L-4 will minimize potential long-term restrictions and/or preclusions of land use management practices to the maximum extent feasible. The modification will neither reduce the practical effectiveness of Mitigation Measure L-4 nor increase the severity of land use related impacts. The provision for a permanent liaison to affected land use agencies for the operational life of the Project will serve as an appropriate mechanism for the resolution of any land use management conflicts.

The CPUC hereby adopts Mitigation Measure L-4, as modified, as a condition of Project approval.

VII.5 Visual Resources

Modifications to Mitigation Measure V-2c: Establish Permanent Screen. Mitigation Measure V-2c is revised to only apply to Vincent Substation, not Antelope Substation.

Finding. The CPUC finds that certain modifications to Mitigation Measure V-2c are required to accurately address Project impacts. Specifically, because SCE's proposed Project includes construction of an eight-foot-high perimeter wall around Antelope Substation, the CPUC finds that the requirement in Mitigation Measure V-2c for establishment of a perimeter screen at Antelope Substation is unnecessary and that the visual screening needed to reduce visual impacts will be adequately accomplished by the proposed perimeter wall. Therefore, Mitigation Measure V-2c is not applicable to Antelope Substation and is only needed at Vincent Substation. This is consistent with previous determinations by the CPUC, such as at Windhub Station, that a perimeter wall provides adequate screening of the interior substation areas from outside views. These modifications to Mitigation Measure V-2c do not result in a new significant impact or a substantial increase in the severity of an environmental impact. Mitigation Measure V-2c, as modified, is equivalent to or more effective in reducing or avoiding the Project's significant environmental effects as it was prior to modification. The modifications to Mitigation Measure V-2c are not significant new information, and the CPUC is not required to recirculate these modifications for public review per CEQA Guidelines § 15088.5.

Rationale. The purpose of Mitigation Measure V-2c is to screen views of the interior areas of the Antelope Substation and Vincent Substation expansion areas from outside viewers. This can be accomplished either through the construction of a perimeter wall or fence or through the establishment of thick evergreen vegetation around the substation perimeter. As described in the Final EIR, screening of substation equipment from outside views reduces Project impacts on landscape character and visual quality. Therefore, the requirement in Mitigation Measure V-2c for establishment of a perimeter screen at Antelope Substation is unnecessary and removing it will not decrease the effectiveness of the mitigation measure.

The CPUC hereby adopts Mitigation Measure V-2c, as modified, as a condition of Project approval.

VII.6 Wilderness and Recreation

Modifications to Mitigation Measure R-1a: Coordinate construction schedule and maintenance activities with managing officer(s) for affected recreation areas. Mitigation Measure R-1a has been modified to clarify that it does not apply to routine maintenance activities but rather, to maintenance

activities that are more intensive than those considered to be routine. This mitigation measure has also been modified to clarify that the operations and maintenance requirements apply only to federal lands, and the edits to include operations and maintenance requirements were made at the request of the USDA Forest Service, the NEPA Lead Agency for this project. The construction-related activities included in Mitigation Measure R-1a applies to all jurisdictions (federal and non-federal) affected by the Project.

Finding. The CPUC finds that certain modifications to Mitigation Measure R-1a are required to accurately address Project impacts. These modifications to Mitigation Measure R-1a do not result in a new significant impact or a substantial increase in the severity of an environmental impact. Mitigation Measure R-1a, as modified, is equivalent to or more effective in reducing or avoiding the Project's significant environmental effects as it was prior to modification. The modifications to Mitigation Measure R-1a are not significant new information, and the CPUC is not required to recirculate these modifications for public review per CEQA Guidelines § 15088.5.

Rationale. Per the request of the USDA Forest Service, Mitigation Measure R-1a was edited between the Draft EIR/EIS and the Final EIR to include operation and maintenance activities. The intent of these modifications was to require coordination between SCE and the Forest Service regarding maintenance activities that are beyond the scope of "routine" maintenance. Additional revisions to Mitigation Measure R-1a are now required to clarify the circumstances under which post-construction coordination is required. As described in Section 2.2.13 (Operations and Maintenance) of the Final EIR, general operations and maintenance activities within the ANF would occur according to the terms and conditions of the Special Use authorization to be issued by the Forest Service, while more extensive maintenance determined by an authorized officer to be outside the scope of approved operation and maintenance plans would require additional approvals/permits from the Forest Service. The operations and maintenance provisions included in Mitigation Measure R-1a are intended to apply to the "more extensive maintenance" activities described in Section 2.2.13, which may include but are not limited to: drainage repairs, replacement of tower components, or additional slope stabilizations measures undertaken after construction

The CPUC hereby adopts Mitigation Measure R-1a, as modified, as a condition of Project approval.

Modifications to Mitigation Measure R-1b: Identify and provide noticing of alternative recreation areas. Mitigation Measure R-1b has been modified to clarify that it does not apply to routine maintenance activities but rather, to maintenance activities that are more intensive than those considered to be routine. This mitigation measure has also been modified to clarify that the operations and maintenance requirements apply only to federal lands, and the edits to include operations and maintenance requirements were made at the request of the USDA Forest Service, the NEPA Lead Agency for this project. The construction-related activities included in Mitigation Measure R-1b applies to all jurisdictions (federal and non-federal) affected by the Project.

Finding. The CPUC finds that certain modifications to Mitigation Measure R-1b are required to accurately address Project impacts. These modifications to Mitigation Measure R-1b do not result in a new significant impact or a substantial increase in the severity of an environmental impact. Mitigation Measure R-1b, as modified, is equivalent to or more effective in reducing or avoiding the Project's significant environmental effects as it was prior to modification. The modifications to Mitigation Measure R-1b will not cause any potentially significant effects on the environment. Therefore, the CPUC is not required to recirculate these modifications for public review per CEQA Guidelines § 15088.5.

Rationale. Per the request of the USDA Forest Service, Mitigation Measure R-1b was edited between the Draft EIR/EIS and the Final EIR to include operation and maintenance activities. The intent of these

modifications was to require coordination between SCE and the Forest Service regarding maintenance activities that are beyond the scope of "routine" maintenance and therefore, revisions are now required to clarify the circumstances under which post-construction coordination is required. As described in Section 2.2.13 (Operations and Maintenance) of the Final EIR, general operations and maintenance activities within the ANF would occur according to the terms and conditions of the Special Use authorization to be issued by the Forest Service, while more extensive maintenance determined by an authorized officer to be outside the scope of approved operation and maintenance plans would require additional approvals/permits from the Forest Service. The operations and maintenance provisions included in Mitigation Measure R-1b are intended to apply to the "more extensive maintenance" activities described in Section 2.2.13, which may include but are not limited to: drainage repairs, replacement of tower components, or additional slope stabilizations measures undertaken after construction.

The CPUC hereby adopts Mitigation Measure R-1b, as modified, as a condition of Project approval.

Modifications to Mitigation Measure R-1c: Notification of temporary closure of OHV routes. Mitigation Measure R-1c has been modified to clarify that it does not apply to routine maintenance activities but rather, to maintenance activities that are more intensive than those considered to be routine. This mitigation measure has also been modified to clarify that the operations and maintenance requirements apply only to federal lands, and the edits to include operations and maintenance requirements were made at the request of the USDA Forest Service, the NEPA Lead Agency for this project. The construction-related activities included in Mitigation Measure R-1c applies to all jurisdictions (federal and non-federal) affected by the Project.

Finding. The CPUC finds that certain modifications to Mitigation Measure R-1c are required to accurately address Project impacts. These modifications to Mitigation Measure R-1c do not result in a new significant impact or a substantial increase in the severity of an environmental impact. Mitigation Measure R-1c, as modified, is equivalent to or more effective in reducing or avoiding the Project's significant environmental effects as it was prior to modification. The modifications to Mitigation Measure R-1c are not significant new information, and the CPUC is not required to recirculate these modifications for public review per CEQA Guidelines § 15088.5.

Rationale. Per the request of the USDA Forest Service, Mitigation Measure R-1c was edited between the Draft EIR/EIS and the Final EIR/EIS to include operation and maintenance activities. The intent of these modifications was to require coordination between SCE and the Forest Service regarding maintenance activities that are beyond the scope of "routine" maintenance and therefore, revisions are now required to clarify the circumstances under which post-construction coordination is required. As described in Section 2.2.13 (Operations and Maintenance) of the Final EIR, general operations and maintenance activities within the ANF would occur according to the terms and conditions of the Special Use authorization to be issued by the Forest Service, while more extensive maintenance determined by an authorized officer to be outside the scope of approved operation and maintenance plans would require additional approvals/permits from the Forest Service. The operations and maintenance provisions included in Mitigation Measure R-1c are intended to apply to the "more extensive maintenance" activities described in Section 2.2.13, which may include but are not limited to: drainage repairs, replacement of tower components, or additional slope stabilizations measures undertaken after construction.

The CPUC hereby adopts Mitigation Measure R-1c, as modified, as a condition of Project approval.

Modifications to Mitigation Measure R-1d: Notification of temporary closure and reroute of the Pacific Crest National Scenic Trail (PCT). Mitigation Measure R-1d has been modified to clarify that it does not apply to routine maintenance activities but rather, to maintenance activities that are more

intensive than those considered to be routine. This mitigation measure has also been modified to clarify that the operations and maintenance requirements apply only to federal lands, and the edits to include operations and maintenance requirements were made at the request of the USDA Forest Service, the NEPA Lead Agency for this project. The construction-related activities included in Mitigation Measure R-1d applies to all jurisdictions (federal and non-federal) affected by the Project.

Finding. The CPUC finds that certain modifications to Mitigation Measure R-1d are required to accurately address Project impacts. These modifications to Mitigation Measure R-1d do not result in a new significant impact or a substantial increase in the severity of an environmental impact. Mitigation Measure R-1d, as modified, is equivalent to or more effective in reducing or avoiding the Project's significant environmental effects as it was prior to modification. The modifications to Mitigation Measure R-1d is not significant new information, and the CPUC is not required to recirculate these modifications for public review per CEQA Guidelines § 15088.5.

Rationale. Per the request of the USDA Forest Service, Mitigation Measure R-1d was edited between the Draft EIR/EIS and the Final EIR to include operation and maintenance activities. The intent of these modifications was to require coordination between SCE and the Forest Service regarding maintenance activities that are beyond the scope of "routine" maintenance and therefore, revisions are now required to clarify the circumstances under which post-construction coordination is required. As described in Section 2.2.13 (Operations and Maintenance) of the Final EIR/EIS, general operations and maintenance activities within the ANF would occur according to the terms and conditions of the Special Use authorization to be issued by the Forest Service, while more extensive maintenance determined by an authorized officer to be outside the scope of approved operation and maintenance plans would require additional approvals/permits from the Forest Service. The operations and maintenance provisions included in Mitigation Measure R-1d are intended to apply to the "more extensive maintenance" activities described in Section 2.2.13, which may include but are not limited to: drainage repairs, replacement of tower components, or additional slope stabilizations measures undertaken after construction.

The CPUC hereby adopts Mitigation Measure R-1d, as modified, as a condition of Project approval.

VII.7 Wildfire Prevention and Suppression

Modifications to Mitigation Measure F-3b: Cease work during Red Flag Warning events. Mitigation Measure F-3b has been modified to clarify that an exception to the requirement to cease work during Red Flag Warning events would be permitted for transmission line maintenance and testing activities that are necessary to maintain accordance with NERC Reliability Standards.

Finding. The CPUC finds that certain modifications to Mitigation Measure F-3b are required to accurately address Project impacts. These modifications to Mitigation Measure F-3b do not result in a new significant impact or a substantial increase in the severity of an environmental impact. Mitigation Measure F-3b, as modified, is equivalent to or more effective in reducing or avoiding the Project's significant environmental effects as it was prior to modification. The modifications to Mitigation Measure F-3b are not significant new information, and the CPUC is not required to recirculate these modifications for public review per CEQA Guidelines § 15088.5.

Rationale. The intent of this mitigation measure is to ensure that wildfire ignitions do not occur as a result of construction or maintenance activities during extreme weather conditions. Ignitions that occur during extreme weather conditions tend to spread out of control and result in wide-spread damages to natural resources, nearby communities, and utility infrastructure. To ensure that Mitigation Measure F-3b

does not reduce system reliability, modifications are recommended that specify how this mitigation measure will minimize the potential for wildfire ignitions to occur. These modifications to the measure will not reduce its effectiveness for two reasons. First, SCE will be obliged to perform any necessary emergency maintenance and testing work in compliance with the fire-safe practices set forth in Mitigation Measures F-3a, F-3c, and F-3d. In addition, the modifications relate to maintenance and testing procedures to meet the North American Electric Reliability Corporation (NERC) reliability standards. Compliance with NERC reliability standards during extreme weather conditions consist of testing procedures that would not increase the likelihood of wildfire ignition. NERC maintenance procedures include ongoing maintenance work that would not be required to be performed during extreme weather conditions.

The CPUC hereby adopts Mitigation Measure F-3b, as modified, as a condition of Project approval.

VIII. Findings on Proposed Mitigation Plans

VIII.1 Chino Hills 21st Century Green Partnership Proposal

In August 2008, an organization called the 21st Century Green Partnership (21st Century) presented a proposal in support of Alternative 4 (Chino Hills Alternatives): the 21st Century "mitigation and recovery plan" (the Plan). The Plan was designed for implementation in conjunction with the Alternative 4 routes. The Plan has four components – Bio-Corridor Expansion, View Shed Enhancements, Habitat Enhancements, and Operational Enhancements. These elements are described below.

Bio-Corridor Expansion

CHSP Land Acquisition. 21st Century proposes the acquisition of undeveloped land adjacent to the boundaries of CHSP in order to expand the CHSP and provide connectivity to natural habitat areas in nearby Prado Basin. The City of Chino Hills has identified certain undeveloped parcels of land east of CHSP and within Carbon Canyon totaling approximately 2,500 acres that would be acquired for CHSP expansion under 21st Century's proposal. The City of Chino Hills has offered to provide assistance to the CHSP with the acquisition of these properties.

View-Shed Enhancements

Removal of Existing Transmission Lines in CHSP. 21st Century proposes the removal of certain existing transmission lines that currently traverse CHSP. 21st Century has indicated that there are currently 4.6 miles of de-energized 115-kV line (CEP "O" line - eastern portion, 2.4 miles; western portion, 2.2 miles) and 2.4 miles of de-energized single-circuit 220-kV line within CHSP that could be considered for removal. SCE is already committed to removing these de-energized existing transmission lines within CHSP irrespective of the 21st Century proposal as part of an unrelated agreement between Hills for Everyone and SCE (see additional discussion below).

21st Century has also proposed that the transmission lines that remain in CHSP be relocated away from ridgelines and other prominent areas to improve views within CHSP. 21st Century proposes that the removal and relocation plan be reviewed and approved by the Department of Parks and Recreation and made a part of the CPUC's approval of the TRTP. Alternatives 4C and 4C Modified include the relocation of certain existing 220-kV and 500-kV transmission lines within CHSP, including the relocation of a portion of an existing 220-kV line to an alignment outside the CHSP boundary.

Habitat Enhancements

Habitat Restoration in CHSP. 21st Century has proposed a habitat restoration program that is intended to target and rank areas within CHSP for restoration based on several criteria, including:

- Location relative to core habitat;
- Location relative to bio-corridors;
- Existing condition of habitat;
- Presence of target species indicating viability of the site; and
- Potential to support special-status species.

Areas within the three bio-corridors that meet the criteria would be buffered 300 feet to delineate approximate restoration areas. According to 21st Century, the 300-foot buffer is based upon functional assessment standards that consider an aquatic feature with a 300-foot buffer of native habitat as high functioning.

21st Century has identified three potential habitat restoration areas with CHSP:

- Water Canyon - totaling approximately 14 acres, including 4 acres of riparian habitat and 10 acres of sage scrub habitat;
- Brush Canyon - totaling approximately 7 acres, including 1 acre of riparian habitat and 6 acres of sage scrub habitat; and
- Lower Aliso Canyon - totaling approximately 39 acres, including 8 acres of riparian habitat and 31 acres of sage scrub habitat.

The restoration proposed by 21st Century would include eradication of invasive plant species, such as mustard, thistle and tamarisk, and the supplemental planting of riparian oak woodland and cottonwood willow riparian species within and adjacent to the canyon bottoms. 21st Century also proposes supplemental planting of scrub species and native grass species in adjacent upland areas that currently support non-native grassland. In addition, the 21st Century proposal includes funding for monitoring and maintenance of the restoration areas for a period of ten years. The City of Chino Hills has indicated that it would seek to establish a partnership with California Polytechnic State University, Pomona, to help monitor the success of the restoration areas and provide oversight of maintenance and management activities. The intent of this partnership is to provide a long-term educational and research opportunity that would also serve to reduce initial and ongoing maintenance costs for the restoration project.

Operational Enhancements

Fund for New Personnel. 21st Century also proposes creating a fund for ongoing operational expenses to establish an endowment to hire one environmental scientist and one ranger. These staff positions would monitor the impacts of SCE TRTP construction activities, create and monitor the proposed restoration mitigation, and manage new lands to be acquired through the bio-corridor expansion program.

Finding. The CPUC finds that specific economic, legal, social, technological, or other considerations make the 21st Century Green Partnership proposal infeasible. Furthermore, the City of Chino Hills 21st Century Green Partnership proposal only applies to Alternative 4, which is not a part of the Project, as presented in Section VI.4.

Rationale. Two elements of the Plan – Bio-Corridor Expansion and Habitat Enhancements – address biological resources. These elements of the Plan are not appropriate mitigation for the impacts of Alternative 4 because they do not reduce any impacts of either the proposed Project (Alternative 2) or Alternative 4 as defined under the applicable thresholds of significance. All of Alternative 4's significant impacts to

biological resources, including impacts from habitat disturbance to annual grasslands and limited riparian areas, runoff and erosion from access and spur roads, and disturbance to sensitive wildlife during construction (e.g., least Bell's vireo) would be mitigated to below the level of significance with implementation of the mitigation measures proposed in Chapter 3.4 of the Final EIR, with the exception of cumulative impacts. The following mitigation measures will be implemented to reduce biological resource impacts to a less-than-significant level:

- AQ-1a (Implement Construction Fugitive Dust Control Plan),
- B-1a (Provide restoration/compensation for impacts to native vegetation communities),
- B-1b (Implement a Worker Environmental Awareness Program),
- B-1c (Treat cut tree stumps with Sporax)
- B-2 (Implement RCA Treatment Plan),
- B-3a (Prepare and implement a Weed Control Plan),
- B-3b (Remove weed seed sources from construction access routes),
- B-3c (Remove weed seed sources from assembly yards, staging areas, tower pads, pull sites, landing zones, and spur roads),
- B-5 (Conduct protocol or focused surveys for listed riparian birds and avoid occupied habitat),
- B-7 (Conduct preconstruction surveys for State and federally Threatened, Endangered, Proposed, Petitioned, and Candidate plants and avoid any located occurrences of listed plants),
- B-8a (Conduct protocol surveys for California red-legged frogs and implement avoidance measures),
- B-8b (Conduct biological monitoring),
- B-9 (Conduct protocol surveys for arroyo toads and implement avoidance measures in occupied areas),
- B-10 (Conduct presence or absence surveys for desert tortoise and implement avoidance measures),
- B-12 (Implement avoidance and minimization measures for Santa Ana sucker and other aquatic organisms),
- B-14 (Monitor construction in condor habitat and remove trash and micro-trash from the work area daily),
- B-15 (Conduct protocol surveys for listed riparian birds and avoid occupied habitat),
- B-16 (Conduct protocol or focused surveys for coastal California gnatcatchers and implement avoidance measures),
- B-17 (Preserve off-site habitat and/or habitat restoration for the coastal California gnatcatcher),
- B-18a (Conduct pre-construction surveys for Swainson's hawks),
- B-18b (Removal of nest trees for Swainson's hawks),
- B-19 (Compensate for loss of foraging habitat for Swainson's hawks),
- B-22a (Conduct protocol surveys for Mohave ground squirrels),
- B-22b (Implement construction monitoring for Mohave ground squirrels),
- B-22c (Preserve off-site habitat for the Mohave ground squirrel),
- B-23 (Preserve offsite habitat/management of existing populations of special-status plants),
- B-24 (Conduct focused presence/absence surveys for southwestern pond turtle and implement monitoring, avoidance, and minimization measures),
- B-25 (Conduct focused surveys for the two-striped garter snake and south coast garter snake and implement monitoring, avoidance, and minimization measures),
- B-26 (Conduct focused surveys for coast range newt and implement monitoring, avoidance, and minimization measures),
- B-27 (Monitoring, avoidance and minimization measures for special-status terrestrial herpetofauna)
- B-29 (Implement CDFG protocol for burrowing owls),
- B-30 (Conduct pre- and during construction nest surveys for spotted owl),
- B-33a (Maternity colony or hibernaculum surveys for roosting bats),
- B-33b (Provision of substitute roosting bat habitat),

- B-33c (Exclude bats prior to demolition of roosts),
- B-36 (Conduct focused surveys for San Diego desert woodrats and passively relocate),
- B-37 (Conduct focused surveys for ringtail and passively relocate during the non-breeding season),
- B-38 (Conduct focused surveys for American badger and passively relocate during the non-breeding season),
- H-1a (Implement an Erosion Control Plan and demonstrate compliance with water quality permits), and
- H-1b (Dry weather construction).

Additional measures introduced by the 21st Century Plan are not required to mitigate Project effects to biological resources, as these impacts have been adequately reduced to a level of less than significant. Impacts associated with the re-routed portion of Alternative 4 would remain cumulatively significant and unavoidable. However, the 21st Century Plan would not reduce Alternative 4's contribution to cumulative biological impacts..Therefore, the Bio-Corridor Expansion and Habitat Enhancement measures proposed in the 21st Century Plan are rejected because they would not provide meaningful additional mitigation beyond the measures already adopted. Moreover, the 21st Century Plan is not applicable because Alternative 4 will not be implemented as part of the Project.

The remaining measures proposed by 21st Century, View-Shed Enhancement and Operational Enhancements, are similarly rejected because they do not meet CEQA requirements for mitigation. The View-Shed Enhancement involves the removal of existing de-energized transmission lines within CHSP. However, SCE is already committed to removing these de-energized existing transmission lines within CHSP as part of an unrelated agreement. SCE originally committed to removing these lines in 1982 as part of an agreement between Hills for Everyone and SCE described in a letter dated April 7, 1982, from William Elston (Attorney for SCE) to Claire Schlotterbeck (Hills for Everyone) in response to CPUC Decision D.82-07-9319. SCE confirmed this in a letter from Leslie Starck to Ruth Coleman, dated January 27, 2009, (see Final EIR Appendix H, Comment Letter A.23, Exhibit A) and clarified the scope and timing of this commitment in a letter from Susan Nelson (SCE) to John Boccio (CPUC), dated September 4, 2009 (see Final EIR Appendix H, Comment Letter A.23, Exhibit B). Since the removal of these existing de-energized lines will take place irrespective of the 21st Century proposal, the question of whether this element of the proposal would constitute a proper mitigation for any of the impacts identified under Alternative 4 is moot and need not be considered further. It is rejected as ineffective because it will not provide meaningful additional mitigation beyond that already in place.

The Operational Enhancements measure includes an endowment to hire an environmental scientist and a ranger. A contribution of funds to unspecified future programs, improvements, or actions is not appropriate mitigation under CEQA (See *Anderson First Coalition v. City of Anderson* (2005) 130 Cal.App.4th 1173; *Save Our Peninsula Comm. v. Monterey County Bd. of Supervisors* (2001) 87 Cal.App.4th 99, 141). Assessment of fees is only appropriate if it is linked to a specific mitigation program. (*Id.*) A commitment to pay fees is not considered mitigation under CEQA unless there is evidence that mitigation will actually result. (See *Kings County Farm Bureau v. City of Hanford* (1990) 221 Cal.App.3d 692, 727.) It is not clear from the 21st Century Plan that the payment of fees will translate into actual mitigation and no mitigation program is defined for the fees. CEQA does not accept as mitigation a plan to create and implement a future program. (See *San Franciscans for Reasonable Growth v. City & County of San Francisco* (1984) 151 Cal.App.3d 61, 79 [requirement that applicant pay an unspecified amount at an unspecified time, in compliance with an unspecified transit funding mechanism, was inadequate mitigation because it was not possible to evaluate its effectiveness].) This measure is therefore rejected as infeasible.

Finally, the 21st Century Plan calls for compensatory benefits. Compensatory benefits unrelated to project benefits are outside the scope of CEQA. CEQA simply does not require project proponents to provide or

pay for compensation unrelated to project impacts (See *Anderson First Coalition v. City of Anderson* (2005) 130 Cal.App.4th 1173; *Save Our Peninsula Comm. v. Monterey County Bd. of Supervisors* (2001) 87 Cal.App.4th 99, 141). The introduction to the Plan states that the Plan provides "benefits from an environmental as well as user perspective" and "focuses on areas we believe to be important to the State". However, the Plan does not indicate what significant impacts would be mitigated by the Plan. The Plan also states that the funding source for the Plan is the CPUC's low cost/no cost policy for reduction of electric and magnetic fields (EMF), which provides that up to four percent of a transmission project's cost can be used to incorporate measures into the design of the project to reduce EMF levels. The fact that the proposed funding for the Plan would be generated from the CPUC's low cost/no cost EMF reduction policy, suggests that the Plan is intended to reduce EMF levels. However, none of the four components of the Plan would affect EMF generation. Further, the CPUC's low cost/no cost EMF reduction policy is not intended to generate funds for mitigation, but rather is a directive to the electrical utility to incorporate design measures into the project to reduce the amount of EMF that is generated. Some of these design measures can be incorporated at no additional cost, hence the "no cost" aspect of the CPUC's policy.

Because the Final EIR already includes mitigation measures that will mitigate Project impacts through off-site restoration or improvements, there is no requirement to consider additional means of mitigation. Furthermore, mitigation, as defined by CEQA, is intended to avoid, minimize, rectify, reduce, or compensate for the adverse effects of a project. In accordance with Supreme Court rulings (*Nollan v. California Coastal Commission* (1987) 483 U.S. 825) and the State CEQA Guidelines (14 Cal Code Regs. §15126.4(a)(4)(A)), there must be an essential nexus between an impact and the measures proposed to mitigate the impact and the mitigation requirements must be roughly proportional to the magnitude of the impact (14 Cal. Code Regs., § 15126.4(a)(4)(B); *Dolan v. City of Tigard* (1994) 512 U.S. 374; *Ehrlich v. City of Culver City* (1996) 12 Cal.4th 854). As indicated above, the Plan does not mitigate any of the significant adverse impacts of the Project identified in the Final EIR that are not already reduced by mitigation identified in the Final EIR. The Plan fails to establish a nexus between Project impacts and the funding-based mitigation outlined in the Plan. There is also no indication that the Plan's proposed $50 million in mitigation funds is an appropriate amount that is "roughly proportional" to the impacts of the Project. By contrast, the Mitigation Measures listed above set forth practical and feasible means to reduce identified impacts and are proportional to the magnitude of the Project's impact. Moreover, the 21st Century Plan is not applicable because Alternative 4 will not be implemented as part of the Project. For these reasons, the CPUC rejects the 21st Century proposal as infeasible.

VIII.2 Puente Hills Landfill Native Habitat Preservation Authority

On July 24, 2009, more than three months following the close of the comment period on the Draft EIR/EIS (April 6, 2009), Johnson & Hanson LLP, on behalf of the Puente Hills Landfill Native Habitat Preservation Authority (PHLNHPA), submitted a comment letter which included a matrix of proposed mitigation and compensation for adverse impacts to the PHLNHPA lands as a result of the proposed TRTP. The mitigation and compensation plan includes mitigation for six impacts identified by PHLNHPA, as described below.

Permanent Degradation of Visual Resources. The PHLNHPA proposes habitat restoration in addition to that required by the Final EIR for temporary and permanent impact areas within priority restoration areas identified in their Resource Management Plan (RMP) that are within 500 feet of the proposed T/Ls and within 50 feet of a trail. The PHLNHPA claims that this is needed to compensate for impacts to visual resources valued by the Preserve visitors by increasing the extent of native habitats in an effort to improve the overall aesthetic value. The PHLNHPA also proposes habitat restoration within priority restoration areas identified in the RMP that are within 1,000 feet of the Powder Canyon Trailhead and Horse Ring. The

PHLNHPA claims this is necessary to compensate for the devaluation of the visual resources of the Powder Canyon property and to compensate for monies already invested in habitat, aesthetic and recreation improvements completed to date in this area, including the trailhead parking area and horse ring. The PHLNHPA claims that the installation of a third set of towers along the ridgeline on the northern edge of the property, as well as the installation of a new line bisecting Fullerton Road near the Powder Canyon entrance will degrade and devalue the inherent visual value and invested improvements of this parcel.

Temporary and Permanent Degradation of Recreational Values. The PHLNHPA proposes education personnel to compensate for the recreational values lost during trail closures during Project construction and permanent aesthetic impacts along most trails during Project operation. In addition, it proposes habitat restoration in the manner described above to further compensate for the degradation of the recreational value provided by the Preserve's trails.

Increased Wildfire Potential. The PHLNHPA proposes increasing fire fighting capacity through the purchase of a compressed air foam unit, truck, and associated equipment to compensate for the increased risk of wildfires resulting from accidental ignitions during construction and maintenance of the proposed T/Ls. In addition, it proposes habitat restoration in the manner described above to further compensate for increased wildfire potential.

Permanent Narrowing of Wildlife Movement Corridor and Habitat Fragmentation and Disturbance. The PHLNHPA proposes the acquisition and preservation of undeveloped land in the narrowest portions of the existing Puente-Chino Hills Wildlife Corridor to compensate for the perceived permanent narrowing of the corridor resulting from the loss of and disturbance to permanently protected native habitat during construction and operation of the Project. PHLNHPA also proposes a Telemetry/Movement Study of effects to medium and large mammals to gain a better understanding of the magnitude and extent of impacts to mammals that require a larger movement and dispersal as a result of permanent narrowing of the wildlife corridor, habitat fragmentation, and edge effect disturbances associated with construction and operation of the Project. In addition, it proposes habitat restoration in the manner described above and ecological personnel to supervise and monitor the habitat restoration and impacts to wildlife and plants.

Impacts to Avifauna. The PHLNHPA proposes avifauna monitoring to study effects on birds and bat migration and breeding success to gain a better understanding of the magnitude and extent of impacts to birds and bats from installation of more and taller T/Ls.

Increased Public Hazards. The PHLNHPA proposes hiring a ranger to mitigate for a potential increase in public hazards during Project construction due to increased equipment and vehicles on trails, the potential reduction in response capabilities to emergencies due to access issues posed by construction activities, and a potential increase in illegal activities resulting from attractive nuisances posed by the project (i.e., additional access roads, lighting, etc.).

Finding. The CPUC finds that specific economic, legal, social, technological, or other considerations make the PHLNHPA proposal infeasible.

Rationale. An EIR is only required to include feasible mitigation measures that will effectively reduce a significant adverse impact of the project. (14 Cal. Code Regs. § 15126.4; *San Franciscans for Reasonable Growth v. City & County of San Francisco* (1984) 209 Cal.App.3d 1502, 1519). PHLNHPA proposes mitigation measures for impacts on visual resources, recreation, wildfires, wildlife movement corridors and habitat, avifauna, and public hazards. Each of these impacts, with the exception of the Project's visual impact on the existing landscape character and visual site quality, is less than significant as a result of mitigation measures identified in the Final EIR. The Final EIR concludes that the effects of the Project on

recreation would be less than significant with implementation of Mitigation Measures R-1a through R-1e. The Final EIR also concludes that impacts of the Project on biological resources, including loss of native vegetation and disturbance to wildlife in and around the Puente Hills Habitat Area, would be less than significant with the implementation of mitigation measures. The mitigation would include a series of measures to restore vegetation, control dust and noise, and avoid or minimize effects to wildlife (See the full list of biological resource mitigation measures listed above in section VI.1). Furthermore, the Final EIR concludes that the risk of wildfire as a result of Project construction and operation would be less than significant with implementation of Mitigation Measures F-3a through F-3g, F-4, and B-3a. Implementation of the mitigation measures identified in the Final EIR will mitigate the above listed effects of the Project to less than significant, as is explained further below.

Visual impacts resulting from the Project's construction and operation in the South Area (which includes the preserve) would be experienced by thousands of people from a multitude of vantage points, including freeways, highways, collector streets, local streets, county roads, parks, trails, greenways, schools, hospitals, memorial parks, shopping centers, commercial areas, manufacturing areas, and numerous residential neighborhoods. Existing high-voltage T/L structures are some of the tallest structures in the area of the PHLNHPA Preserve, and many times these structures are visible against the horizon, towering over rooftops and treetops, or situated along skyline ridges where they are even more visible. The PHLNHPA suggests a mitigation measure to reduce Impact V-3 (adverse visual effects to landscapes with an existing transmission line resulting from increased structure size and new materials). It suggests habitat restoration in priority restoration areas within 500 feet of a powerline, 50 feet of a trail, and 1,000 feet of the Powder Canyon Trailhead and Horse Ring. The CPUC rejects this mitigation measure for the reasons explained below.

The Final EIR already includes the following mitigation measures to reduce Impact V-3: Mitigation Measures V-1 (Clean up staging areas, storage areas, marshalling yards, helicopter staging areas, access and spur roads, and structure locations on a regular basis), V-2a (Use tubular steel poles instead of lattice steel towers in designated areas), V-2b (Treat surfaces with appropriate colors, textures, and finishes), V-3a (Match spans of existing transmission structures), V-2c (Establish permanent screen), V-3a (Match spans of existing transmission structures), V-3b (On NFS lands, provide restoration/compensation for impacts to landscape character and visual quality), V-4b (Slope-round and re-contour in areas prescribed), and V-4d (Dispose of excavated materials as prescribed).

Further, habitat restoration and compensation, though not specifically identified as mitigation for Impact V-3, will be accomplished through many of the mitigation measures identified in the Final EIR to reduce biological resources impacts to a less-than-significant level. These mitigation measures include: Mitigation Measure B-1a (Provide restoration/compensation for impacts to native vegetation communities), B-1b (Implement a Worker Environmental Awareness Program), B-1c (Treat cut tree stumps with Sporax), B-2 (Implement RCA Treatment Plan), B-3a (Prepare and implement a Weed Control Plan), B-3b (Remove weed seed sources from construction access routes), B-17 (Preserve off-site habitat and/or habitat restoration for the coastal California gnatcatcher), B-19 (Compensate for loss of foraging habitat for Swainson's hawks), B-22c (Preserve off-site habitat for the Mohave ground squirrel), and B-23 (Preserve offsite habitat/management of existing populations of special-status plants). For example, Mitigation Measure B-1a requires SCE to restore disturbed sites to pre-construction conditions and to prepare a Habitat Restoration and Revegetation Plan. The plan shall include at minimum: (a) the location of the mitigation site (off site mitigation may be required); (b) locations and details for top soil storage (c) the plant species to be used; (d) seed and cutting collecting guidelines; (d) a schematic depicting the mitigation area; (e) time of year that the planting will occur and the methodology of the planting; (f) a description of the irrigation methodology for

container, bareroot or other planting needing irrigation; (g) measures to control exotic vegetation on site; (h) success criteria; (i) a detailed monitoring program; and (j) locations and impacts to all oaks and native trees (over 3 inches DBH). Implementation of this mitigation measure alone will substantially reduce the visual impacts from ground-disturbing activities resulting from Project construction. In addition, Mitigation Measure B-17 requires SCE to mitigate the effects of Project construction on coastal California gnatcatcher by requiring SCE to acquire habitat occupied by the coastal California gnatcatcher and/or restore unoccupied coastal sage scrub. Mitigation Measures B-19 and B-22c require SCE to mitigate for the loss of foraging habitat for Swainson's hawks and occupied Mojave ground squirrel habitat resulting from Project construction, respectively, by providing Habitat Management lands. Furthermore, Mitigation Measure B-23 requires SCE to conduct rare plant surveys and implement avoidance/minimization/compensation strategies. As such, these mitigation measures would mitigate the temporary and permanent impacts to the biological resources within the Preserve and any visual impacts caused by ground-disturbing activities to a less-than-significant level.

Moreover, the PHLNHPA's suggested mitigation for habitat restoration is focused on areas not impacted by the Project, which would not reduce or avoid the visual impacts resulting from the Project, specifically the installation of larger and more transmission lines through the Preserve. Furthermore, in accordance with Supreme Court rulings (*Nollan v. California Coastal Commission* (1987) 483 U.S. 825) and the State CEQA Guidelines (14 Cal Code Regs. §15126.4(a)(4)(A)), there must be an essential nexus between an impact and the measures proposed to mitigate the impact and the mitigation requirements must be roughly proportional to the magnitude of the impact (14 Cal. Code Regs., § 15126.4(a)(4)(B); *Dolan v. City of Tigard* (1994) 512 U.S. 374; *Ehrlich v. City of Culver City* (1996) 12 Cal.4th 854). As discussed above, the suggested habitat restoration in areas not impacted by Project construction would not reduce any of the impacts that result from the installation of larger and more transmission lines through the preserve, and therefore no nexus has been established to justify such measures.

PHLNHPA proposed two measures to reduce recreational Impacts R-1 and R-2. Section 3.15 (Wilderness and Recreation) of the Final EIR provides analysis and discussion of Project impacts that would affect recreational resources, including trails in the PHLNHPA area. As described in the impact analysis presented in Section 3.15, passive recreation and outdoor enjoyment opportunities in the PHLNHPA, including use of trails along tower access roads and near towers, would be temporarily disrupted during construction activities (Impact R-1), as well as during site-specific maintenance activities (Impact R-2). The discussion of Impact R-1 analyzed whether construction activities would restrict access to or disrupt activities within established recreational areas. The PHLNHPA suggested adding Education Personnel to reduce this impact. Mitigation Measures R-1a (Coordinate construction schedule and maintenance activities with managing officer(s) for affected recreation areas), R-1b (Identify and provide noticing of alternative recreation areas), R-1c (Notification of temporary closure of OHV routes), R-1d (Notification of temporary closure and reroute of the Pacific Crest National Scenic Trail), and R-1e (SCE shall assist in the completion of backlogged maintenance activities in the ANF) will reduce impacts to recreation during construction to a less-than-significant level. As part of Mitigation Measure R-1a, SCE will develop and adhere to construction timetables developed in coordination with all affected resource agencies, including the Habitat Authority. In the event that a recreational area falls within one-half mile of a construction staging area and must be temporarily closed during construction, SCE will identify alternative recreational areas and post public notices informing recreationists of closures and alternatives. This documentation will be submitted to the CPUC at least 30 days prior to the start construction activities in that area to ensure the public receives sufficient notice. As such, Project-related disruptions of recreational resources and opportunities within the PHLNHPA area during construction would be mitigated to less than significant by required mitigation

measures identified in the Final EIR. No additional mitigation measures are needed to reduce this impact. The PHLNHPA's suggestion to add Education Personnel will not provide meaningful additional mitigation beyond the adopted measures discussed above. Therefore, the CPUC rejects this measure.

The discussion of Impact R-2 in the Final EIR analyzed whether operational and maintenance activities would restrict access to or disrupt activities within established recreational areas. In the Puente Hills Habitat Area, this included an analysis of whether the Project would introduce features that would contribute to the degradation of the backcountry experience for public recreationists (Final EIR Section 3.15.6.1). The PHLNHPA proposed habitat restoration to reduce this impact. Mitigation Measures R-1a through R-1d, described above, will reduce this impact to less than significant. No additional mitigation measures are needed to reduce this impact. The PHLNHPA's suggestion for habitat restoration will not provide meaningful additional mitigation beyond the adopted measures discussed above. Therefore, the CPUC rejects this measure.

The PHLNHPA proposed five mitigation measures to reduce impacts to wildlife movement through wildlife corridors, habitat fragmentation and disturbance. It proposed the acquisition and preservation of undeveloped land and a telemetry/movement study to reduce impacts to movement through wildlife corridors. It also proposes habitat restoration, ecology personnel, and educational materials restoration to mitigate impacts to plant and wildlife due to habitat disturbance and fragmentation. These measures will not be effective in mitigating an impact or will not provide meaningful additional mitigation beyond the measures that are adopted. Therefore, the CPUC rejects these measures.

The Project crosses three geographically important wildlife movement areas including the high desert, the ANF, and the Puente/Chino Hills Corridor area. As discussed in Section 3.4 of the Final EIR, with the exception of a short segment in the northern Antelope Valley, the Project would not result in a new barrier to wildlife movement. Due to the intermittent locations of construction activity and its temporary nature, wildlife would not be physically prevented from moving around Project equipment in the transmission corridor. During Project operation, the widely spaced towers would not physically obstruct wildlife movement; wildlife could move under and around the towers (Final EIR, Section 3.4). No mitigation measures are needed because the Project will have no impact on terrestrial wildlife movement. The CPUC rejects the PHLNHPA's suggestion for the acquisition of undeveloped land and a Telemetry/Movement Study because no significant impact requiring mitigation exists. Additionally, a Telemetry/Movement Study of effects to medium and large mammals is not considered mitigation as it would not result in a reduction of any Project impacts.

The PHLNHPA proposed avifauna monitoring to reduce collisions, electrocutions, corona noise and EMF impacts to birds and bats resulting from the installation of more and taller towers and powerlines. Avifauna monitoring to study the effects on bird and bat migration and breeding success would not result in a reduction of any Project impacts. Impacts to birds and bats as a result of electrocution, collision with overhead wires, corona noise, and EMF will be less than significant without mitigation (Final EIR, Section 3.4.6.1, impact analysis for impacts B-20, B-21, B-34, and B-41). Bats are expected to avoid strikes with transmission lines "…given that most bat species can use echolocation to discriminate objects as small as 0.4 to 0.004 inch in size (Vaughan and Vaughan, 1986), and the size of guard lines and 500-kV or 220-kV transmission lines are typically equal to or greater than 0.5 inch in diameter (SCE 2007), the frequency of transmission line strikes is expected to be extremely low" (Final EIR, Section 3.4.6.1, Impact B-34). Therefore, the number of fatal strikes is expected to be quite low and insufficient to substantially reduce the number of these species.

The effects on birds as a result of collisions and electrocutions are addressed in Impacts B-20,and B-21of the Draft EIR in Section 3.4.6.1. It is inevitable that birds will collide with the structures; however, Applicant Proposed Measure APM BIO-9, which requires the transmission facilities be designed to be raptor-safe in accordance with the *Suggested Practices for Raptor Protection on Power Lines: The State of the Art in 2006* (APLIC, 2006), would reduce potential effects from bird electrocution. Impacts to birds from electrocution and collision would be less than significant; therefore, no additional mitigation is required.

Impacts from corona noise on birds and bats will be less than significant without mitigation (Final EIR, Section 3.4.6.1, Impact B-41). The effects of corona noise on wildlife are poorly understood and it is difficult to predict the degree to which the increase in corona noise will impact local wildlife. Animals, especially breeding birds and other wildlife that use sound for communication, would be expected to move away from the line in order to minimize interference with communication. However, because of the availability of habitats in the Project area, this will not be a significant impact.

To date there is little conclusive information pertaining to the effects of EMF on birds and bats. The analysis of these potential effects is too speculative to evaluate and, therefore, need not be considered in the environmental document. (14 Cal. Code Reg. §§ 15064(d)(3), 15145).

As explained above, impacts to birds and bats as a result of electrocution, collision with overhead wires, corona noise, and EMF will be less than significant without mitigation. The CPUC therefore rejects the PHLNHPA's proposed mitigation measures because no significant adverse impacts requiring mitigation exist.

The PHLNHPA proposed adding Ranger Personnel to mitigate increased public hazards during project construction. Final EIR Section 3.11 (Public Services and Utilities) includes Impact PSU-2, which addresses the Project's potential to impede or interfere with access for emergency response vehicles. Impacts will be reduced to a less-than-significant level with implementation of Mitigation Measure T-1a (Prepare Traffic Control Plans), which requires SCE to inform emergency service agencies of road closures, detours, and delays. This measure also includes provisions to accommodate emergency vehicles, such as immediately stopping work for emergency vehicle passage, short detours, and alternate routes developed in conjunction with local agencies. As such, additional mitigation, such as hiring a ranger for the PHLNHPA, is not required. The CPUC therefore rejects the PHLNPHA's proposed mitigation measure because it will not provide meaningful additional mitigation beyond the measures that are adopted.

The PHLNHPA proposes increasing fire fighting capacity through the purchase of a compressed air foam unit, truck, and associated equipment to compensate for the increased risk of wildfires resulting from accidental ignitions during construction and maintenance of the proposed T/Ls. As noted above, the Final EIR concludes that the risk of wildfire as a result of Project construction and operation would be less than significant with implementation of Mitigation Measures F-3a through F-3g, F-4, and B-3a. Therefore, no additional mitigation is necessary and the CPUC rejects these additional measures.

IX. Findings on Project Alternatives

In total, the alternatives screening process resulted in the identification and screening of 29 potential alternatives. The alternatives considered included: (1) minor routing adjustments to SCE's proposed route; (2) entirely different transmission line routes for some segments of the proposed alignment; and (3) alternate system voltages and system configurations. Renewable resource technologies, distributed generation, and demand-side management were also considered. The alternatives that were eliminated either did not meet

project objectives, did not meet legal, regulatory, and technical feasibility criteria, and/or did not avoid or reduce environmental effects of the Project.

IX.1 Alternatives Eliminated from EIR/EIS Consideration After Detailed Screening

Twenty-nine (29) alternatives were screened for evaluation in the Draft EIR/EIS (see Appendix A of the Draft EIR/EIS and Final EIR). Twenty-three (23) of these were eliminated from further analysis after a detailed alternatives screening process (Section 2.2 of Appendix A describes screening methodology). Table VII-1, below, summarizes the rationale for eliminating each of these alternatives from further consideration. In addition to the 29 potential alternatives that were evaluated in the Alternatives Screening Report (Final EIR Appendix A), other ideas for potential alternatives were suggested by agencies and the public during the scoping period for the Draft EIR/EIS (August-October 2007). Many of these suggestions were conceptual and were not offered as specific alternatives, but rather as ideas to be explored. The CPUC hereby finds that all of the alternatives eliminated from further consideration in the Draft EIR/EIS are infeasible, will not meet most Project objectives, will not meet CAISO/WECC/NERC reliability planning criteria, and/or will not reduce or avoid any of the significant effects of the Project, as summarized in Table D2 and detailed in Appendix A of the Draft EIR/EIS.

Table VII-1. Alternatives Eliminated from EIR/EIS Consideration After Detailed Screening					
Alternative	Meets Project Purpose?	Feasible?	Meets Reliability Criteria?	Environmental Advantages	Environmental Disadvantages
DESIGN VARIATIONS TO THE PROJECT / ACTION					
Whirlwind Substation Site A Alternative	This alternative would allow for the reliable interconnection of up to 4,500 MW of new wind generation resources in the TWRA, would be designed to meet projected load growth in the Antelope Valley, and would address South of Lugo transmission constraints.	This alternative would be feasible.	Meets CAISO/NERC/WECC requirements. Requires crossing of existing 220-kV T/Ls, decreasing overall reliability.	• Located on 113 acres of previously disturbed land, which would reduce potential biological impacts • Located between Cottonwind and Antelope Substations near proposed wind generation projects, thereby minimizing routing distances	• Soil stability issues could be a concern as an aquifer recharge facility is proposed for this site • Greater permanent land disturbance than the proposed Whirlwind Substation site
Whirlwind Substation Site B Alternative	This alternative would allow for the reliable interconnection of up to 4,500 MW of new wind generation resources in the TWRA, would be designed to meet projected load growth in the Antelope Valley, and would address South of Lugo transmission constraints.	This alternative would be feasible.	Meets CAISO/NERC/WECC requirements. No reliability issues identified.	• Located between Cottonwind and Antelope Substations near proposed wind generation projects, thereby minimizing routing distances	• Located on 102 acres of previously undisturbed land, increasing potential for biological impacts • Grading of the site would result in an estimated quantity of 24,000 cubic yards of soil mixed with small stones and organic matter versus 15,000 cubic yards for the Project/Action
Upgrade Transmission through ANF in Segment 6 Only Alternative	This alternative would allow for the interconnection of new wind generation resources in the TWRA; however, reliability would be a concern (see #3 below). This alternative would be designed to meet projected load growth in the Antelope Valley and would address South of Lugo transmission constraints when operating reliably.	This alternative would be feasible.	Does not meet CAISO/NERC/WECC requirements. Collocates multiple transmission lines in a common corridor (three 500-kV T/Ls and one 220-kV T/L), which compromises overall system reliability. A simultaneous outage condition of the T/Ls in Segment 6 would result in loading the T/Ls in Segment 11 beyond the available thermal capability. Implementing a Special Protection System (SPS)	• Avoids any upgrades and associated environmental impacts in Segment 11 within the ANF	• Need to establish a new east-west T/L corridor between Duarte and Altadena (south of Gould Substation) resulting in additional environmental impacts (air quality, biological resources, land use, noise, traffic, visual) • East-west corridor would parallel the Sierra Madre Fault (geotechnical issues) • Potential land use conflict in establishing new east-west corridor outside of

Table VII-1. Alternatives Eliminated from EIR/EIS Consideration After Detailed Screening					
Alternative	Meets Project Purpose?	Feasible?	Meets Reliability Criteria?	Environmental Advantages	Environmental Disadvantages
			which trips TWRA generation would not provide for an adequate solution to mitigate the identified thermal overload problem, as it would exceed the maximum 1,400 MW tripping limits of the SPS.		the ANF • Longer alignment (35 versus 26 miles for proposed route)
Upgrade Transmission through ANF in Segment 11 Only Alternative	This alternative would allow for the interconnection of up to 4,500 MW of new wind generation resources in the TWRA, would be designed to meet projected load growth in the Antelope Valley, and would address South of Lugo transmission constraints.	This alternative would be feasible.	Meets CAISO/NERC/WECC requirements. No reliability issues identified.	• Avoids upgrades and associated environmental impacts in Segment 6 within the ANF, although the Antelope-Mesa 220-kV T/L would be removed, as this T/L segment would be disconnected	• Need to establish a new east-west T/L corridor between La Cañada Flintridge and Duarte resulting in additional environmental impacts (air quality, biological resources, land use, noise, traffic, visual) • East-west corridor would parallel the Sierra Madre Fault (geotechnical issues) • Potential land use conflict in establishing new east-west corridor outside of the ANF • Longer alignment (34 vs. 27 miles for proposed route)
Reduced Upgrades in Segment 6 Alternative	This alternative would not provide for the reliable transmission of up to 4,500 MW from the TWRA and would not address South of Lugo transmission constraints. It would meet projected load growth in the Antelope Valley.	This alternative would be feasible.	This alternative would leave a choke point in the transmission system which would result in overloading of the existing Antelope-Mesa 220-kV T/L under normal operations. As such, the reliability of the system would be in jeopardy.	• Limits upgrades in Segment 6 to the first approximately 4.8 miles between Vincent Substation and the crossover span • Impacts associated with the removal of the existing 220-kV T/L and the construction of a new 500-kV T/Ls would not occur. • Long-term visual impacts	• 220-kV lines would need to be rebuilt to 500-kV standards at some point in the future • Not upgrading the Antelope-Mesa 220-kV T/L along the entire length of Segment 6 would immediately limit the ability of the system to accommodate the additional generation from

Table VII-1. Alternatives Eliminated from EIR/EIS Consideration After Detailed Screening					
Alternative	Meets Project Purpose?	Feasible?	Meets Reliability Criteria?	Environmental Advantages	Environmental Disadvantages
				would be reduced as fewer T/Ls would traverse the ANF along Segment 6.	the TWRA. • New infrastructure would be required resulting in additional environmental impacts
Co-Locate All SCE T/Ls in Either Segment 6 or 11 Across the ANF Alternative	This alternative would allow for the interconnection of new wind generation resources in the TWRA; however reliability would be a concern (see #3 below). This alternative would be designed to meet projected load growth in the Antelope Valley and would address South of Lugo transmission constraints when operating reliably.	This alternative would be feasible.	Does not meet CAISO/NERC/WECC requirements. Collocates multiple transmission lines in a common corridor (three 500-kV T/Ls and two 220-kV T/L), which compromises overall system reliability.	• Avoids any upgrades and associated environmental impacts in either Segment 6 or 11 within the ANF • Reduces long-term visual impacts in Segment 6 or 11, with the removal of existing infrastructure	• Requires deconstruction of approximately 27 miles of existing T/Ls in Segment 6 or 18 miles in Segment 11 • Need to establish a new east-west T/L corridor between Duarte and La Cañada Flintridge (Gould Substation) resulting in additional environmental impacts (air quality, biological resources, land use, noise, traffic, visual) • East-west corridor would parallel the Sierra Madre Fault (geotechnical issues) • Longer alignment than proposed route – 34 miles (All T/Ls in Segment 6) or 27 miles (All T/Ls in Segment 11)
Reduced Number of 220-kV T/Ls in the ANF Alternative	Upgrades at Rio Hondo Substation and Mesa Substation would take a minimum of 4 to 5 years, which would prevent compliance with the Renewables Portfolio Standard deadline of 2010. In addition, a reduction of 220-kV lines through the ANF would decrease capacity and potentially overload the system, which	This alternative appears to be technically feasible; however additional analysis is needed to ensure the feasibility of construction, specifically south of Gould Substation along Segment 11.	Elimination of 220-kV lines in Segments 6 and 11 would reduce capacity and potentially overload the system. A power flow analysis would need to be conducted to further understand the effect of this alternative on overall system power flow to ensure compliance with CAISO/NERC/WECC requirements.	• Reduces the amount of visual "clutter" within the ANF along both Segments 6 and 11 by reducing the number of 220-kV T/Ls by one in each corridor • Provides the potential to reduce the width of the T/L corridors in the ANF, thereby decreasing potential biology and land use impacts	• Greater construction impacts (air quality, noise, and traffic) as a result of additional activities to remove 220-kV T/Ls in Segment 6 and 11 that would otherwise be untouched under the Project/Action • Upgrading Segment 11 south of Gould Substation to accommodate new single-circuit 500-kV

Table VII-1. Alternatives Eliminated from EIR/EIS Consideration After Detailed Screening					
Alternative	Meets Project Purpose?	Feasible?	Meets Reliability Criteria?	Environmental Advantages	Environmental Disadvantages
	would interfere with the objective of reliably transmitting 4,500 MW from the TWRA and would not fully address the South of Lugo transmission constraints. This alternative, however, would meet the projected load growth in the Antelope Valley, as upgrades north of Vincent Substation would be identical to the Project/Action.				structures would result in substantially greater impacts (air quality, noise, traffic, and visual) than the stringing activities that would occur under the Project/Action • Upgrades at Rio Hondo and Mesa Substations would result in greater construction impacts than the Project/Action, which would require limited upgrades
Minimize 500-kV Upgrades Alternative	This alternative would allow for the reliable interconnection of new wind generation resources in the TWRA; however, it would not allow for the integration of the full 4,500 MW. Furthermore, the majority of the system would not be designed to allow for future increases in voltage operation from 220 kV to 500 kV. Therefore, this alternative would not fully meet projected load growth in the Antelope Valley, or address South of Lugo transmission constraints.	This alternative would be feasible.	Meets CAISO/NERC/WECC requirements; however, reliability would become as issue as power generation within the TWRA increases to meet the expected 4,500 MW.	• Constructs a new 220-kV line rather than a 500-kV line in Segment 5 thereby reducing visual impacts that would result from installation of larger, taller 500-kV structures • Replaces 220-kV structures in Segments 6 and 11 with new structures and conductor, thereby reducing visual impacts that would result from installation of larger, taller 500-kV structures	• 220-kV lines would need to be rebuilt to 500-kV standards at some point in the future • CAISO may not allow the 220-kV T/Ls to be taken out of service at a later date, which would require the future upgrades to be built in parallel or elsewhere, requiring new ROW • Existing 220-kV structures in Segments 6 and 11 through the ANF would still need to be replaced to allow for the use of new conductor resulting in similar environmental impacts as identified for the Project/Action
Segments 6 and 11 Double-Circuit Structures Alternative	This alternative would allow for the reliable interconnection of up to 4,500 MW of new wind	This alternative appears to be feasible. A non-standard design for double-circuit 500-kV structures would need to	Meets CAISO/NERC/WECC requirements. Standard SCE double-circuit structures are impacted by ice loading and	• ROW width through the ANF along Segments 6 and 11 would potentially be reduced, thereby	• Larger, taller (over 200-feet) double-circuit 500-kV structures would result in potentially greater visual

Table VII-1. Alternatives Eliminated from EIR/EIS Consideration After Detailed Screening					
Alternative	Meets Project Purpose?	Feasible?	Meets Reliability Criteria?	Environmental Advantages	Environmental Disadvantages
	generation resources in the TWRA, would meet projected load growth in the Antelope Valley, and would address South of Lugo transmission constraints; however, due to the need for non-standard structures at elevations above 3,000 feet within Segments 6 and 11, the Project schedule would not be met and as a result the California Renewables Portfolio Standard of 20 percent renewable energy by 2010 would not be met.	be developed and tested.	wind loading at high elevations (>3,000 feet), which would occur within Segments 6 and 11. The reliability of a non-standard design for double-circuit 500-kV structures is unknown. The potential to lose two T/Ls resulting from the failure of a single tower in an area prone to extreme weather conditions, as well as conditions such as fires followed by rains which increases the potential for landslides, would substantially degrade the preconceived reliability of the system.	allowing for revegetation of those portions of the ROW which would no longer be in use • Visual "clutter" and long-term footprint of transmission infrastructure within the ANF would be reduced	impacts in Segment 6 than having two single-circuit 500-kV structures placed in parallel due to the lack of symmetry and increased potential for skylined conditions • Requires approximately 60 additional towers due to severe topography and weather conditions in the ANF • May require additional towers along existing adjacent lines for clearance • May require re-routing outside of the existing ROW to circumvent large valleys which currently have long spans resulting in potentially greater visual, biological, and cultural impacts • May result in the placement of towers at ridge top locations resulting in greater fire safety impacts • Not feasible to construct double-circuit towers by helicopter thereby requiring additional access roads and the associated environmental impacts • Additional environmental impacts (AQ, noise, biological resources) associated with removing

Table VII-1. Alternatives Eliminated from EIR/EIS Consideration After Detailed Screening					
Alternative	Meets Project Purpose?	Feasible?	Meets Reliability Criteria?	Environmental Advantages	Environmental Disadvantages
					another 500-kV T/L from Segment 6 and an additional 220-kV T/L in Segment 11, which would otherwise be unaffected by the Project/Action
Segments 7/8A Single-Circuit 500-kV Structures Alternative	This alternative would allow for the reliable interconnection of up to 4,500 MW of new wind generation resources in the TWRA; however, the overall capacity provided would not be comparable to the Project. It would meet projected load growth in the Antelope Valley and would address South of Lugo transmission constraints.	This alternative would require expansion of the ROW, which is not viable within Segment 7 due to existing infrastructure. Therefore, this alternative would not be feasible.	Meets CAISO/NERC/WECC requirements. No reliability issues identified.	• Placement of single-circuit 500-kV structures within Segment 7, south of Rio Hondo Substation, and Segment 8A, to Chino Substation would reduce visual impacts associated with the proposed double-circuit 500-kV structures.	• Would not facilitate the possibility of adding a second 500-kV T/L if and when one is determined to be required (e.g., when generation in the TWRA exceeds 4,500 MW), which would result in tearing down and rebuilding double-circuit structures sometime in the future and the associated environmental impacts (air quality, biology, noise, traffic, visual) • Would not allow for a split-phased configuration
Partial Composite Core Conductor Alternative	This alternative would allow for the interconnection of new wind generation resources in the TWRA; however, the amount of generation would be limited and would not support the identified 4,500 MW anticipated from the TWRA. Furthermore, use of existing structures would not allow for future increase in voltage operation from 220 kV to 500 kV. This alternative would only partially address South of Lugo transmission constraints, as the upgrades	This alternative would be feasible.	Meets CAISO/NERC/WECC requirements; however, reliability would become as issue as power generation within the TWRA increases to meet the expected 4,500 MW. Composite core conductor is a new, unproven technology with unknown life-cycle performance; therefore, its reliability in long-term use is unknown.	• Reduces visual impacts as a result of not installing bulkier, taller 500-kV structures between Vincent Substation and Mesa Substation, and between Mesa Substation and Chino Substations	• Existing structures would not be able to support the composite core conductor to provide the required capacity increase and would need to be replaced resulting in similar environmental impacts similar to the Project/Action

Table VII-1. Alternatives Eliminated from EIR/EIS Consideration After Detailed Screening					
Alternative	Meets Project Purpose?	Feasible?	Meets Reliability Criteria?	Environmental Advantages	Environmental Disadvantages
	south of Vincent Substation would limit the capacity of the system. Projected load growth in the Antelope Valley would generally be met.				
ALTERNATE CORRIDORS					
Segment 10A Route Alternative	This alternative would allow for the reliable interconnection of up to 4,500 MW of new wind generation resources in the TWRA, would meet projected load growth in the Antelope Valley, and would address South of Lugo transmission constraints.	This alternative would be feasible.	Meets CAISO/NERC/WECC requirements. No reliability issues identified.	• Parallels Los Angeles Aqueduct for a short distance allowing for use of existing access roads thereby reducing construction impacts (air quality, noise, visual)	• Longer route (18 vs. 16.8 miles for proposed Segment 10) resulting in potentially greater air quality, biology, noise, and visual impacts
Segment 10B Route Alternative	This alternative would allow for the reliable interconnection of up to 4,500 MW of new wind generation resources in the TWRA, would meet projected load growth in the Antelope Valley, and would address South of Lugo transmission constraints.	This alternative would be feasible.	Meets CAISO/NERC/WECC requirements. No reliability issues identified.	• Parallels Los Angeles Aqueduct for a short distance allowing for use of existing access roads thereby reducing construction impacts (air quality, noise, visual) • Re-routed portion of ROW would go behind homesteads located along the Project/Action route	• Longer route (18.9 vs. 16.8 miles for proposed Seg. 10) resulting in potentially greater air quality, biology, noise, and visual impacts
Windhub Substation to Cottonwind Substation to Whirlwind Substation Alternative	This alternative would allow for the interconnection of new wind generation resources in the TWRA; however, due to its location it could potentially interfere with wind generation projects planned in the area such that the full 4,500 MW may not be realized. It would accommodate the projected load growth in the Antelope	This alternative would be feasible.	Meets CAISO/NERC/WECC requirements. No reliability issues identified.	• Would place the new T/L adjacent to existing ROW for a short distance, which would reduce access road requirements and associated impacts	• New ROW and access roads would be needed to establish the east-west portion of this alternative, crossing the foothills of the Tehachapi Range resulting in greater environmental impacts (air quality, noise, visual) • Construction along the foothills versus the valley floor would be more

Table VII-1. Alternatives Eliminated from EIR/EIS Consideration After Detailed Screening					
Alternative	Meets Project Purpose?	Feasible?	Meets Reliability Criteria?	Environmental Advantages	Environmental Disadvantages
	Valley and address South of Lugo transmission constraints.				difficult and have the potential to interfere with arroyos in the area
Whirlwind Substation to Antelope Substation Alternative	This alternative would allow for the reliable interconnection of up to 4,500 MW of new wind generation resources in the TWRA. In fact, it would improve the system reliability by eliminating the risk of simultaneous outage of T/Ls contained within a common corridor. It would also accommodate the projected load growth in the Antelope Valley and address South of Lugo transmission constraints.	This alternative would be feasible.	Meets CAISO/NERC/WECC requirements. No reliability issues identified.	• None identified	• Would require the establishment of a separate new corridor (200-feet wide) with access roads and spur roads, resulting in greater environmental impacts (air quality, biology, land use, noise, visual) • Placing the new T/L at least 2,000 feet to the west of the existing T/L corridor would move the line closer to the Antelope Valley California Poppy Reserve, a California State Park, which would have the potential to result in greater biology and visual impacts • Placing the new T/L at least 2,000 feet to the east of the existing T/L corridor would potentially interfere with existing and planned development in the Antelope Valley
Antelope Substation to Vincent Substation Alternative	This alternative would allow for the reliable interconnection of up to 4,500 MW of new wind generation resources in the TWRA. In fact, it would improve the system reliability by eliminating the risk of simultaneous outage of T/Ls	This alternative would be feasible.	Meets CAISO/NERC/WECC requirements. No reliability issues identified.	• None identified	• Would require the establishment of a separate new corridor (200-feet wide) with access roads and spur roads, resulting in greater environmental impacts (air quality, noise, visual) • Placing the new T/L at

Table VII-1. Alternatives Eliminated from EIR/EIS Consideration After Detailed Screening					
Alternative	Meets Project Purpose?	Feasible?	Meets Reliability Criteria?	Environmental Advantages	Environmental Disadvantages
	contained within a common corridor. It would also accommodate the projected load growth in the Antelope Valley and address South of Lugo transmission constraints.				least 2,000 feet to the west or east of the existing T/L corridor would potentially interfere with existing and planned development in the Antelope Valley
Use LADWP Transmission Corridor Through the ANF Alternative	This alternative would allow for the interconnection of new wind generation resources in the TWRA; however, it could inhibit full integration of up to 4,500 MW (see #3 below). Furthermore, this alternative may not adequately improve the South of Lugo transmission constraints. It would be expected to generally accommodate the projected load growth in the Antelope Valley.	This alternative would be feasible.	The increased distance of the T/Ls would increase the corresponding electrical impedance and thus result in additional power flow being carried by the existing T/Ls south of Vincent Substation. This increase in power flow under base case conditions results in a corresponding increase under outage conditions. Evaluation of single outage conditions (i.e., loss of Rio Hondo-Vincent No. 2 500-kV T/L [energized at 220 kV]) reveals that the existing Rio Hondo-Vincent No. 1 220-kV T/L loads in excess of its maximum long-term emergency limit (by 5.8%). Therefore, this alternative would compromise system reliability and would therefore not meet CAISO/NERC/WECC requirements.	• Eliminates construction in Segments 6 and 11 through the ANF • Removes the existing Antelope-Mesa 220-kV T/L in Segment 6, which would reduce visual "clutter"	• Would require widening the existing LADWP corridor, which may be located with the ANF (Northern). • Would require establishing a new corridor (300-feet wide) between the exit point of the LADWP corridor and Gould Substation and the City of Duarte in densely populated urban areas resulting in greater land use impacts • Longer route than proposed Segments 6 and 11 resulting in potentially greater air quality, biology, noise, and visual impacts: Northern route (starting at Antelope Substation) would be approximately 62 miles longer, Southern route (starting at Vincent Substation) would be approximately 45 miles longer
New SCE Corridor Across the ANF Alternative	This alternative would allow for the interconnection of new wind generation resources in the TWRA;	This alternative would be feasible.	The increased distance of the T/Ls would increase the corresponding electrical impedance and thus result in	• Eliminates construction in Segments 6 and 11 through the ANF • Removes the existing	• Would require establishing a new ROW (300-feet wide) within a new utility corridor through the ANF

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Alternative	Meets Project Purpose?	Feasible?	Meets Reliability Criteria?	Environmental Advantages	Environmental Disadvantages
	however, it could inhibit full integration of up to 4,500 MW (see #3 below). Furthermore, this alternative may not adequately improve the South of Lugo transmission constraints. It would be expected to generally accommodate the projected load growth in the Antelope Valley.		additional power flow being carried by the existing T/Ls between the Vincent, Rio Hondo, and Mesa Substations. This increase in power flow under base case conditions results in a corresponding increase under outage conditions. Evaluation of single outage conditions (i.e., loss of Rio Hondo-Vincent No. 2 500-kV T/L [energized at 220 kV]) reveals that the existing Rio Hondo-Vincent No. 1 220-kV T/L loads in excess of its maximum long-term emergency limit (by 3%). Therefore, this alternative would compromise system reliability and would therefore not meet CAISO/NERC/WECC requirements.	Antelope-Mesa 220-kV T/L in Segment 6, which would reduce visual "clutter"	• Would require establishing a new 300-foot-wide ROW between the exit point of the ANF and the City of Duarte and a new 200-foot-wide corridor between the City of Duarte and a point south of Gould Substation through densely populated urban areas resulting in greater land use impacts • Longer route than proposed Segments 6 and 11 (approximately 26 miles longer) resulting in potentially greater air quality, biology, noise, and visual impacts
New Corridor Along Highway 14 Alternative	This alternative would allow for the interconnection of new wind generation resources in the TWRA; however, it could inhibit full integration of up to 4,500 MW (see #3 below). Furthermore, this alternative may not adequately improve the South of Lugo transmission constraints. It would be expected to generally accommodate the projected load growth in the Antelope Valley.	This alternative would be feasible.	The increased distance of the T/Ls would increase the corresponding electrical impedance and thus result in additional power flow being carried by the existing T/Ls between the Vincent and Rio Hondo Substations and between the Vincent and Mesa Substations. This increase in power flow under base case conditions results in a corresponding increase under outage conditions. Evaluation of single outage conditions (i.e., loss of Rio	• Eliminates construction in Segments 6 and 11 through the ANF • Removes the existing Antelope-Mesa 220-kV T/L in Segment 6, which would reduce visual "clutter"	• Would require establishing a new ROW (300-feet wide) between the Vincent Substation and the Rinaldi Substation area (near the interchange of Interstate 5 and Highway 210) and from the Rinaldi Substation area to the City of Duarte through densely populated urban areas resulting in greater land use impacts • Longer route than proposed Segments 6 and 11 (approximately 42

Table VII-1. Alternatives Eliminated from EIR/EIS Consideration After Detailed Screening					
Alternative	Meets Project Purpose?	Feasible?	Meets Reliability Criteria?	Environmental Advantages	Environmental Disadvantages
			Hondo-Vincent No. 2 500-kV T/L [energized at 220 kV]) reveals that the existing Rio Hondo-Vincent No. 1 220-kV T/L loads in excess of its maximum long-term emergency limit (by 4.4%). Therefore, this alternative would compromise system reliability and would therefore not meet CAISO/NERC/WECC requirements.		miles longer) resulting in potentially greater air quality, biology, noise, and visual impacts
New Corridor Through Cajon Pass Alternative	This alternative would not result in sufficient system capability to interconnect and deliver up to 4,500 MW of generation resources from the TWRA (see #3 below), and would not improve the South of Lugo transmission constraints. It would, however, be expected to generally accommodate the projected load growth in the Antelope Valley.	This alternative would be feasible.	Implementation of a complex SPS would be required, which would not be practical or feasible. Therefore it would not comply with CAISO/NERC/WECC requirements.	• Eliminates construction in Segments 6 and 11 through the ANF • Removes the existing Antelope-Mesa 220-kV T/L in Segment 6, which would reduce visual "clutter"	• Would require establishing a new ROW (300-feet wide) from the Vincent Substation to the Lugo Substation and then south through the Cajon Pass, through the San Bernardino National Forest (SBNF), to the Cities of Fontana and Rialto • Longer route than Project/Action (approximately 10 miles longer) and would impact the SBNF resulting in potentially greater air quality, biology, noise, and visual impacts
San Gabriel Valley New Corridor Alternative	This alternative would allow for the interconnection of up to 4,500 MW of new wind generation resources in the TWRA, would be designed to meet projected load growth in the Antelope Valley, and would address South of Lugo	This alternative would be feasible.	Meets CAISO/NERC/WECC requirements. No reliability issues identified.	• Avoids environmental impacts associated with construction and operation of a 500-kV T/L along Segments 7 and 8a between the Rio Hondo Substation and Chino Substation	• Need to establish a new east-west T/L corridor (200-feet wide) for 20 miles along the foothills of the San Gabriel Mountains between Duarte and Rancho Cucamonga, resulting in additional

Table VII-1. Alternatives Eliminated from EIR/EIS Consideration After Detailed Screening					
Alternative	Meets Project Purpose?	Feasible?	Meets Reliability Criteria?	Environmental Advantages	Environmental Disadvantages
	transmission constraints.			•	environmental impacts (air quality, biological resources, land use, noise, traffic, visual) • East-west corridor would parallel the Sierra Madre Fault (geotechnical issues) • Potential need to acquire private property and/or residences resulting in additional land use impacts
SYSTEMS ALTERNATIVES					
Transmission Lines to Midway Substation Alternative	This alternative would allow for the interconnection of new wind generation resources in the TWRA; however the power would enter the PG&E system rather than SCE's system. Furthermore, this alternative would only provide a minimal benefit to load growth in the Antelope Valley, as the new wind generation would not connect into Antelope Substation. South of Lugo transmission constraints would be addressed by this alternative.	This alternative would be feasible.	Reliability of the PG&E system would need to be evaluated to ensure compliance with CAISO/NERC/WECC requirements.	• Eliminates construction between Antelope and Whirlwind Substations (approximately 16 miles)	• Upgrades in Segments 5 through 11 would continue to be required • Longer than proposed route (approximately 76 miles) and within new ROW, resulting in greater air quality, biology, land use, noise, and visual impacts
Non-Transmission System Alternative	This alternative would not interconnect new wind generation resources in the TWRA, would not	This alternative would be feasible, although new sources of in-basin generation would need to be identified, evaluated, and built.	No reliability issues identified.	• No substantial or notable environmental advantages identified. Upgrades would continue to be required to integrate up to 4,500 MW of new wind generation in the TWRA.	• New sources of in-basin generation would result in site-specific impacts associated with the construction and installation of new gas, solar, and/or geothermal power plants, which would

Table VII-1. Alternatives Eliminated from EIR/EIS Consideration After Detailed Screening					
Alternative	Meets Project Purpose?	Feasible?	Meets Reliability Criteria?	Environmental Advantages	Environmental Disadvantages
					result in air quality, biology, land use, noise, traffic, and visual impacts, among others. • Transmission upgrades may also be required to integrate these sources into the transmission system.

IX.2 No Project Alternative

Under the No Project/Action Alternative, construction and operation of the Tehachapi Renewable Transmission Project would not occur. Environmental impacts associated specifically with the Project would not occur, and the objectives for the Project would remain unfulfilled. SCE would continue to operate and maintain the existing transmission structures, access, and spur roads for operations and maintenance purposes under a variety of agreements (with landowners and land managers) and permits (Forest Service and US Army Corps of Engineers [USACE]). SCE would also be required to interconnect and integrate power generation facilities into its electric system, as required under Sections 210 and 212 of the Federal Power Act (16 U.S.C. § 824 [i] and [k]) and Sections 3.2 and 5.7 of the CAISO's Tariff. Without new transmission infrastructure (north of Antelope Substation) and upgrades to the existing system (south of Antelope Substation), SCE would not be able to interconnect new renewable generation facilities and therefore would not meet Renewables Portfolio Standard requirements and the power needs of southern California. Therefore, under the No Project/Action Alternative, the following events or actions (scenarios) related to the electricity generation and transmission are reasonably expected to occur in the foreseeable future:

- As currently conceived, some wind projects in the Antelope Valley and Tehachapi areas may require alternate means of transmitting their electricity, as SCE's capacity to transmit energy from the TWRA would be limited to the 700 MW already approved for the Antelope Transmission Project. Any such alternative transmission projects would have to meet the same system reliability requirements.[6]
- The requirement of the Renewables Portfolio Standard (RPS), which requires retail sellers of electricity such as SCE and PG&E to increase their sale of electricity produced by renewable energy sources to 20 percent by 2010 (updated from 2017 to 2010 per the Energy Action Plan), may not be achieved as access to renewable energy from the Antelope Valley-Tehachapi region would either not be provided or would be delayed, and other sources of renewable energy would have to be developed.
- Other renewable energy resources would need to be identified and transmission studies would need to be conducted to connect these newly identified sources to the transmission grid, which would likely further limit achievement of the RPS goal by the 2010 deadline.
- The conceptual plan recommended by the Tehachapi Collaborative Study Group, as discussed in Section 1.2.1 of the Final EIR, would not be fully implemented. This plan is intended to collect power from Tehachapi area wind projects, interconnect facilities into the State's backbone grid, and upgrade the network to reliably deliver that power to load centers. The conceptual plan, which would allow for the transmission of over 4,000 MW of wind power, would be not be fully achieved because as SCE's capacity to transmit energy from the TWRA would be limited to the 700 MW already approved for the Antelope Transmission Project.
- Transmission providers such as SCE, PG&E, LADWP, or Sagebrush would need to accommodate the power load by upgrading existing transmission infrastructure or building new transmission facilities along a different alignment and/or developers of wind generation facilities would need to build their own transmission facilities to connect to the transmission grid.
- The additional reliability needs of the CAISO-controlled grid due to projected load growth in the Antelope Valley would not be met and would have to be accommodated by other transmission upgrades to bring power into the area.

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6 The Antelope Transmission Project, which provides 700 MW of transmission capacity, is comprised of three segments: Segment 1 or the Antelope-Pardee 500-kV Transmission Project (SCH No. 2005061161) and the Antelope Transmission Project, Segments 2 & 3 (SCH No. 2006041160) were previously analyzed and approved by the CPUC and Forest Service (Segment 1 only).

- The reliability issues of the existing Lugo-Mira Loma transmission lines within the Cajon Pass related to voltage collapse as a result of uncontrollable loss of load (in the event of wildfires or other natural disasters in the area) would persist.

As indicated above, under the No Project/Action Alternative, some currently unknown plan would need to be developed to provide the transmission upgrades necessary to interconnect renewable generation projects in the Tehachapi area and to also address the existing transmission problems south of Lugo Substation. Similarly, other yet unspecified transmission upgrades would presumably be proposed in the future to provide the needed capacity and additional reliability to serve growing electrical load in the Antelope Valley. To interconnect wind projects in the Tehachapi area, it is possible that other electrical utilities with transmission facilities in the area, such as LADWP, might purchase some of the power from Tehachapi wind developers and integrate it into their system. Another possibility is for the development of a private transmission line, similar to the existing Sagebrush line, which could connect wind projects to the electrical grid. However, at this time, the Lead Agencies do not know what alternate transmission might be proposed in the future to accomplish the Project objectives if the Project is not implemented.

Finding/Rationale. The CPUC hereby finds that the No Project Alternative is infeasible and rejects this alternative in light of the considerations discussed above, the fact that environmental impacts similar to those of the proposed Project would likely occur in the foreseeable future even under the No Project Alternative based on current plans and consistent with available infrastructure (See Final EIR, Chapter 4), and because it will not provide the benefits of the Project discussed above.

IX.3 Alternative 4: Chino Hills Alternatives

The following alternatives were analyzed in detail in Chapter 3 of the Final EIR as alternative routes within Segment 8 of the proposed Project:

IX.3.1 Route A

Alternative 4A would deviate from Alternative 2 beginning about two miles east of State Route 57 (approximately S8A MP 19.2). At that point, the new Vincent-Mira Loma 500-kV transmission line would turn southeast, remaining parallel and south of the existing Walnut/Olinda-Mira Loma 220-kV double-circuit transmission line for approximately 6.2 miles, traversing Los Angeles, Orange, and San Bernardino Counties, including approximately 2.3 miles of Chino Hills State Park (CHSP). Along this portion of the alignment, approximately 150 feet of additional ROW would be required to accommodate the new 500-kV double-circuit structures. New permanent access and spur roads would be required to access the transmission structures and switching station constructed as part of this alternative. At the junction of the existing Walnut/Olinda-Mira Loma 220-kV transmission lines and the existing Serrano-Mira Loma and Serrano-Rancho Vista 500-kV transmission lines, the new Vincent-Mira Loma 500-kV transmission line would terminate into a new 500-kV gas-insulated switching station. The existing 500-kV lines would be looped into the new switching station allowing for power to be transferred along the existing 500-kV lines to Mira Loma Substation.

From the point of deviation (S8A MP 19.2) to the new switching station (6.2 miles), approximately 21 new double-circuit 500-kV structures would be required, of which approximately 8 to 10 structures would be within CHSP. In addition, the re-route work at the new switching station would include replacing one existing single-circuit 220-kV dead-end lattice structure with one single-circuit 220-kV 3-pole steel dead-end structure; the relocation of two existing single-circuit 500-kV dead-end lattice structures; and the installation of two new single-circuit 500-kV dead-end lattice structures outside of the switching station

area. At the point of deviation (S8A MP 19.2), an existing 220-kV lattice structure would also be replaced with a 220-kV lattice dead-end structure to move the wires out of the way for the new 500-kV wires and structures. As a result of this alternative, no upgrades would occur in Segment 8A between S8A MP 19.2 and 35.2 (16 miles) or in Segment 8C (6.4 miles) through Chino Hills, Chino, and Ontario Consequently, approximately 78 double-circuit 500-kV structures (18 LSTs and 60 TSPs) would no longer be constructed within Segment 8A. However, upgrades would occur in Segment 8B (Chino-Mira Loma No. 1 and No. 2) between Chino and Mira Loma Substations (6.8 miles) through the cities of Chino and Ontario, and would include the construction of approximately 37 new double-circuit 220-kV transmission structures.

Finding/Rationale. The CPUC hereby finds that Route A of Alternative 4 is environmentally inferior to the Project and rejects this portion of the alternative as infeasible for the following reasons:

- Traverses the least distance of agricultural land (77.2 miles) compared to Alternatives 4B-4D, but more than all the other alternatives, which makes this alternative environmentally inferior to the Project.
- Slightly higher air quality emissions in Segment 8 than the Project due to additional emissions for construction of the new switching station that more than compensates the reduction in emissions from the reduction in new towers. GHG emissions would also be higher during operation due to new switchyard SF_6 use.
- Net increase to disturbance of sensitive vegetation communities as route would traverse primarily natural habitats such as CHSP whereas the Project would traverse primarily disturbed and developed lands, as well as agricultural lands.
- Results in increased construction and ground disturbance in hillside areas with known landslides and slope stability issues, as well as earthquake induced slope failures. The increased ground disturbance resulting from the greater amount of grading required for access and spur roads, and for construction of the new switching station also results in an increase in potential to accelerate or trigger erosion and destroy paleontologic resources.
- Would affect high quality, natural streams within CHSP that would not be affected by Alternatives 2, 3, and 7.
- This alternative would be inconsistent with the CHSP General Plan.
- Visual integrity would be degraded by a new double-circuit 500-kV transmission line alongside an existing 500-kV single-circuit transmission line near the north boundary of CHSP. Switching station would be in CHSP and on a hillside that would be very visible in the foreground from existing hiking and equestrian trails, and in the middleground from the Horse Camp.
- Would affect more resources (biological, visual, wilderness/recreation, etc.) in CHSP than the Project.
- Increases the miles of new transmission lines through high-risk Tehachapi Fireshed by 6.2 miles as compared to Alternative 2, thereby increasing the potential for construction and operational ignitions in high-risk fuels areas.
- Alternative 4A would be located in an area of higher cultural resources sensitivity than the Project, as a greater number of cultural resources have been identified in the Area of Potential Effect (APE).

Reference. Final EIR Chapter 3 and Chapter 4

IX.3.2 Route B

Alternative 4B would deviate from Alternative 2 beginning about two miles east of State Route 57 (approximately S8A MP 19.2). At that point, the new Mira Loma-Vincent 500-kV transmission line would

turn southeast, remaining parallel and north of the existing Walnut/Olinda-Mira Loma 220-kV double-circuit transmission line for approximately 4.2 miles, traversing Los Angeles, Orange, and San Bernardino Counties. The alternative route would then enter CHSP, continuing to parallel the existing 220-kV double-circuit T/L for approximately 4.9 miles, at which point the new Mira Loma-Vincent 500-kV transmission line would exit the east side of CHSP. The new transmission line would continue parallel to the existing 220-kV double-circuit transmission line for another approximately 0.6 mile outside of CHSP before turning south, crossing the existing transmission lines, to terminate at a new 500-kV gas-insulated switching station located just south of the existing 500-kV transmission lines. Approximately 150 feet of additional ROW would be required to accommodate the new 500-kV double-circuit structures along the 9.7-mile re-route associated with this alternative. New permanent access and spur roads would be required to access the transmission structures and switching station constructed as part of this alternative. The existing 500-kV transmission lines located in this area would be looped into the new switching station, allowing for power to be transferred along the existing 500-kV transmission lines to Mira Loma Substation.

From the point of deviation (S8A MP 19.2) to the new switching station, approximately 37 new double-circuit 500-kV structures would be required, of which approximately 18 to 21 structures would be within CHSP. In addition, the re-route work at the new switching station would include replacing four existing double-circuit 220-kV suspension and dead-end lattice structure with four single-circuit 220-kV 3-pole steel dead-end structures; replacing two existing double-circuit 500-kV suspension lattice structures with dead-end structures; and the installation of two new double-circuit 500-kV dead-end lattice structures outside of the switching station area. At the point of deviation (S8A MP 19.2), an existing 220-kV lattice structure would also be replaced with a 220-kV lattice dead-end structure to move the wires out of the way for the new 500-kV wires and structures. As a result of this alternative, no upgrades would occur in Segment 8A between S8A MP 19.2 and 35.2 (16 miles) or in Segment 8C (6.4 miles) through Chino Hills, Chino, and Ontario. Consequently, approximately 78 double-circuit 500-kV structures (18 LSTs and 60 TSPs) would no longer be constructed within Segment 8A. However, upgrades would occur in Segment 8B (Chino-Mira Loma No. 1 and No. 2) between Chino and Mira Loma Substations (6.8 miles) through the cities of Chino and Ontario, and would include the construction of approximately 37 new double-circuit 220-kV transmission structures.

Finding/Rationale. The CPUC hereby finds that Route B of Alternative 4 is environmentally inferior to the Project and rejects this portion of the alternative as infeasible for the following reasons:

- Same acreage of Farmland converted as Alternative 4A, but traverses 79.8 miles of agricultural land, which makes this alternative environmentally inferior to the Project.
- Higher air quality emissions in Segment 8 than Alternative 4A.
- Net increase to disturbance of sensitive vegetation communities as route would traverse primarily natural habitats such as CHSP whereas the Project would traverse primarily disturbed and developed lands and agricultural lands.
- Results in more miles of construction in hillside areas with known landslides and slope stability issues, as well as earthquake induced slope failure hazards compared to the Project and all other alternatives. Alternative 4B has an incrementally increased potential for damage from surface fault rupture due to the location of the switching station adjacent to or on the mapped trace of the Alquist-Priolo zoned Chino Fault compared to the Project.
- Would affect high quality, natural streams within CHSP that would not be affected by the Project or Alternatives 2, 3, and 7.
- This alternative would be inconsistent with the CHSP General Plan, unlike the Project.

- Visual integrity would be compromised by a new double-circuit 500-kV transmission line through the center of CHSP further cluttering the visual environment of the Park. Switching station would be very visible in the foreground from Butterfield Ranch Road.
- This route alternative would have the most impacts to recreation resources and recreational opportunities in the CHSP.
- Increases the miles of new transmission line through high-risk Tehachapi Fireshed by 9.7 miles, which would increase the potential for construction and operational ignitions in high-risk fuels areas.
- Alternative 4B would be located in an area of higher cultural resources sensitivity than the Project, as a greater number of cultural resources have been identified in the APE.

Reference. Final EIR Chapter 3 and Chapter 4

IX.3.3 Route C / Route C Modified

Route 4C

Alternative 4C would deviate from the Alternative 2 beginning about two miles east of State Route 57 (approximately S8A MP 19.2). At that point, the new Mira Loma-Vincent 500-kV transmission line would turn southeast, and remain parallel and south of the existing Walnut/Olinda-Mira Loma 220-kV double-circuit transmission line up to the CHSP boundary (approximately 4.2 miles). Along this portion of the alignment, approximately 150 feet of additional ROW would be required to accommodate the new 500-kV double-circuit structures. At this point, the alternative route would turn east along a new approximately 300-foot-wide ROW for approximately 1.5 miles, which would remain just north of the CHSP boundary, to a new 500-kV gas-insulated switching station. Approximately 19 double-circuit 500-kV LSTs would be required for this approximately 5.7-mile re-route to the new switching station. In addition, at the point of deviation (S8A MP 19.2), an existing 220-kV lattice structure would be replaced with a 220-kV lattice dead end structure to move the wires out of the way for the new 500-kV wires and structures.

The two existing 500-kV single-circuit transmission lines located within CHSP would be re-routed to allow them to loop into the new switching station, allowing for power to be transferred along the existing 500-kV transmission lines to Mira Loma Substation. Approximately 3.6 miles of new ROW would be required to re-route the existing 500-kV transmission lines in and out of the new switching station. The new north-south re-route into the switching station (1.6 miles, of which 1.5 miles is within CHSP) would require an approximately 330-foot wide ROW to accommodate the two 500-kV single-circuit structures. The new east-west re-route beginning at the switching station and proceeding north and east around raptor ridge (2.0 miles, of which 1.6 miles is within CHSP) would require an approximately 480-foot wide ROW to accommodate the two 500-kV single-circuit structures and the re-routed 220-kV double-circuit structures. To complete the two re-routes of the 500-kV transmission lines (approximately 3.6 miles) would require approximately 30 new single-circuit 500-kV LSTs (approximately 25 within CHSP and 5 outside CHSP). In addition, approximately 17 LSTs (approximately 13 of which are within CHSP) of the existing single-circuit 500-kV transmission lines would be removed (approximately 2.5 miles).

A portion of the existing 220-kV transmission lines within CHSP would also be re-routed as part of this alternative. Beginning just west of the CHSP boundary (outside of CHSP), the existing 220-kV double-circuit structures would be re-routed to parallel the new 500-kV double-circuit structures along the northern boundary of CHSP to the new switching station (approximately 1.45 miles). As noted above, the new ROW in this area would be approximately 300-feet wide, to accommodate the 500-kV double-circuit and 220-kV double-circuit structures. The 220-kV transmission lines would continue past the switching station, paralleling the re-routed 500-kV transmission lines for approximately 0.36 mile to the boundary of CHSP.

At this point, the re-routed 220-kV and 500-kV transmission lines would enter CHSP for approximately 1.62 mile to reconnect with the existing 220-kV and 500-kV structures. As noted above, the new ROW in this area would be approximately 480-feet wide. To complete the approximately 3.43-mile 220-kV re-route, approximately 17 new double-circuit 220-kV LSTs would be required (approximately 5 to 7 within CHSP). In addition, approximately 12 existing 220-kV double-circuit LSTs within CHSP and 2 outside CHSP (14 total) would be removed (2.4 miles).

As a result of this alternative, no upgrades would occur in Segment 8A between S8A MP 19.2 and 35.2 (16 miles) or in Segment 8C (6.4 miles) through Chino Hills, Chino, and Ontario. Consequently, approximately 78 double-circuit 500-kV structures (18 LSTs and 60 TSPs) would no longer be constructed within Segment 8A. However, upgrades would occur in Segment 8B (Chino-Mira Loma No. 1 and No. 2) between Chino and Mira Loma Substations (6.8 miles) through the cities of Chino and Ontario, and would include the construction of approximately 37 new double-circuit 220-kV transmission structures.

Route 4C Modified

Alternative 4, Route C Modified ("Route 4C Modified") is similar to the original Route C option discussed above, with the exceptions that (1) the new gas-insulated switching station would be located approximately 2,500 feet northwest of the location described for the original Alternative 4C, (2) transmission line configurations and access roads would be altered to account for relocation of the switching station, and (3) re-routing of the existing single-circuit 500-kV towers in CHSP to the new switching station would occur utilizing double-circuit 500-kV towers as opposed to two parallel single-circuit 5000-kV towers. As with the original Route C, this proposed Route 4C Modified would also divert from the Project Segment 8A at Mile 19.2, as well as re-route the existing 500-kV and 220-kV transmission lines from within CHSP, through a new switching station located north of CHSP.

Finding/Rationale. The CPUC hereby finds that Route C of Alternative 4 is environmentally inferior to the Project and rejects this portion of the alternative as infeasible for the following reasons:

- Same acreage of Farmland converted as Alternative 4A, but Alternative 4C traverses 84.4 miles of agricultural land and Alternative 4C Modified traverses 85.5 miles of agricultural land. This is more than the Project, which makes this alternative environmentally inferior.
- Highest air quality emissions in Segment 8 of the Alternative 4 routes, with 4C Modified being the highest.
- Alternative 4C and/or 4C Modified would not be preferable to the Project from a Biological Resources perspective as it would result in a net increase to disturbance of sensitive vegetation communities, wildlife, and habitat, including riparian areas, as the route would traverse primarily natural habitats such as CHSP whereas the Project would traverse primarily disturbed and developed lands, as well as agricultural lands.
- Results in increased construction and ground disturbance in hillside areas with known landslides and slope stability issues, as well as earthquake induced slope failures due to its longer length. The increased ground disturbance resulting from the greater amount of grading required for access and spur roads, and for construction of the new switching station also results in an increase in potential to accelerate or trigger erosion and destroy paleontologic resources.
- Alternative 4C and/or 4C Modified would also be less preferred than Alternatives 4A and 4B from an Environmental Contamination and Hazards perspective because these routes would be placed near a former burn area at the Aerojet Chino Hills ammunitions test facility, and final DTSC clearance has not been completed for all areas. Although prudent selection of structure locations and new access

roads could avoid the waste area, it may still increase the potential to encounter environmental contamination, ordnance, and hazards.

- Would affect high quality, natural streams within CHSP that would not be affected by the Project or Alternatives 2, 3, and 7. Route 4C also crosses six additional streams and Route 4C Modified crosses eight additional streams (compared to other Alternative 4 Routes).
- This alternative would be inconsistent with the CHSP General Plan, unlike the Project.
- Alternative 4C Modified would potentially place the switching station within view of KOP-South-22: Vellano Development.
- Would affect more resources (biological, visual, wilderness/recreation, etc.) in CHSP than the Project.
- Alternative 4C increases the miles of new transmission line through high-risk Tehachapi Fireshed by 9.3 miles; Alternative 4C Modified increases the miles of new transmission line through high-risk Tehachapi Fireshed by 8.3 miles. This would increase the potential for construction and operational ignitions in high-risk fuels areas.
- Alternative 4C and/or 4C Modified would be located in an area of higher cultural resources sensitivity than the Project, as a greater number of cultural resources have been identified in the APE.

Reference. Final EIR Chapter 3 and Chapter 4

IX.3.4 Route D

Alternative 4D would deviate from Alternative 2 beginning about two miles east of State Route 57 (approximately S8A MP 19.2). At that point, the new Mira Loma-Vincent 500-kV transmission line would turn southeast, remaining parallel and north of the existing Walnut/Olinda-Mira Loma 220-kV double-circuit transmission line for approximately 4.2 miles, up to the CHSP boundary, traversing Los Angeles, Orange, and San Bernardino Counties. Along this portion of the alignment, approximately 150-feet of additional ROW would be required to accommodate the new 500-kV double-circuit structures. At this point, the new Mira Loma-Vincent 500-kV transmission line would turn east within a new 200-foot-wide ROW and follow the northern boundary of CHSP for approximately 3.7 miles to just east of Bane Canyon. At this point the alignment would turn southeast, traversing the northeast corner of CHSP for approximately 1.4 miles, at which point the new 500-kV transmission line would turn northeast again parallel and north of the existing transmission lines for approximately 0.5 mile (outside CHSP) before terminating at a new 500-kV gas-insulated switching station located outside of CHSP, just south of the existing 500-kV transmission lines. For this approximately 9.8-mile re-route, approximately 47 new double-circuit 500-kV structures would be required, of which approximately 5 to 8 would be within CHSP. In addition, the re-route work at the new switching station would include replacing four existing double-circuit 220-kV suspension and dead-end lattice structure with four single-circuit 220-kV 3-pole steel dead-end structures; replacing two existing double-circuit 500-kV suspension lattice structures with dead-end structures; and the installation of two new double-circuit 500-kV dead-end lattice structures outside of the switching station area. At the point of deviation (S8A MP 19.2), an existing 220-kV lattice structure would also be replaced with a 220-kV lattice dead-end structure to move the wires out of the way for the new 500-kV wires and structures.

As a result of this alternative, no upgrades would occur in Segment 8A between S8A MP 19.2 and 35.2 (16 miles) or in Segment 8C (6.4 miles) through Chino Hills, Chino, and Ontario. Consequently, approximately 78 double-circuit 500-kV structures (18 LSTs and 60 TSPs) would no longer be constructed within Segment 8A. However, upgrades would occur in Segment 8B (Chino-Mira Loma No. 1 and No. 2) between Chino and Mira Loma Substations (6.8 miles) through the cities of Chino and Ontario, and would include the construction of approximately 37 new double-circuit 220-kV transmission structures.

Finding/Rationale. The CPUC hereby finds that Route D of Alternative 4 is environmentally inferior to the Project and rejects this portion of the alternative as infeasible for the following reasons:

- Same acreage of Farmland converted as Alternative 4A, but traverses 80.8 miles of agricultural land. This is more than the Project, which makes this alternative environmentally inferior.
- Higher air quality emissions in Segment 8 than Alternatives 4A and 4B.
- Net increase to disturbance of sensitive vegetation communities as route would traverse primarily natural habitats such as CHSP whereas the Project would traverse primarily disturbed and developed lands, as well as agricultural lands.
- Results in more miles of construction in hillside areas with known landslides and slope stability issues, as well as earthquake induced slope failure hazards compared to all other Project alternatives. Alternative 4D has increased potential for damage from surface fault rupture due to the location of the switching station adjacent to or on the mapped trace of the Alquist-Priolo zoned Chino Fault compared to the Project.
- Alternative 4D would be the least preferred of the Alternative 4 routes from an Environmental Contamination and Hazards perspective, as some of its elements (i.e., transmission structures) would be placed within 100 to 400 feet of a former burn area at the Aerojet Chino Hills ammunition test facility. The proximity to this area increases the potential to encounter environmental contamination and hazards, although prudent selection of structure locations and new access roads could avoid the waste area.
- Would affect high quality, natural streams within CHSP that would not be affected by the Project or Alternatives 2, 3, and 7.
- This alternative would be inconsistent with the CHSP General Plan, unlike the Project.
- Visual integrity would be compromised by a new double-circuit 500-kV transmission line aligned along the north boundary of CHSP and crossing over Bane Canyon near the entry kiosk. Switching station would be very visible in the foreground from Butterfield Ranch Road.
- Would affect more resources (biological, visual, wilderness/recreation, etc.) in CHSP than the Project.
- Increases the miles of new transmission line through high-risk Tehachapi Fireshed by 9.8 miles. Would also introduce a new 5.3-mile linear element to a high-risk fuel laden landscape and create an indefensible space of approximately 2,000 acres in combination with existing transmission lines, thereby increasing potential interference with fire suppression efforts.
- Alternative 4D would also be located in an area of higher cultural resources sensitivity than the Project, as a greater number of cultural resources have been identified in the APE.

Reference. Final EIR Chapter 3 and Chapter 4

IX.4 Alternative 5: Partial Underground Alternative

Alternative 5 would utilize underground construction through Chino Hills between approximately S8A MP 21.9 and 25.4 in place of the proposed overhead line construction, following generally the same route as Alternative 2. Beginning just west of the dead-end of Eucalyptus Avenue (~S8A MP 21.9) the proposed double-circuit 500-kV transmission line would transition from overhead to underground via a new transition station. The underground segment would continue underground generally following the existing ROW for approximately 3.5 miles through the developed area of Chino Hills to an area just west of Pipeline Avenue and State Highway 71 (~S8A MP 25.4), where a transition station would be placed to convert the double-

circuit 500-kV transmission line back from underground to overhead. The existing 220-kV transmission line along Segment 8A would be left in place from approximately S8A MP 21.9 to 25.4.

Finding/Rationale. The CPUC hereby finds that Alternative 5 is environmentally inferior to the Project and rejects this alternative as infeasible for the following reasons:

- Substantially increases construction requirements, including use of large equipment and more truck trips to transport materials on and off site. Operating GHG emissions would be higher than the Project due to greater maintenance requirements and use of SF_6.
- Same number of cultural resources identified in the APE as the Project; however, there is a greater potential to affect cultural resources than the Project because the unique construction methods may affect more area than above-ground construction resulting in greater physical impacts.
- Underground construction activities and construction of large transition stations results in an increase in ground disturbance compared to the Project, which increases the potential for construction triggered erosion and construction related damage or destruction of paleontological resources. The eastern transition station and east end of tunnel would be located along the projected trend of the active Chino Fault, increasing the potential for fault rupture as compared to the Project. The tunnel portion of the alignment could also result in ground subsidence/ settlement that would potentially damage overlying structures, which would not occur with any of the other alternatives.
- Potential to come into direct contact with groundwater resources in the Chino Hills area.
- Results in permanent loss of non-residential land uses along Segment 8A to accommodate Eastern Transition Station. No other alternative results in permanent loss of any existing or planned land use.
- Same potential utility service interruptions associated with construction as the Project; however, reliability of the system is unknown due to the lack of precedence in installing GIL systems of the length and voltage proposed.
- Potential effects on local business revenue resulting from extended construction schedule.
- Extended construction schedule would increase the duration of traffic impacts.
- Retains the elements that Alternative 4 eliminates in Segment 8, specifically the rebuilding of 16 miles of 220-kV transmission lines with double-circuit 500-kV transmission lines between S8A MP 19.2 and 35.2; and includes two large transition stations, similar in appearance to a typical substation, all of which have adverse and significant visual impacts. Existing de-energized transmission line would remain in place aboveground along the underground portion.

Reference. Final EIR Chapter 3 and Chapter 4

X. Responses to Comments on the Draft EIR/EIS and Revisions to the Final EIR

The Final EIR includes the comments received on the Draft EIR/EIS and responses to those comments. The focus of the responses to comments is on the disposition of significant environmental issues as raised in the comments, as specified by CEQA Guidelines §15088(b).

Finding/Rationale. Responses to comments made on the Draft EIR/EIS and revisions made in the Final EIR merely clarify and amplify the analysis presented in the document and do not trigger the need to recirculate, per CEQA Guidelines §15088.5(b).

XI. Custodian of Records

The documents and other materials that constitute the record of proceedings on which the Project findings are based are located at the California Public Utilities Commission, 505 Van Ness Avenue, San Francisco, CA 94102. The custodian for these documents is the Energy Division, CEQA Unit. This information is provided in compliance with Public Resources Code §21081.6(a)(2) and CEQA Guidelines §15091(e).

XII. Adoption of the Mitigation Monitoring Plan for CEQA Mitigation Measures

Section 21081.6 of the Public Resources Code requires this Commission to adopt a monitoring or reporting program regarding the changes in the Project and mitigation measures imposed to lessen or avoid significant effects on the environment. The Mitigation Monitoring Plan (MMP) is adopted because it fulfills the CEQA mitigation monitoring requirements:

- The Mitigation Monitoring Plan is designed to ensure compliance with the changes in the Project and mitigation measures imposed on the Project during Project implementation.
- Measures to mitigate or avoid significant effects on the environment are fully enforceable through permit conditions, agreements, or other measures.

The MMP is presented as Attachment 2 to the Decision. The MMP is hereby adopted by the CPUC.

XIII. References

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ATTACHMENT 2

Attachment 2. Mitigation Monitoring Program

A.1 Purpose of Report

Southern California Edison (SCE) has proposed the Tehachapi Renewable Transmission Project (TRTP or proposed Project) to provide electric transmission capacity for wind energy resources that are expected to develop in Kern County. The Project, as adopted, would consist of the following major components:

- Build a new single-circuit 500-kV transmission line (T/L) traveling approximately 16.8 miles in new ROW between the approved Windhub Substation and the proposed new Whirlwind Substation (Segment 10);
- Build two new single-circuit 220-kV T/Ls for approximately four miles (traveling parallel) in new ROW between the proposed (not part of Project) Cottonwind Substation to the proposed new Whirlwind Substation (Segment 4 – 220 kV);
- Build a new single-circuit 500-kV T/L for approximately 16.0 miles in new ROW between the proposed new Whirlwind Substation and the existing Antelope Substation (Segment 4 – 500 kV);
- Replace approximately 17.4 miles of the existing Antelope-Vincent 220-kV T/L and the existing Antelope-Mesa 220-kV T/L with only one new T/L built to 500-kV standards in existing ROW between the existing Antelope and Vincent Substations (Segment 5);
- Rebuild approximately 18.7 miles of existing 220-kV T/L to 500-kV standards between the existing Vincent and Gould Substations and construct a new 220-kV circuit on the vacant side of the existing double-circuit structures of the Eagle Rock-Mesa 220-kV T/L between the existing Gould and Mesa Substations (Segment 11);
- Rebuild approximately 31.9 miles of existing 220-kV T/L to 500-kV standards from the existing Vincent Substation to the southern boundary of the ANF, including approximately 26.9 miles of the existing Antelope-Mesa 220-kV T/L and approximately five miles of the existing Rio Hondo-Vincent 220-kV No. 2 T/L (Segment 6);
- Rebuild approximately 15.8 miles of existing Antelope-Mesa 220-kV T/L to 500-kV standards from the southern boundary of the ANF to the existing Mesa Substation (Segment 7);
- Rebuild approximately 33 miles of existing Chino-Mesa 220-kV T/L to 500-kV standards from a point approximately two miles east of the existing Mesa Substation (the "San Gabriel Junction") to the existing Mira Loma Substation (Segment 8A). Also rebuilding approximately seven miles of the existing Chino-Mira Loma No. 1 line from single-circuit to double-circuit 220-kV structures (Segment 8B). A new circuit between Chino Substation and approximately 0.8 mile west of the Mira Loma Substation (6.4 miles) would also be installed on the new double-circuit 500-kV structures built as part of Segment 8A (Segment 8C);
- Build the new Whirlwind Substation, a 500/220-kV substation located approximately four to five miles south of the proposed (not part of Project) Cottonwind Substation near the intersection of 170th Street and Holiday Avenue in Kern County near the TWRA (Segment 9);
- Upgrade the existing Antelope, Vincent, Mesa, Gould, and Mira Loma Substations to accommodate new T/L construction and system compensation elements (Segment 9);
- Install associated telecommunications infrastructure; and
- Apply approved herbicides to select invasive plant species in the Project area on NFS lands within the ANF.

A Final Environmental Impact Report (EIR) was prepared to assess the potential environmental effects of the proposed Project. The majority of the Project's impacts would occur during construction. Mitigation measures to reduce impacts have been adopted by the Lead Agency (CPUC) as part of its approval for the

Project. To the extent implementation of any of these measures is within the sole and exclusive jurisdiction of another public agency and not the CPUC (e.g., the USDA Forest Service (Forest Service) or the US Army Corps of Engineers (USACE)), the CPUC may not implement those measures but recommends that the agency with exclusive responsibility and jurisdiction adopt and implement them. In addition, SCE has committed to the implementation of Applicant-Proposed Measures (APMs) to reduce potentially significant adverse impacts related to construction and operation of the proposed Project.

The purpose of this Mitigation Monitoring Program is to ensure effective implementation of the mitigation measures, as well as APMs, adopted by the CPUC.

This plan includes:

- The mitigation measures, which SCE must implement as part of the Project, followed by the APMs that SCE has made part of the Project and is responsible for implementing;
- The actions required to implement these measures;
- Monitoring requirements;
- Determination of effectiveness; and
- Timing of implementation for each measure.

An Environmental Monitor (EM), designated by the CPUC or the Forest Service, shall conduct construction field-monitoring to ensure full implementation of all measures. In all instances where non-compliance occurs, the CPUC's or Forest Service's designated EM shall issue a verbal or written warning to the construction foreman and SCE's project manager, depending on the severity of the non-compliance. Non-compliances shall be reported to the CPUC's and/or Forest Service designated project managers. Any decision to halt work due to non-compliance shall be made by the CPUC or the Forest Service. The EM shall keep a record of any incidences of non-compliance with mitigation measures, APMs, permit conditions, or other conditions of Project approval. Weekly reports will be prepared that summarize compliance and construction activities. These weekly reports will be supplied to SCE, the CPUC, the Forest Service, applicable resource agencies, and posted on the CPUC project web site.

A.1.1 Major Required Plans and Reports

The mitigation measures detailed in this Mitigation Monitoring Program require SCE to prepare several plans and submit documentation, which must be approved by the CPUC and/or Forest Service (NFS lands) prior to construction of the proposed Project. Major requirements are listed in Table A.1-1.

Table A.1-1. Major Plans and Reports Required to be Submitted by SCE

Plan Report Title	Mitigation Measure(s) and APM(s)	Required to Initiate Construction
Fugitive Dust Emission Control Plan (FDECP)	AQ-1a, APM AQ-7	Yes
Habitat Restoration and Revegetation Plan	B-1a	Yes
Riparian Conservation Areas Treatment Plan	B-2	Yes
Weed Control Plan	B-3a	Yes
Pre-construction surveys for nesting birds	B-5	Yes
Protocol surveys for rare plants	B-7	Yes
Protocol surveys for California red-legged frogs	B-8a	Yes
Biological Monitoring	B-8b	No
Protocol surveys for Arroyo Toads	B-9	Yes
Protocol surveys for Desert Tortoise	B-10	Yes
Hazardous Material Spill kit(s)	B-12	Yes
Protocol surveys for listed riparian birds	B-15	Yes
Focused surveys for coastal California Gnatcatcher	B-16	Yes
Pre-construction surveys for Swainson's Hawks	B-18a	Yes

Table A.1-1. Major Plans and Reports Required to be Submitted by SCE		
Plan Report Title	**Mitigation Measure(s) and APM(s)**	**Required to Initiate Construction**
Protocol surveys for Mohave ground squirrel	B-22a	Yes
Construction Monitoring for Mohave ground squirrel	B-22b	Yes
Focused presence/absence surveys for Southwestern pond turtles	B-24	Yes
Focused surveys for two-striped garter snakes and south coast garter	B-25	Yes
Focused surveys for Coast Range newts	B-26	Yes
CDFG protocol for burrowing owls (Implement)	B-29	Yes
Pre-and during construction nest surveys for spotted owl	B-30	Yes
Maternity colony or mibernaculum surveys for roosting bats	B-33a	Yes
Focused surveys for San Diego Desert woodrat	B-36	Yes
Focused surveys for ringtail	B-37	Yes
Focused surveys for American badgers	B-38	Yes
Programmatic Agreement – Cultural Resources	C-1a	Yes
Inventory Cultural Resources Report	C-1b	Yes
Historic Properties Treatment Plan (HPTP)	C-1e	Yes
Long-term plan for NRHP-eligible sites	C-1i	No
Phase I Environmental Site Assessments (ESAs)	E-2a	Yes
Phase II Environmental Site Investigations (ESIs)	E-2b	Yes
Health and Safety Plan and Gas Monitoring Program	E-3b	Yes
Plans of access roads required to construct Route C, Route C Modified, or Route D	E-6b	Yes
Plan to avoid or minimize interference with oil field operation	G-1	Yes
Geological surveys for landslides	G-3	Yes
Report to avoid the placement of project structures on active fault traces	G-4	Yes
Geotechnical Investigation for groundshaking	G-5a	Yes
Geotechnical Investigation for liquefaction	G-5b	Yes
Geotechnical studies for potentially detrimental soil chemicals	G-6	Yes
Geotechnical analysis of settlement potential	G-9	Yes
Erosion Control Plan	H-1a	Yes
Monitoring of all wet-weather coordination with the FS	H-1b	Yes
SCE Transmission Line Fire Plan	PSU-1a	Yes
Traffic Control Plans (TCP)	T-1a, T-1b	Yes
Construction Transportation Plan (CTP)	T-2	Yes
Wildland Traffic Control Plans	F-1a	Yes
Fire Management Plan	F-3a	Yes
Emergency Evacuation Plan	F-4a	Yes
Phase I Environmental Site Assessment (ESA)	APM HAZ-1	Yes
Soil Management Plan	APM HAZ-2	Yes
Spill Prevention, Countermeasure, and Control Plan and Hazardous Materials Business Plan	APM HAZ-5	Yes
Construction SWPPP	APM HYD-1	Yes
Operation Storm Water Management Plan (SWMP)	APM HYD-8	Yes
Fire Management Plan	PSU-1, APM HAZ-4	Yes
Traffic Management Plan	APM TRA-4	Yes
Substations – Landscape Plan	APM AES-23	Yes
Construction Monitoring and Unanticipated Cultural Resources Discovery Plan	APM CR-2b	Yes

Table A.1-1 includes some documents that are not required prior to construction, but which would likely be submitted during the construction phase. These plans and reports would be reviewed within 30 days of receipt of the completed submittal.

A.1-2 Review Procedures

The CPUC and Forest Service monitoring team, including the CPUC and Forest Service project managers and technical experts, will review all applicable reports and provide comments. Comments will be provided to SCE on these documents to devise an effective and feasible plan to accomplish the intended reduction in impacts, including assurance that effectiveness criteria are in place before monitoring begins. Deliverables sent to SCE will include a report on each plan or permit reviewed, in addition to a copy of the plan itself with marginal notes or comments, as appropriate. Each plan will be approved, once it is determined that it is in compliance with the required mitigation measure and that changes (if required) have been made.

A.1-3 Compliance Monitoring

Prior to the start of construction in a given area, the EM will review applicable pre-construction resource surveys and verify that appropriate flagging is in place to denote sensitive resources and construction workspace boundaries, including access roads and equipment/material staging areas. During construction, the EM will conduct compliance monitoring which will include periodic unscheduled inspections at the construction areas for active site mitigation measures. Active site mitigation measures are those measures that require action during the project construction. Examples of active site mitigation measures include measures such as AQ-1a: Implement Construction Fugitive Dust Control Plan, N-1a: Implement Best Management Practices for Construction Noise, and all other mitigation measures and permit conditions that note monitoring of compliance at construction areas. The EM will also review ongoing surveying requirements during construction, such as nesting birds, and confirm that newly discovered resources are flagged in the field and added to applicable resource maps being used by field personnel.

Table A.1-2. Mitigation Monitoring Program

Impact	Measure	Monitoring Requirement	Determination of Effectiveness	Timing of Action
Agricultural Resources				
AG-1: Construction activities would temporarily preclude the agricultural use of some Farmland	**AG-1 Coordinate Construction Activities With Agricultural Landowners.** SCE shall coordinate with property owners of Farmland (Prime Farmland, Farmland of Statewide Importance, Unique Farmland) and Williamson Act lands that will be used for construction of the Project, including access and spur roads, staging areas, and other Project-related activities. The purpose of this coordination is to establish the use of Prime Farmland, Farmland of Statewide Importance, Unique Farmland, and Williamson Act lands during construction in order to: (1) schedule construction activities at a location and time when damage to agricultural operations would be minimized, to the extent practicable; and (2) ensure that any areas damaged or disturbed by construction are restored to a condition that closely approximates conditions that existed prior to construction-related disturbance, to the extent practicable. SCE's coordination with the agricultural landowners in the areas where Farmland or Williamson Act land will be temporarily disturbed is intended to minimize disruption to agricultural operations. This includes avoiding construction during peak planting, growing, and harvest seasons, if feasible, based on outage limitations. If damage or destruction occurs, SCE shall perform restoration activities on the disturbed area in order to return the area to a condition that closely approximates conditions that existed prior to construction-related disturbance. This could include activities such as soil preparation, regrading, and reseeding. SCE shall document its coordination efforts with affected agricultural landowners regarding the continued use of Farmland and/or Williamson Act lands and shall submit this documentation to the CPUC/FS at least 30 days prior to the start of any construction activities on the affected agricultural parcels.	• SCE shall provide documentation of coordination efforts with property owners of Farmland (Prime Farmland, Farmland of Statewide Importance, Unique Farmland) directly affected by the Project and will be submitted to the CPUC for review. • CPUC shall monitor compliance during construction.	• Interference with agricultural operations would be limited or avoided. • Damaged agricultural lands would be restored.	Thirty (30) days prior to and during construction.
AG-3: Construction activities would interfere with agricultural operations	Mitigation Measure AG-1, above.	Refer to AG-1, above.	Refer to AG-1, above.	Prior to and during construction.
AG-4: Operation would interfere with agricultural operations	Mitigation Measure AG-1, above.	Refer to AG-1, above.	Refer to AG-1, above.	During operation.

Table A.1-2. Mitigation Monitoring Program

Impact	Measure	Monitoring Requirement	Determination of Effectiveness	Timing of Action
Air Quality				
AQ-1: Construction emissions would exceed the SCAQMD, AVAQMD, and/or KCAPCD regional emission thresholds	**AQ-1a Implement Construction Fugitive Dust Control Plan.** SCE shall develop a Fugitive Dust Emission Control Plan (FDECP) for construction work. The plan shall be completed prior to construction and approved by the CPUC and FS. This Plan is in addition to any fugitive dust control plan required by the South Coast Air Quality Management District (SCAQMD). Measures to be incorporated into the plan shall include, but are not limited to the following: • Non-toxic soil binders, equivalent or better in efficiencies than the CARB approved soil binders, shall be applied per manufacturer recommendations to active unpaved roadways, unpaved staging areas, and unpaved parking area(s) throughout construction to reduce fugitive dust emissions. On NFS lands, SCE shall obtain FS approval of any soil binders to be used. • Unpaved road travel will be limited to the extent possible by; limiting the travel of heavy equipment in and out of the unpaved areas (move from construction site to construction site rather than back to marshalling or staging areas daily); through carpooling/busing construction workers to the maximum feasible extent; and by developing travel routes to each construction site that minimize unpaved road travel to the extent possible, according to FS or other regulatory agency road use restriction. The FDECP will include a road travel plan applicable for construction sites with unpaved access greater than one mile. • Water the disturbed areas of the active construction sites at least three times per day and more often if uncontrolled fugitive dust is noted. • Enclose, cover, water twice daily, and/or apply non-toxic soil binders according to manufacturer's specifications to exposed piles with a five percent or greater silt content. • Maintain unpaved road vehicle travel to the lowest practical speeds, and no greater than 15 miles per hour (mph), to reduce fugitive dust emissions. • All vehicle tires shall be inspected, are to be free of dirt, and washed as necessary prior to entering paved roadways. • Install wheel washers or wash the wheels of trucks and other heavy equipment where vehicles exit unpaved access to the construction sites. • Cover all trucks hauling soil and other loose material, or require at least two feet of freeboard. • Establish a vegetative ground cover (in compliance with biological resources impact mitigation measures) or otherwise create stabilized surfaces on all unpaved areas at each of the construction sites within 21	• Prior to construction, SCE shall submit a construction FDECP to the CPUC and FS for review and approval. • SCE shall incorporate the requirements of the FDECP into the plans and specifications, and require compliance by the construction contractor. • CPUC and/or FS will monitor compliance at construction areas.	• PM10 and PM2.5 emissions are reduced. • Effectiveness can be determined by monitoring implementation of the control measures detailed in the FDECP.	Prior to and during construction.

Table A.1-2. Mitigation Monitoring Program

Impact	Measure	Monitoring Requirement	Determination of Effectiveness	Timing of Action
	days after active construction operations have ceased. • Increase the frequency of watering, if water is used as a soil binder for disturbed surfaces, or implement other additional fugitive dust mitigation measures, to all active disturbed fugitive dust emission sources when wind speeds (as instantaneous wind gusts) exceed 25 mph. SCAQMD Rule 403 Best Available Control Measures (BACM) are required to be proposed in the FDECP and implemented when and if the BACM are as strict or stricter than the control measures listed above. Additionally, mitigation measures provided on the SCAQMD CEQA website Tables XI-A through XI-E (http://www.aqmd.gov/ceqa/handbook/mitigation/fugitive/MM_fugitive.html or as updated by SCAQMD) must be implemented in the FDECP where applicable. This mitigation measure covers construction work performed within all three local air quality jurisdictions.			
	AQ-1b Off-Road Diesel-Fueled Equipment Standards. All off-road construction diesel engines not registered under CARB's Statewide Portable Equipment Registration Program, which have a rating of 50 horsepower (hp) or more, shall meet, at a minimum, the Tier 2 California Emission Standards for Off-Road Compression-Ignition Engines as specified in California Code of Regulations, Title 13, section 2423(b)(1) unless that such engine is not available for a particular item of equipment. In the event a Tier 2 engine is not available for any off-road engine larger than 50 hp, that engine shall have tailpipe retrofit controls that reduce exhaust emissions of NOx and PM to no more than Tier 2 emission levels. Tier 1 engines will be allowed on a case-by-case basis only when the Project owner has documented that no Tier 2 equipment or emissions equivalent retrofit equipment is available for a particular equipment type that must be used to complete the Project's construction. This shall be documented with signed written correspondence by the appropriate construction contractor along with documented correspondence with at least two construction equipment rental firms. Equipment properly registered under and in compliance with CARB's Statewide Portable Equipment Registration Program are in compliance with this mitigation measure.	• Prior to construction, SCE shall submit a list of diesel-fueled offroad equipment to the CPUC and FS indicating compliance. • If Tier 2 equipment is not available for any off-road engine larger than 50 hp, SCE will submit records to indicate either: (1) that retrofit equipment has been added to the engine, or (2) that no Tier 2 equipment or emissions equivalent retrofit equipment is available for a particular equipment type..	NOx, PM, VOC, and CO emissions are reduced.	Prior to and during construction.
	AQ-1c Limit Vehicle Traffic and Equipment Use. Construction worker carpooling will be encouraged and other vehicle trips and equipment use will be limited to the extent practical by efficiently scheduling staff and daily construction activities to minimize the use of unnecessary/duplicate equipment when possible.	• SCE will require compliance by the construction contractor. • Compliance will be verified by the onsite monitor.	Exhaust emissions from Project construction are minimized to the extent feasible.	During construction.
	AQ-1d Heavy Duty Diesel Haul Vehicle On-Road Equipment Standards. Require the use of 2006 engines or pre-2006 engines with CARB certified Level 3 diesel emission controls for all on-road heavy duty diesel haul	• Prior to construction, SCE shall submit evidence of CARB certified Level 3 diesel emission controls to	NOx, PM, VOC, and CO emissions are reduced.	Prior to and during construction.

Table A.1-2. Mitigation Monitoring Program

Impact	Measure	Monitoring Requirement	Determination of Effectiveness	Timing of Action
	vehicles that are contracted on a continuing basis for use to haul equipment and waste for the Project.	the CPUC and FS for on-road heavy duty diesel haul vehicles to be used during construction.		
	AQ-1e On-Road Vehicles Standards. All on-road construction vehicles, other than those meeting the requirements of measure AQ-1d (Heavy Duty Diesel Haul Vehicle On-road Equipment Standards), shall meet all applicable California on-road emission standards and shall be licensed in the State of California. This does not apply to construction worker personal vehicles.	• Prior to construction, SCE shall submit California registration and SMOG certification to the CPUC and FS for all on-road vehicles to be used during construction, with the exception of those vehicles meeting the requirements of measure AQ-1d.	NOx, PM, VOC, and CO emissions are reduced.	Prior to and during construction.
	AQ-1f Properly Maintain Mechanical Equipment. The construction contractor shall ensure that all mechanical equipment associated with Project construction is properly tuned and maintained in accordance with the manufacturer's specifications.	• SCE shall provide maintenance records to the CPUC and FS upon request.	• Mechanical equipment is properly maintained, which reduces NOx emissions. • NOx and PM emissions are reduced.	Prior to and during construction.
	AQ-1g Restrict Diesel Engine Idling to 5 Minutes. Diesel engine idle time shall be restricted to no more than 5 minutes. Exceptions are vehicles that need to idle as part of their operation, such as concrete mixer trucks.	• Onsite monitor will verify compliance at construction sites.	NOx, PM, VOC and CO emissions are reduced.	During construction.
	AQ-1h Schedule Deliveries Outside Of Peak Traffic Hours. All material deliveries to the marshalling yards and from the marshalling yards to the construction sites shall be scheduled outside of peak traffic hours (6:00 to 9:30 am and 3:30 to 6:30 pm) to the extent feasible, and other truck trips during peak traffic hours shall be minimized to the extent feasible.	• SCE shall submit delivery schedules to the CPUC and FS at appropriate intervals to verify that deliveries are scheduled outside of peak traffic hours. • Onsite monitor will verify compliance at construction areas.	Traffic in areas where material deliveries occur remains generally free-flowing, as verified by the onsite monitor.	During construction.
	AQ-1i Off-Road Gasoline-Fueled Equipment Standards. As practicable, all off-road stationary and portable gasoline powered equipment shall have EPA Phase 1/Phase 2 compliant engines, where the specific engine requirement shall be based on the new engine standard in affect two years prior to the initiating Project construction. In the event that EPA Phase 1/Phase 2 compliant engines are determined not to be practicable, SCE shall provide documentation to the CPUC and FS with an explanation.	• Prior to construction, SCE shall submit a list of gasoline-fueled off-road equipment to the CPUC and FS indicating compliance. • In the event that compliant engines are determined not to be practicable, SCE shall provide documentation to the CPUC and FS with an explanation.	CO, NOx, and VOC emissions are reduced.	Prior to and during construction.

Table A.1-2. Mitigation Monitoring Program

Impact	Measure	Monitoring Requirement	Determination of Effectiveness	Timing of Action
	AQ-1j Reduction of Helicopter Emissions. Helicopter use will be limited to the extent feasible and helicopters with low emitting engines shall be used to the extent practical.	SCE shall submit a monthly helicopter use log including expected hours of operation, type of helicopter, and purpose of use to the CPUC and FS for review and approval.	NOx emissions reduced.	Prior to and during construction.
AQ-3: Construction of the Project would expose sensitive receptors to substantial pollutant concentrations	Mitigation Measures AQ-1a through AQ-1j, above.	Refer to AQ-1a through AQ-1j, above.	Exposure of harmful emissions would be reduced in areas with sensitive receptors.	Varies, please refer to AQ-1a through AQ-1j above.
AQ-6: The Project would not conform to Federal General Conformity Rules	**AQ-6 General Conformity Emission Offset Mitigation.** In the event that the final emission estimate for the selected Project alternative as provided in the Project's Conformity Analysis exceeds the NOx and/or VOC emission applicability thresholds, and assuming the SCAQMD does not provide confirmation that the Project's emissions are accounted for in the State Implementation Plan (SIP) emission estimates per 40 CFR §93.158(a)(1), then the Project will obtain emission reduction credits to fully offset the NOx and/or VOC emissions per 40 CFR §93.158(a)(2) for the years that the Project has been estimated to exceed the NOx and/or VOC emission applicability thresholds. Credits shall be submitted to the CPUC and FS for review and approval.	FS will monitor compliance.	NOx and/or VOC emissions would be offset if standards are exceeded.	Post-construction.
AQ-8: The Project would not conform to Angeles National Forest air quality strategies.	Mitigation Measures AQ-1a through AQ-1j, above.	Refer to AQ-1a through AQ-1j, above.	Refer to AQ-1a through AQ-1j, above.	Varies, please refer to AQ-1a through AQ-1j above.
AQ-9: The Project would not conform with Applicable Air Quality Management Plans.	Mitigation Measures AQ-1a, AQ-1b, and AQ-1d, above.	Refer to AQ-1a, AQ-1b, and AQ-1d, above.	Refer to AQ-1a, AQ-1b, and AQ-1d, above.	Varies, please refer to AQ-1a, AQ-1b, and AQ-1d above.
Biological Resources				
B-1: Construction activities would result in temporary and permanent losses of native vegetation.	**B-1a Provide restoration/compensation for impacts to native vegetation communities.** The intent of this mitigation measure is to require SCE to restore disturbed sites to pre-construction conditions or the desired future conditions per the Angeles National Forest (ANF), Land Management Plan (LMP). Prior to construction SCE shall have a qualified biologist, where concurrence on the biologist has been provided by the CPUC and FS, document the community type and acreage of vegetation that would be subject to project disturbance. Impacts to all oaks and native trees (with >3 inch diameter at breast height [DBH]) will be documented by identifying the	• Prior to construction, SCE shall submit documentation providing pre-construction conditions and a Habitat Restoration and Revegetation Plan to the CPUC and FS for review and approval. • SCE will identify a Habitat Restoration Specialist to determine the most appropriate method of	• Successful restoration and revegetation to pre-construction conditions, as verified by the Environmental Monitor (EM). • Effectiveness can be determined by	Prior to and during construction.

Table A.1-2. Mitigation Monitoring Program

Impact	Measure	Monitoring Requirement	Determination of Effectiveness	Timing of Action
	species, number, location, and DBH. On non-Federal lands all protection and replacement measures shall be consistent with applicable local jurisdiction requirements, such as the Los Angeles County Oak Tree Ordinance. Tree removal shall not be permitted until replacement trees have been planted or transplanting sites are approved. For NFS lands, the FS shall prepare a Habitat Restoration and Revegetation Plan in discussion with SCE for the Project, which shall include plans for restoration, enhancement/re-vegetation and/or mitigation banking. For non-Federal lands SCE shall prepare the Habitat Restoration and Revegetation Plan. Both plans shall include at minimum: (a) the location of the mitigation site (off site mitigation may be required); (b) locations and details for top soil storage (c) the plant species to be used; (d) seed and cutting collecting guidelines; (d) a schematic depicting the mitigation area; (e) time of year that the planting will occur and the methodology of the planting; (f) a description of the irrigation methodology for container, bareroot or other planting needing irrigation; (g) measures to control exotic vegetation on site; (h) success criteria; (i) a detailed monitoring program; j) locations and impacts to all oaks and native trees (over 3 inches DBH); (k) locations of temporary or permanent gates, barricades, or other means to control unauthorized vehicle access on access and spur roads as deemed necessary by the FS (NFS lands only). SCE shall utilize a CPUC/FS/USACE-approved locally collected seed mix, locally collected cuttings, bare-root stock, etc. to revegetate areas disturbed by construction activities. All habitats dominated by non-native species prior to Project disturbance shall be revegetated using appropriate native species. FS approval is required for seeding on NFS land. The seed mix shall consist of native, locally occurring species collected from local seed sources. Cuttings and bare-root stock shall be of local origin. Restoration shall include the revegetation of stripped or exposed work sites and/or areas to be mitigated with vegetation native to the area. No commercially purchased seeds, stock, etc will be accepted without the approval of the FS on NFS lands and must be certified to be free of noxious weeds. Revegetation shall include ground cover, grass, shrub, and tree species in order to match disturbed areas to surrounding conditions and to restore or improve wildlife habitat quality to pre-project or higher levels. The Habitat Restoration and Revegetation Plan shall also include a monitoring element. Post seeding and planting monitoring will be yearly from years one to five and every other year from years six to ten, or until the success criteria are met. SCE shall restore temporarily disturbed areas, including existing tower locations that are to be removed by the Project, to pre-construction conditions or the desired future conditions per the LMP. If the survival and	restoration. • SCE shall restore native vegetative communities to pre-construction conditions, and the creation or restoration of habitat shall be monitored for 5 years after mitigation. If necessary, remediation activities shall be taken during the 5-year period. • SCE's designated biologist shall monitor compliance and provide a copy of the monitoring reports to the CPUC and FS for review on a weekly basis.	monitoring implementation of the control measures.	

Table A.1-2. Mitigation Monitoring Program

Impact	Measure	Monitoring Requirement	Determination of Effectiveness	Timing of Action
	cover requirements have not been met, SCE is responsible for replacement planting to achieve these requirements. Replacement plants shall be monitored with the same survival and growth requirements as previously mentioned. The FS will conduct a preconstruction evaluation of the probable impacts to all oaks and native trees in all construction-related disturbance areas. This evaluation shall be incorporated into the Habitat Restoration Plan and shall include the species and number of individuals, their DBH, location and potential impact type. Construction within the driplines of all native trees and oak trees/shrubs, and incidental trimming or damage to trees along the proposed access/spur routes shall not occur until the trees are evaluated by an FS botanist or qualified arborist. This person shall identify appropriate measures to minimize tree loss, such as the placement of fence around the dripline, padding vehicles, minimizing soil removal or addition around driplines, and the placement of matting under the existing dripline during construction activities. On the ANF, if a tree must have any construction-related activities such as equipment or soil staging within the drip zone, root pruning, or excessive branch pruning (greater than 25% in one year), then the tree must be monitored for five years for tree mortality. If any of these identified trees dies during the monitoring period, then the tree must be mitigated at the rate appropriate to the DBH. The replacement ratios (using rooted plants in liners or direct planting of acorns [for oaks]) for native trees or any oaks which are to be removed shall be as follows: trees from 3 to 5 inches DBH shall be replaced at 3:1; trees from 5 to 12 inches shall be replaced at 5:1; trees from 12 to 24 inches shall be replaced at 10:1; trees from 24 to 36 inches shall be replaced at 15:1; and all oaks greater than 36 inches shall be replanted at a ratio of 20:1. The replacement ratio for damaged trees shall be 2:1 for trees with DBH less than 12 inches and a 5:1 ratio for trees with DBH greater than 12 inches. The DBHs for scrub oaks will be measured following DFG guidelines. On the ANF any oak or native tree which must be removed or killed as a result of construction or other Project-related activities shall be replaced in kind or mitigated at a comparable value. Compliance shall be evaluated annually for years one to five and bi-annually for years six to ten (years after tree planting). Trees shall be planted at locations acceptable to the landowner or managing agency. All planting locations, procedures, and results shall be evaluated by a qualified arborist and FS botanist. On non-Federal lands all protection and replacement measures shall be consistent with applicable local jurisdiction requirements, such as the Los Angeles County Oak Tree Ordinance.			

Table A.1-2. Mitigation Monitoring Program

Impact	Measure	Monitoring Requirement	Determination of Effectiveness	Timing of Action
	Permanent impacts on federal lands shall be determined by the appropriate federal manager (FS and USACE) and on non-federal lands shall be determined by the CPUC at the ratios stated below or at a comparable value. On NFS lands impacts will be considered permanent if they are not likely to recover after ten years post-disturbance. Where onsite restoration is planned for mitigation of temporary impacts to vegetation communities, SCE shall identify a Habitat Restoration Specialist, where concurrence has been provided by the CPUC/FS, to implement the method of restoration outlined by the FS in the Habitat Restoration Plan. The creation or restoration of habitat shall be monitored annually for years one to five on both FS lands and private/State/USACE lands and bi-annually for years six to ten on FS lands, or until the success criteria are met, after mitigation site construction to assess progress and identify potential problems with the restoration site. Remediation activities (e.g. additional planting, removal of non-native invasive species, or erosion control) shall be taken during the ten-year period if necessary to ensure the success of the restoration effort. If the mitigation fails to meet the established performance criteria after the ten-year maintenance and monitoring period, monitoring and remedial activities shall extend beyond the ten-year period until the criteria are met or unless otherwise specified by the CPUC/FS/USACE (as appropriate). If a fire occurs in a revegetation area within the ten year monitoring period, SCE shall be responsible for a one-time replacement. If a second fire occurs, no replanting is required, unless the fire is caused by SCE activity. Off-site mitigation for NFS and non-NFS lands may be required if mitigation rates exceed what can be achieved on NFS land. This may be in the form of funding for land purchase for inclusion into the Angeles National Forest, mitigation banking, removing existing structures, or comparable restoration efforts. During and after construction, FS-identified entrances to access roads on NFS lands shall be gated or blockaded in some manner and maintained to prevent the unauthorized use of these roads by the general public. Signs prohibiting unauthorized use of the access roads shall be posted on these gates. **Mitigation Ratios for Impacts to Vegetation Communities** Vegetation Community / Mitigation Ratios – Non-NFS Lands (Temporary Impacts / Permanent Impacts) / Mitigation Ratios – NFS/Federal Lands (Temporary Impacts / Permanent Impacts) **Woodland Vegetation**			

Table A.1-2. Mitigation Monitoring Program

Impact	Measure					Monitoring Requirement	Determination of Effectiveness	Timing of Action
	Bigcone Douglas Fir-Canyon Oak Forest	1:1	2:1	2:1	5:1			
	Canyon Oak Forest	-	-	1:1	5:1			
	California Bay Forest	1:1	2:1	1:1	5:1			
	California Walnut Woodland	1:1	1.5:1	-	-			
	Coast Live Oak Woodland	1:1	1.5:1	1:1	5:1			
	Coulter Pine Forest	-	-	1:1	3:1			
	Joshua Tree Woodland	1:1	2:1	-	-			
	Mojavean Pinyon Woodland	1:1	2:1	2:1	5:1			
	Non-native Woodland	1:1*	1:1*	1:1*	1:1*			
	Yellow Pine Forest (Plantation)	-	-	1:1	3:1			
	Shrub-dominated Vegetation							
	Big Sagebrush Scrub	1:1	1:1	1:1	3:1			
	Coastal Sage Scrub	1:1	1.5:1	2:1	5:1			
	Desert Saltbush Scrub	1:1	1:1	-	-			
	Chamise Chaparral	-	-	1:1	3:1			
	Mixed Chaparral	1:1	1:1	1:1	3:1			
	Scrub Oak Chaparral	-	-	1:1	5:1			
	Interior Live Oak Scrub	-	-	1:1	5:1			
	Mojave Creosote Bush Scrub	1:1	1:1	-	-			
	Mojave Mixed Woody Scrub	1:1	1:1	-	-			
	Mojavean Juniper Woodland and Scrub	1:1	1.5:1	2:1	5:1			
	Mojavean Pinyon and Juniper Woodland, Recently Burned	-	-	2:1	5:1			
	Mulefat Scrub	1:1	3:1	2:1	5:1			
	Rabbitbrush Scrub	1:1	1:1	-	-			
	Restoration– California Buckwheat Scrub	-	-	1:1	1:1			
	Riversidean Alluvial Fan Sage Scrub	1:1	3:1	2:1	5:1			
	Riparian Vegetation							
	Desert Wash	1:1	3:1	2:1	5:1			
	Ruderal Wetland	1:1*	1:1*	-	-			
	Exotic-Giant Reed	1:1*	1:1*	1:1*	1:1*			
	Southern Arroyo Willow Riparian Forest	1:1	3:1	2:1	5:1			
	Southern Coast Live Oak Riparian Forest	1:1	3:1	2:1	5:1			

Table A.1-2. Mitigation Monitoring Program

Impact	Measure					Monitoring Requirement	Determination of Effectiveness	Timing of Action
	Southern Cottonwood Willow Riparian Forest	1:1	3:1	2:1	5:1			
	Southern Sycamore-Alder Riparian Forest	1:1	3:1	2:1	5:1			
	Southern Willow Scrub	1:1	3:1	2:1	5:1			
	Sparsely Vegetated Streambed	1:1	3:1	2:1	5:1			
	Herbaceous Vegetation							
	Bunchgrass Grassland	1:1	1.5:1	-	-			
	California Annual Grassland	1:1	1:1	1:1	3:1			
	Deerweed and Chia Herbaceous Field, Recently Burned	1:1	1:1	2:1	3:1			
	Desert Bunchgrass Grassland	1:1	1.5:1	-	-			
	Wildflower Field	1:1	1:1	2:1	3:1			
	Anthropogenic Vegetation							
	Agriculture	0:1	0:1	-	-			
	Barren/developed	1:1*	1:1*	1:1*	1:1*			
	Ruderal Grassland	1:1*	1:1*	1:1*	1:1*			
	Ratios on Non-NFS Lands may be adjusted based on existing site conditions and disturbance levels with approval of the CPUC. Ratios could range from 0.5 to maximum noted in this Table based on site evaluation. *Non-native habitats will be reseeded with a native seed mix. Barren areas will be mitigated at a 1:1 ratio if they are determined to support sensitive wildlife (i.e. burrowing owls, etc.)							
	B-1b Implement a Worker Environmental Awareness Program. A Worker Environmental Awareness Program (WEAP) shall be implemented for construction crews by a qualified biologist(s) provided by SCE, where concurrence has been provided by the CPUC/FS prior to the commencement of construction activities. Training materials and briefings shall include but not be limited to: discussion of the Federal and State Endangered Species Acts, Bald and Golden Eagle Protection Act, and the Migratory Bird Treaty Act; the consequences of non-compliance with these acts; identification and values of plant and wildlife species and significant natural plant community habitats; fire protection measures; sensitivities of working on NFS lands and identification of FS sensitive species; hazardous substance spill prevention and containment measures; a contact person in the event of the discovery of dead or injured wildlife; and review of mitigation requirements. The WEAP shall also include the protocol to be followed when road kill is encountered in the work area or along access roads to minimize potential for additional mortality of scavengers, including listed species such as					• Thirty (30) days prior to construction, training materials and a course outline shall be provided to the CPUC and FS for review and approval. • SCE shall submit documentation of training with a list of construction personnel who completed the training to the CPUC and FS. • SCE's designated biologist shall monitor and ensure compliance for the duration of construction.	Minimize unnecessary disruptions to sensitive species, as verified by the EM.	Prior to and during construction.

Table A.1-2. Mitigation Monitoring Program

Impact	Measure	Monitoring Requirement	Determination of Effectiveness	Timing of Action
	the California condor. On NFS lands, road kill shall be reported to the FS or other applicable agency within 24 hours. On non-NFS lands, road kill shall be reported to the appropriate local animal control agency within 24 hours. Training materials and a course outline shall be provided to the CPUC and FS for review and approval at least 30 days prior to the start of construction. Maps showing the location of special-status wildlife, fish, or populations of rare plants, exclusion areas, or other construction limitations (i.e., limited operating periods) will be provided to the environmental monitors and construction crews prior to ground disturbance. SCE shall provide to the CPUC and FS a list of construction personnel who have completed training prior to the start of construction, and this list shall be updated by SCE as required when new personnel start work. No construction worker may work in the field for more than 5 days without participating in the WEAP.			
	B-1c Treat cut tree stumps with Sporax. All stumps of trees (conifers and hardwoods) 3 inches DBH or greater resulting from activities associated with construction of the Project shall be treated with Sporax according to product directions to prevent the spread of annosus root disease. Only licensed applicators shall apply Sporax. Sporax shall not be used during rain events unless otherwise approved by the CPUC/FS/USACE.	• SCE shall submit documentation of tree-cutting activities and the use of Sporax to the CPUC and FS. • SCE's designated biologist shall monitor and ensure compliance for the duration of construction.	Minimize unnecessary disruptions to sensitive species, as verified by the EM.	Prior to and during construction.
	Mitigation Measures AQ-1a and H-1a, above/below.	Refer to AQ-1a and H-1a, above/below.	Refer to AQ-1a and H-1a above/below.	Refer to AQ-1a and H-1a above/below.
B-2: The Project would result in the loss of desert wash or riparian habitat.	Mitigation Measures AQ-1a, B-1a, B-1b, and H-1a above/below.	Refer to AQ-1a, B-1a, B-1b, and H-1a above/below.	Refer to AQ-1a, B-1a, B-1b, and H-1a above/below.	Refer to AQ-1a, B-1a, B-1b, and H-1a above/below.
	B-2 Implement RCA Treatment Plan. SCE shall not construct or modify any structure, culvert, or bridge or modify any habitat without the appropriate permits from regulatory agencies. SCE shall not construct or modify any structure, culvert, or bridge or modify any habitat on NFS lands in Riparian Conservation Areas (RCAs) without the authorization of the FS. Vegetation removal or road construction shall not occur in RCAs during the breeding season for nesting birds (February 1-August 15) unless otherwise approved by the FS. SCE shall prepare and implement a FS RCA Treatment Plan for the Project. This Plan shall include the specific activities that will occur at each of the RCA points crossed by the Project including the amount and type of vegetation to be cleared, the type of road crossing or improvement allowed for wet and dry crossings, and the methods that would be employed to reduce the effects of the Project on water quality. The Plan shall include timing restrictions for vehicle or equipment passage, restrictions on what	• Prior to construction, SCE shall submit an FS RCA Treatment Plan to the CPUC and FS for review and approval. • Removal or road construction shall not occur in RCAs during breeding season for nesting birds (February 1 – August 15). • SCE's designated biologist shall monitor and provide a copy of the monitoring reports to the CPUC and FS for review on a weekly basis.	Minimize disturbance at RCA crossings, as verified by the EM.	Prior to and during construction.

Table A.1-2. Mitigation Monitoring Program

Impact	Measure	Monitoring Requirement	Determination of Effectiveness	Timing of Action
	activities may occur such as grading, vegetation removal or tree trimming, monitoring requirements, seasonal restrictions, and restoration requirements. This Plan shall be submitted to the FS for approval prior to construction or the grading of any access road. The Plan shall also be submitted to the CPUC for review.			
B-3: The Project would result in the establishment and spread of noxious weeds.	Mitigation Measures B-1a and B-2, above.	Refer to B-1a and B-2, above.	Refer to B-1a and B-2, above.	Refer to B-1a and B-2, above.
	B-3a Prepare and Implement a Weed Control Plan. SCE shall prepare and implement a comprehensive, adaptive Weed Control Plan on NFS lands for pre-construction and construction invasive weed abatement. The long term Weed Control Plan, including monitoring and eradication, will be defined as part of the 50 year Operations and Maintenance Permit. On the ROW easement lands administered by the FS, the Weed Control Plan shall incorporate all appropriate and legal agency-stipulated regulations. The Weed Control Plan shall be submitted to the FS for final authorization of weed control methods, practices, and timing prior to implementation of the Weed Control Plan on public lands. ROW easements located on private lands shall include adaptive provisions such as wheel and equipment washing for the implementation of the Weed Control Plan. The Weed Control Plan shall include the following: • A pre-construction weed inventory shall be conducted by surveying all areas subject to ground-disturbing activity, including, but not limited to, tower pad preparation and construction areas, tower removal sites, pulling and tensioning sites, assembly yards, and areas subject to grading for new or improved access and spur roads. Weed populations that: (1) are rated High or Moderate for negative ecological impact in the California Invasive Plant Inventory Database (Cal-IPC, 2006); and (2) aid and promote the spread of wildfires (such as cheatgrass, Saharan mustard, and medusa head); and (3) are considered by the FS as species of priority (for NFS lands only) shall be mapped and described according to density and area covered. In areas subject to ground disturbance, weed infestations shall be treated prior to construction according to control methods and practices for invasive weed populations designed in consultation with the FS. The Weed Control Plan shall be updated and utilized for eradication and monitoring post construction. • Weed control treatments shall include all legally permitted herbicide, manual, and mechanical methods applied with the authorization of the FS. The application of herbicides shall be in compliance with all state and federal laws and regulations under the prescription of a Pest Control Advisor (PCA), where concurrence has been provided by the CPUC/FS,	• Prior to construction, SCE shall submit the Weed Control Plan to the CPUC and FS for review and approval. • SCE's designated biologist shall monitor for the duration of construction, and will provide a copy of the monitoring reports to the CPUC and FS for review on a weekly basis.	Successful weed control, as verified by the EM.	Prior to and during construction.

Table A.1-2. Mitigation Monitoring Program

Impact	Measure	Monitoring Requirement	Determination of Effectiveness	Timing of Action
	and implemented by a Licensed Qualified Applicator. Herbicides shall not be applied during or within 72 hours of a scheduled rain event. Herbicides shall not be used within Riparian Conservation Areas (RCAs) on the ANF without approval of the FS. In riparian areas only water-safe herbicides shall be used. Herbicides shall not be applied when wind velocities exceed 6 mph. Where manual and/or mechanical methods are used, disposal of the plant debris will follow the regulations set by the FS. The timing of the weed control treatment shall be determined for each plant species in consultation with the FS (on NFS lands) with the goal of controlling populations before they start producing seeds. For the preconstruction and construction of the Project, measures to control the introduction and spread of noxious weeds in the Project work area shall be taken as follows. • On the ANF, from the time construction begins until ten years after construction is complete, surveying for new invasive weed populations and the monitoring of identified and treated populations shall be required at all sites impacted by construction (tower pads, staging areas, landing zones, etc.), including access/spur roads disturbed during the Project. Surveying and monitoring for weed infestations shall occur annually for years one to five and bi-annually for years six to ten. Treatment of all identified weed populations shall occur at a minimum of once annually. When no new seedlings or resprouts are observed at treated sites for three consecutive, normal rainfall years, the weed population can be considered eradicated and weed control efforts may cease for that impact site. • During Project preconstruction and construction, all seeds and straw materials shall be weed-free rice straw, and all gravel and fill material shall be certified weed free by the county Agriculture Commissioners' Offices. Any deviation from this will be approved by a FS botanist. All plant materials used during restoration shall be native, certified weed-free, and approved by the CPUC and FS. • During Project preconstruction and construction, vehicles and all equipment shall be washed (including wheels, undercarriages, and bumpers) before and after entering FS identified areas. On non-NFS lands vehicles and equipment shall be washed prior to commencing work in off road areas. Vehicles shall be cleaned at existing construction yards or legally operating car washes. SCE shall document that all vehicles have been washed prior to commencing project work. In addition, tools such as chainsaws, hand clippers, pruners, etc. shall be washed before and after entering all Project work areas. All washing shall take place where rinse water is collected and disposed of in either a sanitary sewer			

Table A.1-2. Mitigation Monitoring Program

<table>
<tr><th>Impact</th><th>Measure</th><th>Monitoring Requirement</th><th>Determination of Effectiveness</th><th>Timing of Action</th></tr>
<tr><td></td><td>or landfill, unless otherwise approved by the FS. A written daily log shall be kept for all vehicle/equipment/tool washing that states the date, time, location, type of equipment washed, methods used, and staff present. The log shall include the signature of a responsible staff member. Logs shall be available to the CPUC and FS for inspection at any time and shall be submitted to the CPUC and FS on a monthly basis.
• During Project operation and maintenance activities, clear and dispose of weeds in assembly yards, helicopter landing areas, tower pads, spur roads, staging areas, and any other disturbance areas in a FS-approved method.</td><td></td><td></td><td></td></tr>
<tr><td></td><td>B-3b Remove weed seed sources from construction access routes. Prior to construction, SCE shall initiate invasive species eradication identified in the following Table. These populations were identified as small and isolated but having the potential to spread aggressively during construction. Post construction, these isolated populations will be included and treated according to the restoration plan. Per the FSM 2080 BMP guideline, SCE shall also remove or reduce sources of weed seed along the travel routes associated with Project construction identified in Figures A-2 through A-4 of Appendix A of the Biological Specialist Report (Aspen, 2008) to prevent the introduction or control the spread of noxious weeds by mowing or other control methods to substantially reduce seed production in these infestations during Project construction. Following Project approval and during the time of year when weed species can be observed and identified, SCE shall identify, using a qualified plant ecologist, any other weed seed sources that could contribute to Project-related weed spread on the ANF. The following weed populations, and any other target infestations identified by Project surveys, should be controlled prior to construction. SCE shall initiate eradication of the following weed populations and any other isolated, target infestations discovered during pre-construction surveys along construction routes.
<table>
<tr><th colspan="2">Weed Populations Along Construction Routes*</th></tr>
<tr><th>ANF Road Location</th><th>Noxious Weeds Identified</th></tr>
<tr><td>4N41</td><td>Isolated patch of Spanish broom</td></tr>
<tr><td>3N20</td><td>Isolated patches of Spanish broom, Scotch broom, and rockrose</td></tr>
<tr><td>3N23</td><td>Giant reed population in creek adjacent to road</td></tr>
<tr><td>2N23</td><td>Scattered Spanish broom infestations of a range of population sizes and densities. Some of the large populations along these routes observed during project surveys had been recently brushed for weed control by SCE contractors, but these populations should</td></tr>
</table></td><td>• Prior to construction, SCE shall initiate eradication of the weed populations identified in the measures, and submit documentation of control measures to the CPUC and FS.
• Eradication measures shall occur every year until 100 percent control of these small, isolated populations is achieved, and SCE shall submit documentation of control measures to the CPUC and FS.
• Written daily logs shall be kept for vehicle maintenance and shall be available to the CPUC and FS for inspection at any time and shall be submitted to the CPUC and FS on a monthly basis.
• SCE's designated biologist will monitor and provide a copy of the monitoring reports to the CPUC and FS for review on a weekly basis.</td><td>Successful eradication of sources of weed seed along the construction routes.</td><td>Prior to construction, and will continue until eradication efforts are 100 percent successful.</td></tr>
</table>

Table A.1-2. Mitigation Monitoring Program

Impact	Measure		Monitoring Requirement	Determination of Effectiveness	Timing of Action
		be rechecked and control efforts reapplied as necessary. Also isolated patches of tree tobacco, rockrose, horehound, and tocalote.			
	2N24	Scattered, isolated patches of Spanish broom and rockrose			
	2N25.2	Scattered, isolated patches of Spanish broom, rosemary, rockrose, and horehound			
	2N30.1	One isolated patch of Spanish broom			
	2N30.2	Scattered Spanish broom, bull thistle, tree of heaven, black locust, tocalote, rockrose, eupatory, horehound, smilo grass, and tree tobacco infestations of a range of population sizes and densities.			
	3N27 north of Big Tujunga Creek to Mt. Gleason Rd	Scattered, isolated patches of Spanish broom			
	2N45	Moderate patch of giant reed and tree of heaven			
	2N65.1	Moderate infestation of tree spurge			
	2N65.2	Moderate infestation of Spanish broom and thoroughwort			
	2N66	Moderate patch of Spanish broom and tree of heaven			
	2N75	Moderate patch of Spanish broom			
	2N79	Isolated patch of Spanish broom			
	1N36	Scattered Spanish broom, bull thistle, tree of heaven, black locust, tocalote, rockrose, Canadian thistle, hairy vetch, smilo grass, and tree tobacco infestations of a range of population sizes and densities.			
	Road west out of Shortcut Station	Isolated patches of Spanish broom			
	*Specific locations are found in Figures A-2 through A-4 of Appendix A of the Biological Specialist Report Noxious Weed Assessment. [Aspen, 2008]				

Table A.1-2. Mitigation Monitoring Program

Impact	Measure	Monitoring Requirement	Determination of Effectiveness	Timing of Action
	B-3c Remove weed seed sources from assembly yards, staging areas, tower pads, pull sites, landing zones, and spur roads. Prior to construction and during each year of use for construction at all assembly yards, staging areas, tower pads, pull sites, landing zones, and spur roads within the ANF, weed infested areas should be mowed and/or treated as appropriate for the individual weed species under the guidance of a qualified plant ecologist or restoration ecologist, where concurrence on the ecologist has been provided by the FS. Unless otherwise authorized by the FS, weed control efforts in these areas shall be timed annually to reduce shortpod mustard, tocalote, and other noxious weed seed production, by mowing or weed-whacking infestations when flowering has just started, but before seeds have been produced. All plant debris shall be disposed of at a FS/CPUC-approved location. Weed control efforts shall commence in early spring (February – March), as indicated annually by a qualified plant ecologist or restoration ecologist in coordination with a FS botanist or Forest Weed Specialist.	• Prior to construction, SCE shall commence weed control efforts in early spring, and submit documentation of control measures to the CPUC and FS. • All plant debris shall be disposed of at a FS and/or CPUC-approved location. • SCE's designated biologist shall monitor and provide a copy of the monitoring reports to the CPUC and FS for review on a weekly basis.	Successful eradication of sources of weed seed in assembly yards/staging areas.	Prior to construction, and will continue until eradication efforts are 100 percent successful.
B-4: Construction activities, including the use of access roads and helicopter construction, would result in disturbance to wildlife and may result in wildlife mortality.	Mitigation Measures AQ-1a, B-1a, B-1b, B-2, B-3a, and H-1a above/below.	Refer to B-1a, B-1b, B-2, B-3a, and H-1a above/below.	Refer to B-1a, B-1b, B-2, B-3a, and H-1a above/below.	Refer to B-1a, B-1b, B-2, B-3a, and H-1a above/below..
B-5: Construction activities conducted during the breeding season could result in the loss of nesting birds or raptors.	Mitigation Measures AQ-1a, B-1a, B-1b, and B-3a, above.	Refer to AQ-1a, B-1a, B-1b, and B-3a, above.	Refer to AQ-1a, B-1a, B-1b, and B-3a, above.	Refer to AQ-1a, B-1a, B-1b, and B-3a, above.
	B-5 Conduct pre-construction surveys and monitoring for breeding birds. SCE shall conduct pre-construction surveys for nesting birds if construction and removal activities are scheduled to occur during the breeding season. Surveys shall be conducted in areas within 500 feet of tower sites, laydown/staging areas, substation sites, and access/spur road locations. Surveys for birds shall be conducted for all areas from February 1 to August 15. The required survey dates may be modified based on local conditions (i.e., high altitude locations) with the approval of the CPUC, California Department of Fish and Game (CDFG), USACE, and/or FS. SCE shall be responsible for designating qualified biologists who can conduct pre-construction surveys and monitoring for breeding birds. The resume of the proposed biologists will be provided to the CPUC, USACE, and FS for concurrence prior to ground disturbance. On NFS lands, the FS shall apply	• If construction and removal activities are scheduled to occur during the breeding season, prior to construction SCE shall submit documentation providing the results of the pre-construction nesting bird surveys to the CPUC and FS for review and approval. • The resume of the proposed biologists shall be provided to the CPUC, USACE, and FS for concurrence.	Successful avoidance of nesting birds, as verified by the EM.	Prior to and during construction.

Table A.1-2. Mitigation Monitoring Program

Impact	Measure	Monitoring Requirement	Determination of Effectiveness	Timing of Action
	the FS Land Management Plan Standard S18 (Part 3 of the Land Management Plan), which states "Protect known active and inactive raptor nest areas. Extent of protection will be based on proposed management activities, human activities existing at the onset of nesting initiation, species, topography, vegetative cover, and other factors. When appropriate, a no-disturbance buffer around active nest sites will be required from nest-site selection to fledging." On both NFS and non-NFS lands, if breeding birds with active nests are found, a biological monitor shall establish a 300-foot buffer around the nest for ground-based construction activities and a one-mile buffer for helicopter use if helicopters are flying below 300 feet, and no activities will be allowed within the buffer(s) until the young have fledged from the nest or the nest fails. If nesting bald or golden eagles are identified a 660-foot no activity buffer will be implemented. The 300-foot (660-foot eagle and one-mile helicopter) buffer may be adjusted to reflect existing conditions including ambient noise, topography, and disturbance with the approval of the U.S. Fish and Wildlife Service (FWS), CPUC, USACE, CDFG, or FS, as appropriate. On NFS lands, the FS shall have the authority to define/redefine such buffers. The biological monitors shall conduct regular monitoring of the nest to determine success/failure and to ensure that Project activities are not conducted within the buffer(s) until the nesting cycle is complete or the nest fails. The biological monitors shall be responsible for documenting the results of the surveys and the ongoing monitoring and will provide a copy of the monitoring reports for impact areas to the respective agencies (e.g., On NFS lands documentation will be provided to the Forest Biologist). If for any reason a bird nest must be removed during the nesting season, SCE shall provide written documentation providing concurrence from the FWS and CDFG authorizing the nest relocation. On NFS lands, this will include coordination and written approval from the FS. On USACE lands, this will include coordination and written approval by the USACE. SCE shall provide a written report documenting the relocation efforts. The report shall include what actions were taken to avoid moving the nest, the location of the nest, what species is being relocated, the number and condition of the eggs taken from the nest, the location of where the eggs are incubated, the survival rate, the location of the nests where the chicks are relocated, and whether the birds were accepted by the adopted parent.	• If a bird nest must be removed during the nesting season, SCE shall provide written documentation providing concurrence from the U.S. FWS and CDFG authorizing the nest relocation. On NFS lands, this will include coordination and written approval from the FS. • SCE's designated biologist shall monitor and provide a copy of the monitoring reports to the CPUC and FS for review on a weekly basis.		
B-6: The Project would cause the loss of foraging habitat for wildlife.	Mitigation Measures AQ-1a, B-1a, B-1b, B-2, B-3a, and H-1a, above/below.	Refer to AQ-1a, B-1a, B-1b, B-2, B-3a, and H-1a, above/below.	Refer to AQ-1a, B-1a, B-1b, B-2, B-3a, and H-1a, above/below.	Refer to AQ-1a, B-1a, B-1b, B-2, B-3a, and H-1a, above/below.

Table A.1-2. Mitigation Monitoring Program

Impact	Measure	Monitoring Requirement	Determination of Effectiveness	Timing of Action
B-7: The Project could disturb endangered, threatened, or proposed plant species or their habitat.	Mitigation Measures AQ-1a, B-1a, B-1b, B-3a, and H-1a, above/below.	Refer to AQ-1a, B-1a, B-1b, B-3a, and H-1a, above/below.	Refer to AQ-1a, B-1a, B-1b, B-3a, and H-1a, above/below.	Refer to AQ-1a, B-1a, B-1b, B-3a, H-1a, above/below.
	B-7 Conduct preconstruction surveys for State and federally Threatened, Endangered, Proposed, Petitioned, and Candidate plants and avoid any located occurrences of listed plants. SCE shall conduct pre-construction surveys for State and federally listed Threatened and Endangered, Proposed, Petitioned, and Candidate plants in all areas subject to ground-disturbing activity, including, but not limited to, tower pad preparation and construction areas, tower removal sites, pulling and tensioning sites, assembly yards, and areas subject to grading for new access roads. The surveys shall be conducted during the appropriate blooming period(s) by a qualified plant ecologist/biologist according to protocols established by the FWS, CDFG, FS, and California Native Plant Society (CNPS). The resume of the proposed biologists will be provided to the CPUC and FS for concurrence prior to ground disturbance. All listed plant species found shall be marked and avoided. If a federally listed plant species cannot be avoided on private land, consultation with FWS will occur. Prior to site grading, any populations of listed plant species identified during the surveys shall be protected by a buffer zone. The buffer zone shall be established around these areas and shall be of sufficient size to eliminate potential disturbance to the plants from human activity and any other potential sources of disturbance including human trampling, erosion, and dust. The size of the buffer depends upon the proposed use of the immediately adjacent lands, and includes consideration of the plant's ecological requirements (e.g., sunlight, moisture, shade tolerance, edaphic physical and chemical characteristics) that are identified by a qualified plant ecologist and/or Forest botanist. At minimum, the buffer shrub species shall be equal to twice the drip line (i.e., two times the distance from the trunk to the canopy edge) in order to protect and preserve the root systems of the plant. The buffer for herbaceous species shall be, at minimum, 50 feet from the perimeter of the population or the individual. A smaller buffer may be established, provided there are adequate measures in place to avoid the take of the species, with the approval of the FWS, CDFG, FS, USACE and CPUC. If impacts to listed plants are determined to be unavoidable, the FWS shall be consulted for authorization, through the context of a Biological Opinion. Additional mitigation measures to protect or restore listed plant species or their habitat may be required by the FWS before impacts are authorized, whichever is appropriate.	• Prior to construction, the resume of the proposed biologists shall be provided to the CPUC and FS. • Prior to construction, SCE shall submit documentation providing results of the protocol surveys for rare plants to the CPUC and FS for review and approval. • All listed plant species shall be marked and avoided. • SCE's authorized biologist shall be present during all activities immediately adjacent to or within habitats that support rare plant species. • SCE's designated biologist shall monitor compliance with measures identified in the monitoring plan and provide a copy of the monitoring reports to the CPUC and FS for review on a weekly basis.	• Minimize disturbance to rare plants, as verified by the EM. • Effectiveness can be determined by monitoring implementation of the control measures.	Prior to and during construction.

Table A.1-2. Mitigation Monitoring Program

Impact	Measure	Monitoring Requirement	Determination of Effectiveness	Timing of Action
B-8: The Project could result in the loss of California red-legged frogs and mountain yellow-legged frogs.	Mitigation Measures AQ-1a, B-1a, B-1b, B-2, B-3a, H-1a and H-1b, above/below.	Refer to AQ-1a, B-1a, B-1b, B-2, B-3a, H-1a, and H-1b, above/below.	Refer to AQ-1a, B-1a, B-1b, B-2, B-3a, H-1a, and H-1b, above/below.	Refer to AQ-1a, B-1a, B-1b, B-2, B-3a, H-1a, and H-1b, above/below.
	B-8a Conduct protocol surveys for California red-legged frogs and implement avoidance measures. SCE shall conduct Fish and Wildlife Service (FWS)-approved protocol surveys for California red-legged frogs if suitable habitat is present near the proposed construction sites at the Amargosa Creek, Aliso Canyon (Segment 11), Monte Cristo Creek, Alder Creek, Big Tujunga Creek (Segment 6), and West Fork San Gabriel River within the Central Region. If surveys have been conducted to protocol within two years of start of construction and no red-legged frogs were identified, surveys would not need to be repeated prior to start of construction. Surveys will continue at least every two years until construction is complete in the identified potential habitat. The resumes of the proposed biologists will be provided to the CPUC and FS for concurrence prior to conducting the surveys. • Prior to the onset of construction activities, SCE shall provide the following information to all personnel who will be present within work areas or adjacent to the project area: - A detailed description of the red-legged frog including color photographs; - The protection the red-legged frog receives under the Endangered Species Act and possible legal action that may be incurred for violation of the Act; - The protective measures being implemented to conserve red-legged frogs and other species during construction activities associated with the Project; and - A point of contact if red-legged frogs are observed. • All trash that may attract predators of the red-legged frogs will be removed from work sites or completely secured at the end of each work day. At the Project crossing in Aliso Canyon, and anywhere California red-legged frogs are detected in or adjacent to the Project, the following shall apply: - A full-time monitor shall be present at the access road crossing when in use near the newly discovered population of California red-legged frog in Aliso Canyon, while water is present. Use of the road will be restricted to daylight hours, except during an emergency, in order to avoid nighttime activities when red-legged frogs may be present on	• Prior to construction, the resume of the proposed biologists shall be provided to the CPUC and FS. • Prior to construction, SCE shall submit documentation providing results of the protocol surveys for the California red-legged frog to the CPUC for review and approval. • If the California red-legged frog is detected in or adjacent to the proposed ROW, SCE shall submit a monitoring plan with compliance measures determined in consultation with USFWS, CDFG, FS and CPUC. • SCE's authorized biologist shall be present during all activities immediately adjacent to or within habitat that supports populations of the California red-legged frog. • SCE's designated biologist will monitor compliance with measures identified in the monitoring plan and provide a copy of the monitoring reports to the CPUC and FS for review on a weekly basis.	• Minimize disturbance to red-legged frogs, as verified by the EM. • Effectiveness can be determined by monitoring implementation of the control measures.	Prior to and during construction.

Table A.1-2. Mitigation Monitoring Program

Impact	Measure	Monitoring Requirement	Determination of Effectiveness	Timing of Action
	the access road. Traffic speed shall be maintained at 15 mph or less in the work area. Use of this roadway during rain events shall not occur during the activity period for California red-legged frogs. - Between 1 November and 31 March, no work will be authorized within 0.5 mile of occupied habitat and no vehicular crossings at wet fords of those channels will be authorized without an authorized monitor. The 0.5-mile buffer distance may be reduced based on the topography of the site with the approval of the FS and CPUC. Use of paved public access roads will not be restricted (i.e. Aliso Canyon Road). - Between April 1 to 31 October, no access road work will be authorized within 500 feet of occupied habitat and no vehicular crossings at wet fords of those channels will be authorized without an authorized monitor. Use of paved public access roads will not be restricted (i.e. Aliso Canyon Road). - If present, SCE shall monitor all related construction activities and develop and implement a monitoring plan that includes the following measures in consultation with the FWS and FS. - Prior to the onset of any construction activities, SCE shall meet on-site with the CPUC/FS-approved biologist (authorized biologist). The authorized biologist shall hold a current red-legged frog permit from FWS. SCE shall provide information on the general location of construction activities within habitat of the red-legged frog and the actions taken to reduce impacts to this species. Because red-legged frogs may occur in various locations during different seasons of the year, SCE, FS, and authorized biologists will, at this preliminary meeting, determine the seasons when specific construction activities would have the least adverse effect on red-legged frogs. - Where construction can occur in habitat where red-legged frogs are widely distributed, work areas will be fenced in a manner that prevents equipment and vehicles from straying from the designated work area into adjacent habitat. The authorized biologist will assist in determining the boundaries of the area to be fenced in consultation with the FWS/CDFG/FS/CPUC. All workers will be advised that equipment and vehicles must remain within the fenced work areas. - The authorized biologist will direct the installation of the fence and conduct a minimum of three nocturnal surveys to move any red-legged frogs from within the fenced area to suitable habitat outside of the fence. If red-legged frogs are observed on the final survey or during subsequent checks, the authorized biologist will conduct additional nocturnal surveys if he or she determines that they are necessary in concurrence with the FWS/CDFG/FS/CPUC.			

Table A.1-2. Mitigation Monitoring Program

Impact	Measure	Monitoring Requirement	Determination of Effectiveness	Timing of Action
	- Fencing to exclude red-legged frogs will be at least 24 inches in height. - Construction activities that may occur immediately adjacent to breeding pools or other areas where large numbers of red-legged frogs may congregate will be conducted during times of the year (winter) when individuals have dispersed from these areas or the species is dormant, unless otherwise authorized by CPUC, FS, and FWS. The authorized biologist will assist SCE in scheduling its work activities accordingly. - If red-legged frogs are found within an area that has been fenced to exclude red-legged frogs, activities will cease until the authorized biologist moves the red-legged frogs. - If red-legged frogs are found in a construction area where fencing was deemed unnecessary, work will cease until the authorized biologist moves the red-legged frogs. The authorized biologist in consultation with FWS/CDFG/ FS/CPUC will then determine whether additional surveys or fencing are needed. Work may resume while this determination is being made, if deemed appropriate by the authorized biologist. - Any red-legged frogs found during clearance surveys or otherwise removed from work areas will be placed in nearby suitable, undisturbed habitat. The authorized biologist will determine the best location for their release, based on the condition of the vegetation, soil, and other habitat features and the proximity to human activities. Clearance surveys shall occur on a daily basis in the work area. - The authorized biologist will have the authority to stop all activities until appropriate corrective measures have been completed. - SCE shall restrict work to daylight hours, except during an emergency, in order to avoid nighttime activities when red-legged frogs may be present on the access road. Traffic speed should be maintained at 15 mph or less in the work area. - A qualified biologist must permanently remove, from within the Project area, any individuals of exotic species, such as bullfrogs, crayfish, and centrarchid fishes, to the maximum extent possible and ensure that activities are in compliance with the California Fish and Game Code. - No stockpiles of materials will occur in areas occupied by California red-legged frogs. - To ensure that diseases are not conveyed between work sites by the authorized biologist or his or her assistants, the fieldwork code of practice developed by the Declining Amphibian Populations Task			

Table A.1-2. Mitigation Monitoring Program

Impact	Measure	Monitoring Requirement	Determination of Effectiveness	Timing of Action
	Force will be followed at all times. - Any spills of any fluids that may be hazardous to aquatic fauna (gasoline, hydraulic fluid, motor oil, etc) in areas that may contain California red-legged or mountain yellow-legged frogs will be reported to the FS, FWS, and CPUC within one hour.			
	B-8b Conduct biological monitoring. SCE shall provide a qualified biologist with demonstrated expertise with the listed wildlife species likely to occur in the Project area. This person(s) shall monitor all construction activities daily within suitable habitat for listed or sensitive wildlife. The resumes of the proposed biologists will be provided to the CPUC, USACE, and FS for concurrence prior to the onset of ground-disturbing activities.	• The resume of the proposed biologists shall be provided to the CPUC, USACE, and FS. • SCE's designated biologist shall monitor compliance with measures identified in the monitoring plan and provide a copy of the monitoring reports to the CPUC and FS for review on a weekly basis.	Minimize disturbance to listed wildlife species, as verified by the EM.	Prior to and during construction.
B-9: The Project would result in the loss of arroyo toads.	Mitigation Measures AQ-1a, B-1a, B-1b, B-2, B-3a, B-8b, H-1a and H-1b, above/below.	Refer to AQ-1a, B-1a, B-1b, B-2, B-3a, B-8b, H-1a, and H-1b, above/below.	Refer to AQ-1a, B-1a, B-1b, B-2, B-3a, B-8b, H-1a, and H-1b, above/below.	Refer to AQ-1a, B-1a, B-1b, B-2, B-3a, B-8b, H-1a, and H-1b, above/below.
	B-9 Conduct protocol surveys for arroyo toads and implement avoidance measures in occupied areas. In areas known to support arroyo toads (Lynx Gulch, Monte Cristo Creek, and Alder Creek) the following avoidance measures shall be implemented. • SCE shall avoid ground disturbing activities (i.e. grading, stream crossing upgrades, parking) along access roads within the one mile buffer for arroyo toads during the activity period for arroyo toads (March-November). This date and buffer may be modified based on the existing temperature regime and habitat conditions with FS and FWS approval. • SCE shall limit use of the access roads in this area within the one-mile arroyo toad buffer area to daylight hours only during the activity period for arroyo toads (generally March-November), unless otherwise approved by the FS (on NFS land), FWS, and/or the CPUC (on private land). Use of these roadways during rain events shall not occur during the activity period for arroyo toads. Vehicle speeds shall be limited to 15 MPH and no parking or loitering shall occur along the access roads. • SCE shall retain a qualified biologist with demonstrated expertise with arroyo toads to monitor all construction activities full time in occupied arroyo toad habitat. The monitor shall inspect the roadway, all Arizona crossings, and work sites throughout the day and log the time and	• The resume of the proposed biologists shall be provided to the CPUC and FS. • SCE shall submit documentation providing results of the protocol surveys for arroyo toads to the CPUC and FS for review and approval. • If arroyo toad is detected in or adjacent to the proposed ROW, SCE shall submit a monitoring plan with compliance measures determined in consultation with USFWS, CDFG, FS, and CPUC. • SCE's authorized biologist shall be present during all activities immediately adjacent to or within habitat that supports populations of arroyo toad. • SCE's designated biologist shall monitor compliance with measures	• Minimize disturbance to arroyo toads, as verified by the EM. • Effectiveness can be determined by monitoring implementation of the control measures.	Prior to and during construction.

Table A.1-2. Mitigation Monitoring Program

Impact	Measure	Monitoring Requirement	Determination of Effectiveness	Timing of Action
	weather conditions in the area. If adult or juvenile arroyo toads are found on the roadway, vehicle access shall be restricted until the animal has moved off the road or is relocated by a permitted arroyo toad biologist in accordance with the Biological Opinion. SCE shall conduct Fish and Wildlife Service-approved protocol surveys for arroyo toad at the following locations if suitable habitat is present near the proposed construction sites: Kentucky Wash, Aliso Canyon, and Big Tujunga Creek (Segment 6/11) within two years to the start of construction. If arroyo toads are detected, further surveys within the area will not be required and the avoidance measures detailed below will be followed. If no arroyo toads are detected, habitat assessments will be conducted every year until construction is completed. If the habitat assessment determines that suitable habitat exists, protocol surveys shall be conducted. • Prior to the onset of construction activities, SCE shall provide all personnel who will be present on work areas within or adjacent to the Project area the following information: a. A detailed description of the arroyo toad including color photographs; b. The protection the arroyo toad receives under the Endangered Species Act and possible legal action that may be incurred for violation of the Act; c. The protective measures being implemented to conserve the arroyo toad and other species during construction activities associated with the Project; and d. A point of contact if arroyo toads are observed. • For all areas in which this species has been documented SCE shall develop and implement a monitoring plan that includes the following measures in consultation with the FWS and Forest Service. - SCE shall retain a qualified biologist with demonstrated expertise with arroyo toads to monitor all construction activities in occupied arroyo toad habitat and assist SCE in the implementation of the monitoring program. The resumes of the proposed biologists will be provided to the CPUC and FS for concurrence. This biologist will be referred to as the authorized biologist hereafter. The authorized biologist will be present during all activities immediately adjacent to or within habitat that supports populations of arroyo toad. - All trash that may attract predators of the arroyo toad will be removed from work sites or completely secured at the end of each work day. Prior to the onset of any construction activities, SCE shall meet on-site with staff from the FS and the authorized biologist. SCE shall provide information on the general location of construction activities within habitat of the arroyo toad and the actions taken to reduce	identified in the monitoring plan and provide a copy of the monitoring reports to the CPUC and FS for review on a weekly basis.		

Table A.1-2. Mitigation Monitoring Program

Impact	Measure	Monitoring Requirement	Determination of Effectiveness	Timing of Action
	impacts to this species. Because arroyo toads may occur in various locations during different seasons of the year, SCE, FS, and authorized biologists will, at this preliminary meeting, determine the seasons when specific construction activities would have the least adverse effect on arroyo toads. - Any arroyo toads found during clearance surveys or otherwise removed from work areas will be placed in nearby suitable, undisturbed habitat. The authorized biologist will determine the best location for their release, based on the condition of the vegetation, soil, and other habitat features and the proximity to human activities. Clearance surveys shall occur on a daily basis in the work area. - The authorized biologist will have the authority to stop all activities until appropriate corrective measures have been completed. - To ensure that diseases are not conveyed between work sites by the authorized biologist or his or her assistants, the fieldwork code of practice developed by the Declining Amphibian Populations Task Force will be followed at all times. - SCE shall restrict work to daylight hours, except during an emergency, or unless otherwise authorized by the FS (on NFS land) or the CPUC (on private land) in order to avoid nighttime activities when arroyo toads may be present on the access roads. Traffic speed shall be maintained at 15 mph or less in the work area. - A qualified biologist must permanently remove, from within the Project area, any individuals of exotic species, such as bullfrogs, crayfish, and centrarchid fishes, to the maximum extent possible and ensure that activities are in compliance with the California Fish and Game Code. - No stockpiles of materials will occur in areas occupied by arroyo toads. - Any spills of any fluids that may be hazardous to aquatic fauna (gasoline, hydraulic fluid, motor oil, etc) in areas that may contain arroyo toads will be reported to the FS, FWS, and CPUC within one hour.			
B-10: The Project could result in the loss of desert tortoises.	Mitigation Measures AQ-1a, B-1a, B-1b, and B-3a, above.	Refer to AQ-1a, B-1a, B-1b, and B-3a, above.	Refer to AQ-1a, B-1a, B-1b, and B-3a, above.	Refer to AQ-1a, B-1a, B-1b, and B-3a, above.
	B-10 Conduct presence or absence surveys for desert tortoise, preserve habitat, and implement avoidance measures. SCE shall contract with a Fish and Wildlife (FWS)-authorized biologist to conduct FWS protocol-surveys for desert tortoise in the vicinity of the proposed Windhub	• The resume of the proposed biologists shall be provided to the CPUC and FS. • SCE shall submit documentation	• Minimize disturbance to desert tortoise, as verified by the EM. • Effectiveness can be	Prior to and during construction.

Table A.1-2. Mitigation Monitoring Program

Impact	Measure	Monitoring Requirement	Determination of Effectiveness	Timing of Action
	Substation site at the northern terminus of Segment 10, where historic tortoise burrows were documented and habitat is suitable. The resumes of the FWS-authorized biologists will be provided to the CPUC for concurrence prior to conducting the surveys. This biologist will be referred to as the "authorized biologist" hereafter. Additionally, a qualified biologist shall conduct focused clearance surveys for desert tortoise prior to construction activities within Segment 10 and Segment 4 between the Cottonwind and Whirlwind substations. Clearance surveys shall be conducted 100 m into agricultural areas that are adjacent to suitable habitat. Clearance surveys shall follow the FWS's desert tortoise survey protocol. To mitigate potential permanent impacts to occupied desert tortoise habitat from Project construction, SCE will acquire habitat occupied by desert tortoises. Disturbance occurring along Segment 10 and along Segment 4 between the Cottonwind and Whirlwind substations shall be mitigated through acquisition of occupied habitat at a ratio of 3:1 (acres of habitat acquired:acres of land permanently disturbed). Mitigation acquisition shall occur at a FWS- and CDFG-approved location and shall be coordinated through a FWS- and CDFG-approved entity. SCE shall enter into a binding legal agreement regarding the preservation of off-site lands describing the terms of the acquisition, enhancement, and management of those lands. Fee title acquisition of habitat lands or a conservation easement over these lands will be transferred to an entity approved by FWS and CDFG, along with funding for enhancement of the land and an endowment for permanent management of the lands. SCE will provide verification to the CPUC that FWS- and CDFG-approved lands have been acquired. SCE shall develop and implement a mitigation and monitoring plan that includes the following measures in consultation with the FWS and CDFG. • Prior to the onset of construction activities, SCE shall provide all personnel who will be present on work areas within or adjacent to the Project area the following information: a. A detailed description of the desert tortoise including color photographs; b. The protection the desert tortoise receives under the Endangered Species Act and possible legal action that may be incurred for violation of the Act; c. The protective measures being implemented to conserve the desert tortoise and other species during construction activities associated with the Project; and d. A point of contact if desert tortoises are observed. • All trash that may attract predators of desert tortoises will be removed	providing results of the protocol surveys for desert tortoises to the CPUC and FS for review and approval. • If desert tortoise is detected in or adjacent to the proposed ROW, SCE shall submit a monitoring plan with compliance measures determined in consultation with USFWS, CDFG, FS, and CPUC. • SCE's authorized biologist shall be present during all activities immediately adjacent to or within habitat that supports populations of desert tortoise. • SCE's designated biologist will monitor compliance with measures identified in the monitoring plan and provide a copy of the monitoring reports to the CPUC and FS for review on a weekly basis.	determined by monitoring implementation of the control measures.	

Table A.1-2. Mitigation Monitoring Program

Impact	Measure	Monitoring Requirement	Determination of Effectiveness	Timing of Action
	from work sites or completely secured at the end of each work day. • In construction areas in occupied desert tortoise areas, work and staging areas will be fenced with approved desert tortoise fencing in a manner that prevents equipment and vehicles from straying from the designated work area into adjacent habitat. The authorized biologist will assist in determining the boundaries of the area to be fenced in consultation with the FWS/CDFG/CPUC. All workers will be advised that equipment and vehicles must remain within the fenced work areas. Installation of the fencing and any necessary surveys will be directed and/or conducted by the authorized biologist in concurrence with the FWS/CDFG/CPUC. - If desert tortoises are found within an area that has been fenced to exclude the species, activities will cease until the authorized biologist moves the desert tortoises within 500 m of their original location. - If desert tortoises are found in a construction area where fencing was deemed unnecessary, work will cease until the authorized biologist moves the individual(s) within 500 m of their original location. The authorized biologist in consultation with FWS/CDFG/CPUC will then determine whether additional surveys or fencing are needed. Work may resume while this determination is being made, if deemed appropriate by the authorized biologist. - Any desert tortoises found during clearance surveys or otherwise removed from work areas will be placed in nearby suitable, undisturbed habitat within 500 m of their original location. The authorized biologist will determine the best location for their release, based on the condition of the vegetation, soil, and other habitat features and the proximity to human activities. Clearance surveys shall occur on a daily basis in the work area if the area is not fenced. If the area is fenced, only monitoring will need to be conducted. - SCE shall follow the tortoise Handling Guidelines at all times if handling tortoises is required. - The authorized biologist will have the authority to stop all activities until appropriate corrective measures have been completed. - SCE shall restrict work to daylight hours, except during an emergency, in order to avoid nighttime activities when desert tortoise may be present on the access road. Traffic speed shall be maintained at 15 mph or less in the work area.			

Table A.1-2. Mitigation Monitoring Program

Impact	Measure	Monitoring Requirement	Determination of Effectiveness	Timing of Action
B-12: The Project could result in the loss of special-status fish.	Mitigation Measures B-1a, B-1b, B-2, B-3a, B-8b, H-1a and H-1b, above/below.	Refer to B-1a, B-1b, B-2, B-3a, B-8b, H-1a, and H-1b, above/below.	Refer to B-1a, B-1b, B-2, B-3a, B-8b, H-1a, and H-1b, above/below.	Refer to B-1a, B-1b, B-2, B-3a, B-8b, H-1a, and H-1b, above/below.
	B-12 Implement avoidance and minimization measures for Santa Ana sucker and other aquatic organisms. On or near the West Fork Cogswell road, SCE shall pre-stage a complete Hazardous Material Spill kit(s) capable of containing the largest potential vehicle spill of gasoline, diesel, or other hazardous materials. The kit(s) shall be located and maintained in areas accessible to crews in the event a bridge or other road blockage has occurred. Contents of the kit(s) shall be approved by the FS. A biological monitor with knowledge of the special-status fishes known to occur in the area shall inspect the roadway a minimum of three times a day from October 1 to April 30 and one time a day from May 1 through September 30 (unless otherwise approved by the FS) during construction to inspect for leaks, spills, or other debris that may enter the San Gabriel River. Spills on the roadway will be logged and reported to the FS and CPUC monitor weekly and cleaned up immediately. Any spills along this road will be reported to the FS and CPUC within one hour. No loitering, maintenance, refueling, or equipment staging shall occur on the West Fork Cogswell road. Prior to vehicle access, metal plates, bridges, or other FS-approved structures shall be placed above all wet crossings, if deemed necessary by the FWS or the FS. Prior to any work in the San Gabriel River, Big Tujunga River, or their tributaries where flowing or ponded water is present SCE shall conduct surveys for fish and other special-status aquatic organisms. The species noted in the project area shall be reported to the FS. No work shall be conducted in the flowing portion of the stream and water shall be diverted around the work area in a manner that does not restrict the movement of aquatic organisms unless authorized by the FS. Block nets or other barriers may be required if deemed necessary by the FWS or the FS, and if fish or other special-status species are present. Block nets will not be used in areas supporting Santa Ana suckers. All activities that occur within ponded or flowing water shall be coordinated with the FS on NFS lands. Quarterly for duration of construction work in the San Gabriel and Big Tujunga Rivers, SCE shall prepare a report documenting the type and number of species located and any actions taken to relocate or exclude the species. This shall be reported to the FS and CPUC no later than 30 days following the completion of work at the San Gabriel or Big Tujunga Rivers. If Santa Ana suckers occur in portions of the creek where construction	• SCE shall submit documentation providing results of surveys for fish and other special status aquatic organism to the CPUC and FS for review and approval. • SCE shall submit documentation of a complete Hazardous Material Spill kit to the CPUC and FS for review and approval. • SCE's biological monitor with knowledge of the special status fishes known to occur in the area shall inspect the roadway for leaks, spills, or other debris a minimum of three times a day (unless otherwise approved by the FS)during construction. • Spills on the roadway will be logged and reported to the CPUC and FS monitor weekly and cleaned up immediately. • All activities that occur within ponded or flowing water shall be coordinated with the FS on NFS lands. • At the completion of work at the San Gabriel and Big Tujunga Rivers, SCE shall prepare a report documenting the type and number of species located and any actions taken to relocate or exclude the species, and submitted to the CPUC no later than 30 days after construction. • SCE's designated biologist shall monitor compliance with measures identified in the monitoring plan and	• Minimize disturbance to desert tortoise, as verified by the EM. • Effectiveness can be determined by monitoring implementation of the control measures.	Prior to, during and after construction.

Table A.1-2. Mitigation Monitoring Program

Impact	Measure	Monitoring Requirement	Determination of Effectiveness	Timing of Action
	activities are scheduled to occur, SCE shall retain a qualified biologist with a FWS permit for the Santa Ana sucker to monitor all construction activities in occupied Santa Ana sucker habitat and assist SCE in the implementation of the monitoring program. The resumes of the proposed biologists will be provided to the CPUC and FS for concurrence. This biologist will be referred to as the authorized biologist hereafter. The authorized biologist will have the authority to stop all activities until appropriate corrective measures have been completed.	provide a copy of the monitoring reports to the CPUC and FS.		
B. 13: The Project could result in the loss of Critical Habitat for the Santa Ana sucker.	Mitigation Measures B-1a, B-1b, B-2, B-3a, B-8b, B-12, H-1a, and H-1b, above/below.	Refer to B-1a, B-1b, B-2, B-3a, B-8b, B-12, H-1a, and H-1b, above/below.	Refer to B-1a, B-1b, B-2, B-3a, B-8b, B-12, H-1a, and H-1b, above/below.	Refer to B-1a, B-1b, B-2, B-3a, B-8b, B-12, H-1a, and H-1b, above/below.
B-14: The Project could result in the loss of California condors.	Mitigation Measures B-1a, B-1b, B-2, B-3a, and B-8b, above.	Refer to B-1a, B-1b, B-2, B-3a, and B-8b, above.	Refer to B-1a, B-1b, B-2, B-3a, and B-8b, above.	Refer to B-1a, B-1b, B-2, B-3a, and B-8b, above.
	B-14 Monitor construction in condor habitat and remove trash and micro-trash from the work area daily. SCE shall retain a qualified biologist with demonstrated knowledge of California condor identification to monitor all construction activities within the Project area and assist SCE in the implementation of the monitoring program. The resumes of the proposed biologist(s) will be provided to the CPUC and FS for concurrence. This biologist(s) will be referred to as the authorized biologist hereafter. The authorized biologist will be present during all activities immediately adjacent to or within known condor-occupied areas. The authorized biologist will have the authority to stop all activities until appropriate corrective measures have been completed. If condors are observed in helicopter construction areas, SCE shall avoid further helicopter use until the animals have left the area. The authorized biologist will have radio contact with the project foreman, who will be in radio contact with the helicopter pilot. The biologist will provide information to SCE to avoid conflicts with condors. All condor sightings in the Project area will be reported to the FWS and FS (on NFS lands). SCE will coordinate with FWS on the construction schedule and helicopter work areas to determine if any condors have been tracked or observed in the vicinity of the Project area. If condors are observed in helicopter construction areas, then SCE shall avoid further helicopter use until the animals have left the area and the FWS will be notified immediately. Should condors be found roosting within 0.5 miles of the construction area, no construction activity shall occur between 1 hour before sunset to 1 hour after sunrise, or until the condors leave the area. Should condors be found	• SCE shall submit a Waste Characterization and Management Plan to the CPUC and FS for review. • CPUC and FS shall monitor compliance during construction.	• Construction and demolition waste would be properly disposed which would minimize potential for impacts to California condors.	Prior to and during construction.

Table A.1-2. Mitigation Monitoring Program

Impact	Measure	Monitoring Requirement	Determination of Effectiveness	Timing of Action
	nesting within 1.5 miles of the construction area, no construction activity will occur until further authorization from the FWS and FS on NFS lands. **Microtrash.** All trash is required to be disposed of as written in the Proper Disposal of Construction Waste Plan for the Project. Additional language has been added to this Plan to address the disposal of microtrash. Workers will be trained on the issue of microtrash – what it is, its potential effects to California condors, and how to avoid the deposition of microtrash. In addition, daily sweeps of the work area will occur to collect and remove trash in locations with the potential for California condors to occur. **Worker Education.** SCE will develop a flier that will be distributed to all workers on the project concerning information on the California condor. Information to be included consists of the following: species description with photos and/or drawings indicating how to identify the California condor and how to distinguish condors from turkey vultures and golden eagles; protective status and penalties for violation of the ESA; avoidance measures being implemented on the Project; and contact information for communicating condor sightings. **Reporting.** All California condor sightings in the Project area will be reported directly to the FWS, FS, and CPUC. Prior to the commencement of helicopter activity, SCE will coordinate with a FWS condor biologist to determine if any condors have been tracked or observed in the vicinity of the Project area.			
B-15: The Project would disturb nesting southwestern willow flycatchers, least Bell's vireos, yellow-billed cuckoos, or their habitat.	Mitigation Measures AQ-1a, B-1a, B-1b, B-2, B-3a, B-5, and H-1a, above/below.	Refer to AQ-1a, B-1a, B-1b, B-2, B-3a, B-5, and H-1a, above/below.	Refer to AQ-1a, B-1a, B-1b, B-2, B-3a, B-5, H-1a, above/below.	Refer to AQ-1a, B-1a, B-1b, B-2, B-3a, B-5, and H-1a, above/below.
	B-15 Conduct protocol or focused surveys for listed riparian birds and avoid occupied habitat. If construction activities occur during the breeding season at the Whittier Narrows Recreation Area, Whittier Narrows Nature Center, Puente Hills Landfill Native Habitat Preservation Authority lands, and/or the Rio Hondo, or other areas including the ANF that have the potential to support listed riparian species, a qualified ornithologist shall conduct protocol surveys of the Project and adjacent areas within 500 feet. Fish and Wildlife Service (FWS) protocol surveys will be conducted for southwestern willow flycatcher, and least Bell's vireo. In known occupied habitat for listed riparian birds, SCE shall only conduct focused surveys of the Project and adjacent areas within 500 feet. The surveys shall be of adequate duration to verify potential nest sites if work is scheduled to occur during the breeding season. Protocol or focused surveys, as appropriate, should be conducted, within	• If construction activities occur during breeding season, prior to construction SCE shall submit documentation providing results of the protocol surveys for riparian birds to the CPUC and FS for review and approval. • Because construction activities may not occur for several years or be conducted in phases, these surveys shall be conducted annually unless the species has been detected in the Project area.	Avoid impacts to riparian bird habitats, as verified by the EM.	For southwestern willow flycatcher, surveys shall be conducted between 15 May and 15 July. Surveys for least Bell's vireo shall be conducted from 10 April to 1 Aug. Surveys for yellow-billed cuckoo shall occur from 1 June

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Impact	Measure	Monitoring Requirement	Determination of Effectiveness	Timing of Action
	one year of start of construction and will continue annually until completion of construction activities. However, on NFS lands, annual surveys in suitable habitat may be required during construction. These surveys may be modified through the coordination with the FWS, CDFG, FS, USACE, and the CPUC based on the condition of habitat, the observation of the species, or avoidance of riparian areas during the breeding season. If a territory or nest is confirmed in a previously unoccupied area, the FWS and CDFG shall be notified immediately. On NFS lands, USACE lands, or State Park (under Alternative 4) lands, these agencies would be notified immediately. In coordination with the FWS and CDFG, a 500-foot disturbance-free buffer shall be established and demarcated by fencing or flagging. This buffer may be adjusted provided noise levels do not exceed 60 dB(A)hourly Leq at the edge of the nest site as determined by a qualified biologist in coordination with a qualified acoustician. If the noise meets or exceeds the 60 dB(A) Leq threshold, or if the biologist determines that the construction activities are disturbing nesting activities, the biologist shall have the authority to halt the construction and shall devise methods to reduce the noise and/or disturbance in the vicinity. This may include methods such as, but not limited to, turning off vehicle engines and other equipment whenever possible to reduce noise, installing a protective noise barrier between the nest site and the construction activities, and working in other areas until the young have fledged. If noise levels still exceed 60 dB(A) Leq hourly at the edge of nesting territories and/or a no-construction buffer cannot be maintained, construction shall be deferred in that area until the nestlings have fledged. All active nests shall be monitored on a weekly basis until the nestlings fledge. No construction or vehicle traffic shall occur within this buffer during the breeding season for these species.	• If a territory or nest is confirmed, the FWS, CDFG, NFS, or Park, as applicable shall be notified immediately. In coordination with the FWS and CDFG, a 500-foot disturbance-free buffer shall be established and no construction shall occur within this buffer during the breeding season. • SCE's designated biologist will monitor compliance with measures identified in the monitoring plan and provide a copy of the monitoring reports to the CPUC and FS for review on a weekly basis.		to 31 August. Surveys must occur prior to construction, and continue annually until construction is complete.
B-16: The Project would result in the loss of coastal California gnatcatchers.	Mitigation Measures AQ-1a and B-1b, above.	Refer to AQ-1a and B-1b, above.	Refer to AQ-1a and B-1b, above.	Refer to AQ-1a and B-1b, above.
	B-16 Conduct protocol or focused surveys for coastal California gnatcatcher and implement avoidance measures. SCE shall conduct protocol surveys for coastal California gnatcatchers in areas supporting coastal sage scrub habitat that may be affected by the Project. In known occupied habitat for the California gnatcatcher, SCE shall only conduct focused surveys for coastal California gnatcatchers to determine the locations of nests and territories. Survey areas shall include a 500-foot buffer around Project disturbance areas. If a territory or nest is confirmed, the FWS shall be notified immediately. In coordination with the FWS a 300-foot disturbance-free buffer shall be established and demarcated by fencing or flagging. This buffer may be	• Prior to construction, SCE shall submit documentation providing the results of the pre-construction focused surveys for coastal California gnatcatcher to the CPUC and FS for review and approval. • If a territory or nest is confirmed, the FWS and CDFG shall be notified immediately. In coordination with the FWS and CDFG, a 500-foot disturbance-free buffer shall be	Successful avoidance of coastal California gnatcatcher, as verified by the EM.	Six surveys must be performed between 15 March and 30 June at least one week apart, and nine surveys must be performed between 1 July and 14 March at least two weeks

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Impact	Measure	Monitoring Requirement	Determination of Effectiveness	Timing of Action
	adjusted provided noise levels do not exceed 60 dB(A)hourly Leq at the edge of the nest site as determined by a qualified biologist in coordination with a qualified acoustician. If the noise meets or exceeds the 60 dB(A) Leq threshold, or if the biologist determines that the construction activities are disturbing nesting activities, the biologist shall have the authority to halt the construction and shall devise methods to reduce the noise and/or disturbance in the vicinity. This may include methods such as, but not limited to, turning off vehicle engines and other equipment whenever possible to reduce noise, installing a protective noise barrier between the nest site and the construction activities, and working in other areas until the young have fledged. If noise levels still exceed 60 dB(A) Leq hourly at the edge of nesting territories and/or a no-construction buffer cannot be maintained, construction shall be deferred in that area until the nestlings have fledged. All active nests shall be monitored on a weekly basis until the nestlings fledge. No Project activities may occur in these areas unless otherwise authorized by FWS. SCE shall obtain incidental take authorization from the FWS prior to further activities. Protocol or focused surveys, as appropriate, shall be conducted, at a minimum, within one year of start of construction and can stop at commencement of construction activities. These surveys may be modified through the coordination with the FS on NFS lands, USACE on USACE lands, and the CPUC based on the condition of habitat, the observation of the species, or avoidance of nesting areas during the breeding season. Non-protocol nesting bird surveys for California gnatcatcher shall also occur in the Aliso Canyon in chaparral communities. This area shall also require a qualified gnatcatcher biologist to be present during any construction activities conducted during the breeding season. Construction activities in occupied gnatcatcher habitat will be monitored by a full-time qualified biologist. The monitoring shall be of a sufficient intensity to ensure that the biologist could detect the presence of a bird in the construction area. At a minimum one full-time monitor shall be present for every two miles of active construction within occupied habitat. SCE shall retain a FWS-permitted biologist to monitor construction activities within 100 feet of an active California gnatcatcher nests in the Montebello Hills area only and assist SCE in the implementation of the monitoring program. In the Montebello Hills, grading and vegetation management, including activities conducted during Project operations and maintenance, shall be conducted outside of the breeding season (March – August) unless otherwise authorized by the FWS. A 300-foot buffer is required for all other areas. A biologist with applicable avian experience with the California	established. No Project activities may occur in these areas unless otherwise authorized by FWS and CDFG, and SCE shall obtain incidental take authorization from the FWS prior to further activities. • SCE's designated biologist will monitor and provide a copy of the monitoring reports to the CPUC and FS for review on a weekly basis.		apart, prior to construction.

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Impact	Measure	Monitoring Requirement	Determination of Effectiveness	Timing of Action
	gnatcatcher will monitor all construction activities within 300 feet of occupied California gnatcatcher habitat. The resumes of the permitted biologists will be provided to the CPUC for concurrence. This biologist will be referred to as the authorized biologist hereafter. The authorized biologist will have the authority to stop all activities until appropriate corrective measures have been completed.			
B-17: The Project would result in the loss of critical and/or occupied habitat of the coastal California gnatcatcher.	Mitigation Measures AQ-1a, B-1a, B-3a, and B-16, above.	Refer to AQ-1a, B-1a, B-3a, and B-16, above.	Refer to AQ-1a, B-1a, B-3a, and B-16, above.	Refer to AQ-1a, B-1a, B-3a, and B-16, above.
	B-17 Preserve off-site habitat and/or habitat restoration for the coastal California gnatcatcher. To mitigate effects from Project construction, SCE shall acquire habitat occupied by the coastal California gnatcatcher and/or restore unoccupied coastal sage scrub. Mitigation acquisition shall occur at a 3:1 ratio for permanent effects unless otherwise approved by the FWS upon consultation. Temporary impacts will be mitigated at a 1:1 ratio on site. For lands located within the Montebello Hills HCP a 1:1 ratio for permanent effects will be implemented unless otherwise approved by the FWS. SCE shall enter into a binding legal agreement regarding the preservation of off-site lands describing the terms of the acquisition, enhancement, and management of those lands. Management of coastal California gnatcatcher mitigation areas will be necessary to maintain habitat suitability over time. Activities that need to be addressed in the management plan include disturbances that reduce shrub cover, such as frequent fire, mechanical disruption, livestock grazing, off-highway vehicle use, and military training activities. Fee title acquisition of these habitat lands or a conservation easement shall be transferred to an entity approved by the FWS and the CPUC, along with funding for enhancement of the land and an endowment for management of the land in perpetuity.	• SCE shall acquire habitat occupied by the coastal California gnatcatcher and/or restore unoccupied coastal sage scrub based on agreed-upon ratio and location as approved by the FWS upon consultation. • SCE shall ensure that mitigation areas are included in an existing management plan. • SCE's designated biologist will monitor compliance and provide a copy of the monitoring reports to the CPUC and FS for review on a weekly basis.	• Provide documentation of permanent protection of off-site coastal California gnatcatcher habitat to CPUC and FS. • Off-site land successfully purchased or enhanced and transferred to an existing management plan.	Prior to, during, and after construction.
B-18: The Project could disturb nesting Swainson's Hawks.	Mitigation Measures AQ-1a and B-1b, above.	Refer to AQ-1a and B-1b, above.	Refer to AQ-1a and B-1b, above.	Refer to AQ-1a and B-1b, above.
	B-18a Conduct pre-construction surveys for Swainson's hawks. To assure that nesting Swainson's hawks are not disturbed by construction activities, a qualified ornithologist shall conduct pre-construction surveys within one mile of the Project in regions with suitable nesting habitat for Swainson's hawks. The survey periods follow a specified schedule: Period I occurs from 1 January to 20 March, Period II occurs from 20 March to 5 April, Period III occurs from 5 April to 20 April, Period IV occurs from 21 April to 10 June, and Period V occurs from June 10 to July 30. Surveys are not recommended during Period IV because identification is difficult, as the adults tend to remain within the nest for longer periods of time. No fewer	• SCE shall submit documentation providing results of the focused surveys for Swainson's hawks to the CPUC for review and approval. • If nesting Swainson's hawks are detected in or adjacent to the proposed ROW, SCE will consult CDFG before project activities begin. • SCE's authorized biologist will be	• Minimize disturbance to Swainson's hawks, as verified by the EM. • Effectiveness can be determined by monitoring implementation of the control measures.	Survey must be performed between 1 January and July 30, prior to construction.

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Impact	Measure	Monitoring Requirement	Determination of Effectiveness	Timing of Action
	than three surveys per period in at least two survey periods shall be completed immediately prior to the start of Project construction. If a nest site is found, consultation with CDFG shall be required to ensure Project construction will not result in nest disturbance. CDFG recommends that no new disturbances or other Project-related activities that may cause nest abandonment or forced fledging be initiated within 0.25 mile of an active nest between 1 March and 15 September, or until 15 August if a Management Authorization is obtained for the Project from the CDFG (CDFG, 1994). These buffer zones may be adjusted as appropriate in consultation with a qualified ornithologist and CDFG.	present during all activities immediately adjacent to or within habitat that could support populations of Swainson's hawks. • SCE's designated biologist will monitor compliance with measures identified in the monitoring plan and provide a copy of the monitoring reports to the CPUC and FS for review on a weekly basis.		
	B-18b Removal of nest trees for Swainson's hawks. Nest trees for Swainson's hawks along the Project shall not be removed unless avoidance measures are determined to be infeasible. If a nest tree for a Swainson's hawk must be removed, a Management Authorization (including conditions to offset the loss of the nest tree) must be obtained from the CDFG. The Management Authorization will specify the tree removal period, generally between 1 October and 1 February. If construction or other Project-related activities that may cause nest abandonment by a Swainson's hawk or forced fledging are necessary within the specified buffer zone, monitoring of the nest site (funded by SCE) by a qualified biologist shall be required to determine if the nest is abandoned. If the nest is abandoned and if the nestlings are still alive, SCE shall fund the recovery and hacking (controlled release of captive reared young) of the nestling(s).	• If a nest tree must be removed, a Management Authorization must be obtained from the CDFG prior to nest removal. • If Swainson's hawks are present and direct impacts cannot be avoided, SCE's authorized biologist shall monitor the nest site to determine activity and make removal recommendations. • If a nest is determined to be abandoned and contain live nestlings, SCE's authorized biologist will arrange for recovery and release of the young.	• Minimize disturbance to Swainson's hawks, as verified by the EM. • Effectiveness can be determined by monitoring implementation of the control measures.	Prior to and during construction. Removal period is generally between 1 October and 1 February.
B-19: The Project would result in the loss of foraging habitat for Swainson's hawks.	Mitigation Measures AQ-1a, B-1a, B-3a, and B-18a, above.	Refer to AQ-1a, B-1a, B-3a, and B-18a, above.	Refer to AQ-1a, B-1a, B-3a, and B-18a, above.	Refer to AQ-1a, B-1a, B-3a, and B-18a, above.
	B-19 Compensate for loss of foraging habitat for Swainson's hawks. Loss of foraging habitat for Swainson's hawks shall be mitigated by providing Habitat Management (HM) lands as described in the CDFG's Staff Report Regarding Mitigation for Impacts to Swainson's Hawks (Buteo swainsoni) in the Central Valley of California (CDFG, 1994) because the site is known foraging habitat for Swainson's hawks. The final acreage of HM lands to be provided on site shall depend on the distance between the Project area and the nearest active nest site (CDFG, 1994), as determined by nest surveys conducted in the spring prior to Project construction. Guidance on the acreage of HM lands to be acquired by SCE can be found in the 1994 CDFG staff report.	• SCE shall submit nest surveys to the CPUC and FS for review. • SCE shall coordinate with CDFG and CPUC to acquire and ensure permanent protection of Habitat Management lands.	• Successful protection of off-site Swainson's hawk habitat.	Prior to, during, and after construction.

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Impact	Measure	Monitoring Requirement	Determination of Effectiveness	Timing of Action
	Management Authorization holders/Project sponsors shall provide for the long-term management of the HM lands by funding a management endowment (the interest on which shall be used for managing the HM lands).			
B-22: The Project could result in disturbance to Mohave ground squirrels.	Mitigation Measures AQ-1a, B-1a, B-1b, and B-3a, above.	Refer to AQ-1a, B-1a, B-1b, and B-3a, above.	Refer to AQ-1a, B-1a, B-1b, and B-3a, above.	Refer to AQ-1a, B-1a, B-1b, and B-3a, above.
	B-22a Conduct protocol surveys for Mohave ground squirrels. Protocol-level surveys for Mohave ground squirrels shall be performed in the portion of the Project containing suitable habitat for Mohave ground squirrel unless further consultation with the CDFG determines the surveys are not required. A qualified biologist will perform these surveys according to CDFG's (2003b) Mohave Ground Squirrel Survey Guidelines. The resumes of the proposed biologists will be provided to the CDFG and CPUC for concurrence prior to conducting the surveys. If at any time a Mohave ground squirrel is detected, trapping will cease. If these surveys obtain positive results for Mohave ground squirrel, or if Mohave ground squirrel presence is assumed within potential habitat, SCE shall obtain incidental take authorization from CDFG. If these surveys determine that the Mohave ground squirrel is absent, then no further action is necessary.	• SCE shall submit documentation providing the results of the pre-construction protocol surveys for Mohave ground squirrels to the CPUC for review and approval. • SCE's designated biologist shall monitor and provide a copy of the monitoring reports to the CPUC and FS for review on a weekly basis.	Successful avoidance of Mohave ground squirrels, as verified by the EM.	Surveys must be performed between 15 March and 15 July, prior to construction.
	B-22b Implement construction monitoring for Mohave ground squirrels. A qualified biological monitor shall be on the site to survey for Mohave ground squirrel during initial ground-disturbing activities. The resumes of the proposed biologists will be provided to the CDFG and CPUC for concurrence prior to conducting the surveys. The name and phone number of the biological monitor shall be provided to a CDFG regional representative at least 14 days before the initiation of ground-disturbing activities. If the biological monitor observes a Mohave ground squirrel on the construction site, determines that a Mohave ground squirrel was killed by Project-related activities during construction, or observes a dead Mohave ground squirrel, a written report shall be sent to CDFG within five calendar days. The report will include the date, time of the finding or incident (if known), and location of the carcass and circumstances of its death (if known). Mohave ground squirrel remains shall be collected and frozen as soon as possible, and CDFG shall be contacted regarding ultimate disposal of the remains.	• SCE's designated biologist shall monitor and provide a copy of the monitoring reports to the CPUC for and FS review on a weekly basis.	Successful avoidance of Mohave ground squirrels, as verified by the EM.	Prior to construction.
	B-22c Preserve off-site habitat for the Mohave ground squirrel. To mitigate potential permanent impacts to occupied Mohave ground squirrel	• SCE shall coordinate with CDFG and CPUC to acquire and ensure	Off-site land successfully purchased	Prior to, during, and after

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Impact	Measure	Monitoring Requirement	Determination of Effectiveness	Timing of Action
	habitat from Project construction, SCE will acquire habitat occupied by Mohave ground squirrels. Guidance on Habitat Management (HM) lands to be acquired by SCE can be found in CDFG's (2003b) Mohave Ground Squirrel Survey Guidelines. • Three acres of off-site habitat supporting Mohave ground squirrels will be preserved for each acre of Mojave creosote bush scrub and Joshua tree woodland outside of the Habitat Conservation Area (HCA) delineated in the WMP. • One acre of off-site habitat supporting Mohave ground squirrels will be preserved for each acre of desert saltbush scrub that includes desert wash impacted by the Project outside of the HCA delineated in the WMP. • One-half acre of off-site habitat supporting Mohave ground squirrels will be preserved for each acre of desert saltbush scrub impacted by the Project outside of the HCA delineated in the WMP. • No mitigation will occur for agricultural, California annual grassland, or barren/developed ground within the Project area north of Vincent Substation. Mitigation acquisition shall occur at a CDFG-approved location and shall be coordinated through a CDFG-approved entity. SCE shall enter into a binding legal agreement regarding the preservation of off-site lands describing the terms of the acquisition, enhancement, and management of those lands. Fee title acquisition of habitat lands or a conservation easement over these lands will be transferred to an entity approved by CDFG and CPUC, along with funding for enhancement of the land and an endowment for permanent management of the lands. Management of off-highway vehicles is necessary on Mohave ground squirrel mitigation areas to prevent burrow collapse, especially during the aestivation season. Mitigation areas should be relatively flat with a perennial plant cover ranging from 10 to 20 percent (Zembal and Gall, 1980) and should support several plant species necessary for Mohave ground squirrel survival, including herbaceous annuals, winterfat (*Krascheninnikovia lanata*), spiny hopsage (*Grayia spinosa*), creosote bush (*Larrea tridentata*), and burrobush (*Ambrosia dumosa*) (Best, 1995).	permanent protection of Habitat Management lands for Mohave ground squirrels. • SCE shall provide documentation of permanent protection of off-site Mohave ground squirrel habitat to the CPUC.	or enhanced.	construction.
B-23: The Project could result in the loss of candidate, Forest Service Sensitive, or special-status plant species.	Mitigation Measures AQ-1a, B-1a, B-1b, B-3a, B-7, and H-1a, above/below.	Refer to AQ-1a, B-1a, B-1b, B-3a, B-7 and H-1a, above/below.	Refer to AQ-1a, B-1a, B-1b, B-3a, B-7 and H-1a, above/below.	Refer to AQ-1a, B-1a, B-1b, B-3a, B-7, and H-1a, above/below.
	B-23 Preserve off-site habitat/management of existing populations of special-status plants. SCE shall conduct rare plant surveys, and implement avoidance/minimization/compensation strategies. SCE shall	• SCE shall coordinate with the CPUC and federal land manager (FS and USACE) to acquire and ensure	• Off-site land successfully purchased or	Prior to, during, and after construction.

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Impact	Measure	Monitoring Requirement	Determination of Effectiveness	Timing of Action
	conduct surveys according to established and accepted protocol during the floristic period appropriate for each of the rare plant species identified with the potential to occur within the Project ROW and within 100 feet of all surface-disturbing activities. The completion of these surveys shall be coordinated with the CPUC and federal land manager. Populations of rare plants shall be flagged and mapped prior to construction. If rare plants are located during the focused surveys, then modification of the placement of structures, access roads, laydown areas, and other ground-disturbing activities would be implemented in order to avoid the plants, if feasible. A report of special-status plants observed shall be prepared and submitted to the CPUC and the federal land manager (FS and USACE). Impacts to non-listed plant species (i.e., FS Sensitive, CNPS List 1,2 and 4 species) shall first be avoided where feasible, and, where not feasible, impacts shall be compensated through reseeding (with locally collected seed stock), or other FS, USACE, and CPUC approved methods. If Project activities will result in loss of more than 10 percent of the known individuals within an existing population of FS Sensitive, and/or special-status plant species SCE shall preserve existing off-site occupied habitat that is not already part of the public lands in perpetuity at a 2:1 mitigation ratio (habitat preserved: habitat impacted). On federal lands, this ratio may be reduced at the discretion of the federal land manager. The CPUC may reduce this ratio depending on the sensitivity of the plant on non-federal lands. The preserved habitat shall be occupied by the plant species impacted, and be of superior or similar habitat quality to the impacted areas in terms of soil features, extent of disturbance, habitat structure, and dominant species composition, as determined by a qualified plant ecologist. All special-status plant species impacted by Project activities shall be documented in an annual report and submitted to the CPUC and federal land manager (FS and USACE). Where reseeding has occurred, SCE shall track the success of the plants during the course of the annual restoration monitoring. This information shall be submitted as part of the annual report to the CPUC and federal land manager (FS and USACE).	permanent protection of special-status plants. • SCE shall provide documentation of permanent protection of off-site Mohave ground squirrel habitat to the CPUC and FS.	enhanced. • Implementation of a long-term management plan.	
B-24: The Project could result in mortality or injury of, and loss of nesting habitat for, southwestern pond turtles.	Mitigation Measures AQ-1a, B-1a, B-1b, B-3a, B-12, H-1a, and H-1b, above/below.	Refer to AQ-1a, B-1a, B-1b, B-3a, B-12, H-1a, and H-1b, above/below.	Refer to AQ-1a, B-1a, B-1b, B-3a, B-12, H-1a, and H-1b, above/below.	Refer to AQ-1a, B-1a, B-1b, B-3a, B-12, H-1a, and H-1b, above/below.
	B-24 Conduct focused presence/absence surveys for southwestern pond turtle and implement monitoring, avoidance, and minimization measures. A qualified biologist shall conduct focused surveys for	• SCE shall submit documentation providing pre-construction survey results to the CPUC review and	• Project activities do not disturb identified (flagged) areas.	Prior to and during construction.

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Impact	Measure	Monitoring Requirement	Determination of Effectiveness	Timing of Action
	southwestern pond turtle in the area of Project crossings, including access and spur roads, at Amargosa Creek, Big Tujunga Creek (Segment 6), Alder Creek, Rio Hondo Substation, Whittier Narrows Recreation Area, Aliso Creek, and Tonner Creek. Since Southwestern pond turtles were observed at the San Gabriel River (Segments 6 and 7 and West Fork/Cogswell Road) and Brea Canyon during reconnaissance surveys conducted in September 2007, the species shall be assumed present at these locations. The resume of the proposed biologists will be provided to the CPUC, FS, and USACE (as appropriate) for concurrence prior to conducting the surveys. This biologist will be referred to as the authorized biologist hereafter. Focused surveys shall also occur on access and spur roads where road crossings could affect suitable habitat for this species. Focused surveys shall consist of a minimum of four daytime surveys, to be completed between 1 April and 1 June. The survey schedule may be adjusted in consultation with the CPUC, FS, and/or USACE, as appropriate, to reflect the existing weather or stream conditions. If southwestern pond turtles are detected in or adjacent to the Project, nesting surveys shall be conducted. Focused surveys for evidence of southwestern pond turtle nesting shall be conducted in, or adjacent to, the Project when suitable nesting habitat exists within 1,300 feet of occupied habitat in an area where Project-related ground disturbance will occur (i.e., tower sites, access/spur roads, wire setup sites, marshalling yards). If both of those conditions are met, a qualified biologist shall conduct focused, systematic surveys for southwestern pond turtle nesting sites. The survey area shall include all suitable nesting habitat located within 1,300 feet of occupied habitat in which Project-related ground disturbance will occur. This area may be adjusted based on the existing topographical features on a case-by-case basis with the approval of the CPUC, FS, and/or USACE, as appropriate. Surveys will entail searching for evidence of pond turtle nesting, including remnant eggshell fragments, which may be found on the ground following nest depredation. If a southwestern pond turtle nesting area would be adversely impacted by construction activities, SCE shall avoid the nesting area. If avoidance of the nesting area is determined to be infeasible, the authorized biologist shall coordinate with CDFG, CPUC, FS (on NFS lands), and USACE (on Army Corps lands) to identify if it is possible to relocate the pond turtles. Eggs or hatchlings shall not be moved without the written authorization from the CDFG and FS (on NFS lands). A qualified biologist with demonstrated expertise with southwestern pond turtles shall monitor construction activities where pond turtles are present or assumed present. The resume of the proposed biologist will be provided to	approval. • The resume of the proposed biologists shall be provided to the CPUC and FS. • If avoidance of the nesting area is determined to be infeasible, the authorized biologist shall coordinate with CDFG, CPUC, and FS to identify if it is possible to relocate the pond turtles. Eggs or hatchlings shall not be moved without the written authorization from the CDFG and FS. • SCE's authorized biologist, approved by the CPUC and FS, shall monitor compliance, conduct clearance surveys for southwestern pond turtles at the beginning of construction each day, and provide a copy of the monitoring reports to the CPUC and FS for review on a weekly basis.	• Minimize disturbance to the pond turtle, as verified by the EM.	Focused surveys shall consist of a minimum of four daytime surveys, to be completed between 1 April and 1 June.

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Impact	Measure	Monitoring Requirement	Determination of Effectiveness	Timing of Action
	the CPUC, FS, and USACE (as appropriate) for concurrence prior to the onset of ground-disturbing activities. This biologist will be referred to as the authorized biologist hereafter. The authorized biologist will be present during all activities immediately adjacent to, or within, habitat that supports populations of southwestern pond turtles. If the installation of fencing is deemed necessary by the authorized biologist, one clearance survey for southwestern pond turtles shall be conducted at the time of the fence installation. Clearance surveys for southwestern pond turtles shall be conducted by the authorized biologist prior to the initiation of construction each day.			
B-25: The Project could result in injury or mortality of, and loss of habitat for, two-striped garter snakes and south coast garter snakes.	Mitigation Measures AQ-1a, B-1a, B-1b, B-3a, B-12, H-1a, and H-1b, above/below.	Refer to AQ-1a, B-1a, B-1b, B-3a, B-12, H-1a, and H-1b, above/below.	Refer to AQ-1a, B-1a, B-1b, B-3a, B-12, H-1a, and H-1b, above/below.	Refer to AQ-1a, B-1a, B-1b, B-3a, B-12, H-1a, and H-1b, above/below.
	B-25 Conduct focused surveys for two-striped garter snakes and south coast garter snakes and implement monitoring, avoidance, and minimization measures. A qualified biologist shall conduct focused surveys for two-striped garter snakes (both on and off NFS lands) and south coast garter snakes (non-NFS lands only) where suitable habitat is present and directly impacted by construction vehicle access, or maintenance. The resume of the proposed biologists will be provided to the CPUC, FS and USACE (as appropriate) for concurrence prior to conducting the surveys. This biologist will be referred to as the authorized biologist hereafter. Focused surveys shall consist of a minimum of four daytime surveys, to be completed between 1 April and 1 September. The survey schedule may be adjusted in consultation with the CPUC, FS, and/or USACE to reflect the existing weather or stream conditions. If either species is detected in or adjacent to the Project or at any wet fords to be traversed by motorized vehicles as part of Project construction activities, the following minimization measures will be required. SCE shall retain a qualified herpetologist with demonstrated expertise with garter snakes to monitor construction activities. The resume of the proposed biologist will be provided to the CPUC, FS, and USACE (as appropriate) for concurrence prior to the onset of ground-disturbing activities or vehicular crossings at wet fords. This biologist will be referred to as the authorized biologist hereafter. The authorized biologist will be present during all activities immediately adjacent to or within habitat that supports populations of the two-striped garter snake and/or south coast garter snake. Clearance surveys for garter snakes shall be conducted by the authorized biologist prior to the initiation of construction each day. Any	• SCE shall submit documentation providing pre-construction survey results to the CPUC and FS for review and approval. • The resume of the proposed biologists will be provided to the CPUC and FS for approval. • SCE's authorized biologist, approved by the CPUC and FS, shall monitor compliance, conduct clearance surveys for garter snakes at the beginning of construction each day, and provide a copy of the monitoring reports to the CPUC and FS for review on a weekly basis.	• Project activities do not disturb identified (flagged) areas. • Minimize disturbance to garter snake, as verified by the EM.	Prior to and during construction. Focused surveys shall consist of a minimum of four daytime surveys, to be completed between 1 April and 1 September.

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	snakes found within the area of disturbance or potentially affected by the Project will be relocated to the nearest suitable habitat that will not be affected by the Project.			
B-26: The Project could result in injury or mortality of, and loss of habitat for, Coast Range newts.	Mitigation Measures AQ-1a, B-1a, B-1b, B-3a, H-1a, and H-1b, above/below.	Refer to AQ-1a, B-1a, B-1b, B-3a, H-1a, and H-1b, above/below.	Refer to AQ-1a, B-1a, B-1b, B-3a, H-1a, and H-1b, above/below.	Refer to AQ-1a, B-1a, B-1b, B-3a, H-1a, and H-1b, above/below.
	B-26 Conduct focused surveys for coast range newts and implement monitoring, avoidance, and minimization measures. A qualified biologist shall conduct focused surveys for Coast Range newt in suitable habitat on non-NFS lands, including Eaton Wash, Brea Canyon, and Tonner Creek. In addition, all tributary drainages that support habitat for this species shall be inspected if they are subject to Project disturbance. Focused surveys shall consist of a minimum of four daytime surveys, to be completed between 1 April and 1 September. If Coast Range newts are detected in or adjacent to the Project or at any wet fords to be traversed by motorized vehicles as part of Project construction activities, no work shall be authorized within 0.5 mile of the occupied active drainage channel and no vehicular crossings at fords of those channels shall be authorized until the biologist has inspected and cleared these areas. SCE shall retain a qualified biologist with demonstrated expertise with amphibians to monitor construction activities and assist SCE in the implementation of the monitoring program. The resume of the proposed biologist will be provided to the CPUC for concurrence prior to the onset of ground-disturbing activities or vehicular crossings at wet fords. This biologist will be referred to as the authorized biologist hereafter. The authorized biologist will be present during ground-disturbing activities immediately adjacent to or within habitat that supports populations of Coast Range newt. Clearance surveys for Coast Range newts shall be conducted by the authorized biologist prior to the initiation of construction each day. If individuals are found within the proposed area of disturbance they will be relocated to an area that will not be affected by construction activities.	• SCE shall submit documentation providing pre-construction survey results to the CPUC review and approval. • SCE's authorized biologist, approved by the CPUC and FS, shall monitor compliance, conduct clearance surveys for Coast Range newts at the beginning of construction each day, and provide a copy of the monitoring reports to the CPUC and FS for review on a weekly basis.	• Project activities do not disturb identified (flagged) areas. • Minimize disturbance to the coast range newt, as verified by the EM.	Prior to and during construction. Focused surveys shall consist of a minimum of four daytime surveys, to be completed between 1 April and 1 September.
B-27: The Project could result in injury or mortality of, and loss of habitat for, terrestrial California Species of Special Concern and Forest Service Sensitive amphibian	Mitigation Measures AQ-1a, B-1a, B-1b, and B-3a, above.	Refer to AQ-1a, B-1a, B-1b, and B-3a, above.	Refer to AQ-1a, B-1a, B-1b, and B-3a, above.	Refer to AQ-1a, B-1a, B-1b, and B-3a, above.
	B-27 Monitoring, avoidance, and minimization measures for special-status terrestrial herpetofauna. A qualified biologist with demonstrated expertise with special-status terrestrial herpetofauna shall monitor all construction activities and assist SCE in the implementation of the monitoring efforts. The resume of the proposed biologist will be provided to	• SCE shall submit documentation providing monitoring efforts to the CPUC and FS. • SCE's authorized biologist, approved	Minimize disturbance to special-status herpetofauna, as verified by the EM.	Prior to and during construction.

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Impact	Measure	Monitoring Requirement	Determination of Effectiveness	Timing of Action
and reptile species.	the CPUC, USACE, and FS (as appropriate) for concurrence prior to the onset of ground-disturbing activities. This biologist will be referred to as the authorized biologist hereafter. The authorized biologist will be present during ground-disturbing activities immediately adjacent to or within habitat that supports populations of the special-status terrestrial herpetofauna. Any special-status terrestrial herpetofauna found within a Project impact area shall be salvaged by the authorized biologist and relocated to suitable habitat outside the impact area. If the installation of exclusion fencing is deemed necessary by the authorized biologist, the authorized biologist will direct the installation of the fence. Clearance surveys for special-status herpetofauna shall be conducted by the authorized biologist prior to the initiation of construction each day.	by the CPUC and FS, shall monitor compliance, conduct clearance surveys for special-status herpetofauna at the beginning of construction each day, and provide a copy of the monitoring reports to the CPUC and FS for review on a weekly basis.		
B-29: The Project would result in the loss of occupied burrowing owl habitat.	Mitigation Measures AQ-1a, B-1a, B-1b, and B-3a, above.	Refer to AQ-1a, B-1a, B-1b, and B-3a, above.	Refer to AQ-1a, B-1a, B-1b, and B-3a, above.	Refer to AQ-1a, B-1a, B-1b, and B-3a, above.
	B-29 Implement CDFG protocol for burrowing owls. In conformance with federal and State regulations regarding the protection of raptors, a habitat assessment in accordance with CDFG protocol for burrowing owls (CBOC, 1993) shall be completed on non-NFS lands prior to the start of construction. Burrowing owl habitat within the Project area and within a 500-foot buffer zone shall be assessed ("Assessment Area"). If the habitat assessment concludes that the Assessment Area lacks suitable burrowing owl habitat, no additional action is required. However, if suitable habitat is located on the Assessment Area, all ground squirrel colonies or potential burrow locations shall be mapped at an appropriate scale, and the following mitigation measures shall be implemented: • In conformance with federal and State regulations regarding the protection of raptors, a pre-construction survey for burrowing owls, in conformance with CDFG protocol, consisting of three site visits, shall be completed no more than 30 days prior to the start of construction within suitable habitat at the Project site(s) and buffer zone(s). • Occupied burrows shall not be disturbed during the nesting season (1 February through 31 August) unless a qualified biologist approved by CDFG verifies through non-invasive methods that either the birds have not begun egg-laying and incubation or that juveniles from the occupied burrows are foraging independently and are capable of independent survival. Eviction outside the nesting season may be permitted pending evaluation of eviction plans and receipt of formal written approval from the CDFG authorizing the eviction. • Any damaged or collapsed burrows will be enhanced or replaced with	• SCE shall submit documentation providing results of the pre-construction burrowing owl habitat assessment to the CPUC and FS for review and approval. • If suitable habitat exists, SCE will submit a copy, at least thirty (30) days prior to construction, of ground squirrel colony maps and the results of the burrowing owl survey, to the CPUC and FS for review and approval. • SCE's designated biologist will monitor compliance to ensure occupied burrows are not disturbed during the nesting season, new burrows and previously occupied burrows are not re-occupied, and provide a copy of the monitoring reports to the CPUC and FS for review on a weekly basis.	• Project activities do not disturb identified areas. • Minimize disturbance to burrowing owls, as verified by the EM.	Prior to and during construction.

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Impact	Measure	Monitoring Requirement	Determination of Effectiveness	Timing of Action
	artificial burrows in suitable habitat within the right of way consistent with CDFG guidelines. • Unless otherwise authorized by CDFG, a 250-foot buffer, within which no activity will be permissible, will be maintained between Project activities and nesting burrowing owls during the nesting season. This protected area will remain in effect until 31 August or at CDFG's discretion and based upon monitoring evidence, until the young owls are foraging independently. • If accidental take (disturbance, injury, or death of owls) occurs, the CDFG/CPUC/FS/USACE lead monitor will be notified immediately.			
B-30: The Project would result in the loss of occupied California spotted owl habitat.	Mitigation Measures AQ-1a, B-1a, and B-3a, above.	Refer to AQ-1a, B-1a, and B-3a, above.	Refer to AQ-1a, B-1a, and B-3a, above.	Refer to AQ-1a, B-1a, and B-3a, above.
	B-30 Conduct pre- and during construction nest surveys for spotted owls. Prior to tree removal or construction activities within suitable habitat, SCE shall have a qualified biologist conduct FS protocol surveys for the California spotted owl to establish or confirm the location of nests within the Project. The resumes of the proposed biologists shall be provided to the FS and CPUC for concurrence. If nests or breeding pairs are found during the surveys, the limited operating period (LOP) will be applied according to the Forest Plan (Standard 20 – Part 3). No project-related activities will be allowed within these dates (February 1-August 15) or until chicks have fledged. Where a biological evaluation by a qualified ornithologist determines that a nest site would be shielded from planned activities by topographic or other features that would minimize disturbance, the buffer distance may be reduced upon approval of the FS on NFS lands. In addition, no helicopter construction will be allowed within 0.5 mile of breeding spotted owl territories. No helicopter overflights shall be authorized without FS approval. If approved minimum altitudes will be 300 feet above a territory at an altitude designated by the FS. This buffer may be adjusted through consultation with the FS and CPUC.	• SCE shall submit documentation providing pre-construction survey results to the CPUC and FS review and approval. • The resume of the proposed biologists will be provided to the CPUC and FS for approval. • SCE's designated biologist shall monitor compliance to ensure previously occupied nests are not re-occupied, and provide a copy of the monitoring reports to the CPUC and FS for review on a weekly basis.	• Project activities do not disturb nest sites. • Minimize disturbance to the spotted owl, as verified by the EM.	Protocol surveys must be performed between February 1 and August 15, prior to construction. Monitoring will occur during construction.
B-31: The Project could disturb nesting California spotted owls.	Mitigation Measures AQ-1a, B-1b, and B-30, above.	Refer to AQ-1a, B-1b, and B-30, above.	Refer to AQ-1a, B-1b, and B-30, above.	Refer to AQ-1a, B-1b and B-30, above.
B-32: The Project could disturb nesting avian "species of special concern."	Mitigation Measures AQ-1a, B-1a, B-1b, B-2, B-3a, and B-5, above.	Refer to AQ-1a, B-1a, B-1b, B-2, B-3a, and B-5, above.	Refer to AQ-1a, B-1a, B-1b, B-2, B-3a, and B-5, above.	Refer to AQ-1a, B-1a, B-1b, B-2, B-3a, and B-5, above.

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Impact	Measure	Monitoring Requirement	Determination of Effectiveness	Timing of Action
B-33: The Project could result in mortality of, and loss of habitat for, special-status bat species.	Mitigation Measures AQ-1a, B-1a, B-1b, B-2, and B-3a, above.	Refer to AQ-1a, B-1a, B-1b, B-2, and B-3a, above.	Refer to AQ-1a, B-1a, B-1b, B-2, and B-3a, above.	Refer to AQ-1a, B-1a, B-1b, B-2, and B-3a, above.
	B-33a Maternity colony or hibernaculum surveys for roosting bats. SCE shall conduct a pre-activity (e.g., vegetation removal, grading) survey for roosting bats within 200 feet of project activities within 15 days prior to any grading of rocky outcrops or removal of towers or trees (particularly trees 12 inches in diameter or greater at 4.5 feet above grade with loose bark or other cavities) within 200 feet of project activities. SCE shall also conduct surveys for roosting bats during the maternity season (1 March to 31 July) within 300 feet of project activities. Trees and rocky outcrops shall be surveyed by a qualified bat biologist (i.e., a biologist holding a CDFG collection permit and a Memorandum of Understanding with CDFG allowing the biologist to handle bats). Surveys shall include a minimum of one day and one evening. The resume of the biologist shall be provided to the CPUC, FS, and USACE (as appropriate) for concurrence prior to any Project activities. If active maternity roosts or hibernacula are found, the rock outcrop or tree occupied by the roost shall be avoided (i.e., not removed) by the Project, if feasible. If avoidance of the maternity roost is not feasible, the bat biologist shall survey (through the use of radio telemetry or other CDFG/FS/USACE approved methods) for nearby alternative maternity colony sites. If the bat biologist determines in consultation with and with the approval of the CDFG, FS, USACE (as appropriate), and CPUC that there are alternative roost sites used by the maternity colony and young are not present then no further action is required, and it will not be necessary to provide alternate roosting habitat (i.e., Mitigation Measure B-33b would not apply although Mitigation Measure B-33c would still apply). However, if there are no alternative roosts sites used by the maternity colony, Mitigation Measure B-33b is required. If no active roosts are found, then no further action is required. If active maternity roosts are absent, but a hibernaculum (i.e., a non-maternity roost) is present, then Mitigation Measure B-33b is not necessary, but Mitigation Measure B-33c is required.	• SCE shall submit documentation providing pre-construction survey results to the CPUC review and approval. • The resume of the proposed biologists shall be provided to the CPUC and FS. • SCE's designated biologist shall monitor compliance to ensure previously occupied habitats are not re-occupied, and provide a copy of the monitoring reports to the CPUC and FS for review on a weekly basis.	• Project activities do not disturb identified (flagged) areas. • Minimize disturbance to the roosting bat, as verified by the EM.	Surveys for roosting bats must be performed 15 days prior construction activities, and surveys for roosting bats must be performed between1 March and 31 July, prior to construction. Monitoring will occur during construction.
	B-33b Provision of substitute roosting bat habitat. If a maternity roost will be impacted by the Project, and no alternative maternity roosts are in use near the site, substitute roosting habitat for the maternity colony shall be provided on, or in close proximity to, the Project site no less than three months prior to the eviction of the colony. Alternative roost sites will be constructed in accordance with the specific bats requirements in coordination with CDFG and the FS. By making the roosting habitat	• SCE shall coordinate with CDFG, CPUC and FS to acquire and ensure provision of substitute habitats for roosting bats, if necessary. • SCE shall provide documentation of alternative habitat to the CDFG,	• Substitute habitat successfully established. • Minimize disturbance to the roosting bat, as verified by the EM.	Prior to and during construction.

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Impact	Measure	Monitoring Requirement	Determination of Effectiveness	Timing of Action
	available prior to eviction (Mitigation Measure B-33c), the colony will have a better chance of finding and using the roost. Large concrete walls (e.g., on bridges) on south or southwestern slopes that are retrofitted with slots and cavities are an example of structures that may provide alternative roosting habitat appropriate for maternity colonies. Alternative roost sites must be of comparable size and proximal in location to the impacted colony. The CDFG shall also be notified of any hibernacula or active nurseries within the construction zone.	CPUC and FS.		
	B-33c Exclude bats prior to demolition of roosts. If non-breeding bat hibernacula are found in towers or trees scheduled to be removed or in crevices in rock outcrops within the grading footprint, the individuals shall be safely evicted, under the direction of a qualified bat biologist, by opening the roosting area to allow airflow through the cavity or other means determined appropriate by the bat biologist (e.g., installation of one-way doors). The resume of the bat biologist shall be provided to the CPUC, FS, and USACE (as appropriate) for concurrence prior to any Project activities. In situations requiring one-way doors, a minimum of one week shall pass after doors are installed and temperatures should be sufficiently warm for bats to exit the roost because bats do not typically leave their roost daily during winter months in southern coastal California. This action should allow all bats to leave during the course of one week. Roosts that need to be removed in situations where the use of one-way doors is not necessary in the judgment of the qualified bat biologist shall first be disturbed by various means at the direction of the bat biologist at dusk to allow bats to escape during the darker hours, and the roost tree shall be removed or the grading shall occur the next day (i.e., there shall be no less or more than one night between initial disturbance and the grading or tree removal). If an active maternity roost is located in an area to be impacted by the Project, and alternative roosting habitat is available, the demolition of the roost site must commence before maternity colonies form (i.e., prior to 1 March) or after young are flying (i.e., after 31 July) using the exclusion techniques described above.	Under the direction of a qualified biologist, bats shall be safely evicted from trees or crevices within the grading footprint.	Avoid harming bats during the demolition period.	During construction.
B-35: The Project could result in mortality of, and loss of habitat for, special-status mammals.	Mitigation Measures AQ-1a, B-1a, B-1b, B-2, and B-3a, above.	Refer to AQ-1a, B-1a, B-1b, B-2, and B-3a, above.	Refer to AQ-1a, B-1a, B-1b, B-2, and B-3a, above.	Refer to AQ-1a, B-1a, B-1b, B-2, and B-3a, above.
B-36: The Project could result in mortality of San Diego desert woodrats.	Mitigation Measures AQ-1a, B-1a, B-1b, and B-3a, above.	Refer to AQ-1a, B-1a, B-1b, and B-3a, above.	Refer to AQ-1a, B-1a, B-1b, and B-3a, above.	Refer to AQ-1a, B-1a, B-1b, and B-3a, above.

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Impact	Measure	Monitoring Requirement	Determination of Effectiveness	Timing of Action
	B-36 Conduct focused surveys for San Diego desert woodrats and passively relocate. SCE shall implement pre-construction surveys for the San Diego desert woodrat in suitable habitats. If present, active woodrat nests will be flagged and ground-disturbing activities shall be avoided within a minimum of 10 feet surrounding each active nest unless otherwise authorized by the CDFG and CPUC. If avoidance is not possible, SCE will take the following sequential steps: (1) all understory vegetation will be cleared in the area immediately surrounding active nests followed by a period of one night without further disturbance to allow woodrats to vacate the nest, (2) each occupied nest will then be disturbed by a qualified wildlife biologist until all woodrats leave the nest and seek refuge off-site, and (3) the nest sticks shall be removed from the Project site and piled at the base of a nearby hardwood tree (preferably a coast live oak or California walnut). Relocated nests shall not be spaced closer than 100 feet apart, unless a qualified wildlife biologist has determined that a specific habitat can support a higher density of nests. SCE shall document all woodrat nests moved and provide a written report to the CPUC, USACE (as appropriate), and CDFG. The resumes of the proposed biologists shall be provided to the CPUC and USACE (as appropriate) for concurrence.	• SCE shall submit documentation providing pre-construction survey results to the CPUC and FS review and approval. • SCE's designated biologist shall monitor compliance to ensure previously occupied nests are not re-occupied, and provide a copy of the monitoring reports to the CPUC and FS for review on a weekly basis.	• Project activities do not disturb identified (flagged) areas. • Minimize disturbance to woodrats, as verified by the EM.	Prior to and during construction.
B-37: The Project could result in mortality of, and loss of habitat for the ringtail.	Mitigation Measures AQ-1a, B-1a, B-1b, B-3a, and H-1a, above/below.	Refer to AQ-1a, B-1a, B-1b, B-3a, and H-1a, above/below.	Refer to AQ-1a, B-1a, B-1b, B-3a, and H-1a, above/below.	Refer to AQ-1a, B-1a, B-1b, B-3a, and H-1a, above/below.
	B-37 Conduct focused surveys for ringtail and passively relocate during the non-breeding season. SCE shall conduct pre-construction ringtail surveys on non-NFS lands at sites with suitable denning habitat within the Project area. This includes at a minimum Amargosa Creek, Santa Anita Canyon, San Gabriel River, and Tonner Canyon within 200 feet of any ground disturbing activity. SCE shall provide a list to the CPUC of the proposed survey areas for approval. Occupied dens will be flagged and ground-disturbing activities within 200 feet will be avoided. If occupied dens are found in the Project area and avoidance is not possible, denning ringtail shall be safely evicted under the direction of a qualified biologist (as determined by a Memorandum of Understanding with CDFG). The qualified biologist shall facilitate the removal of ringtail by delaying construction activity for a minimum 20 days during the early pup-rearing season (1 May to 15 June) and a minimum of 5 days during the rest of the year (16 June to 30 April). If the qualified biologist documents ringtail voluntarily vacating the den site during this period, then construction may begin within 7 days following this observation. If the ringtails do not vacate the den voluntarily	• SCE shall submit documentation providing pre-construction survey results to the CPUC and FS review and approval. • SCE's designated biologist will monitor compliance to ensure previously occupied dens are not re-occupied, and provide a copy of the monitoring reports to the CPUC and FS for review on a weekly basis.	• Project activities do not disturb identified (flagged) areas. • Minimize disturbance to ringtail, as verified by the EM.	Prior to and during construction.

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Impact	Measure	Monitoring Requirement	Determination of Effectiveness	Timing of Action
	within the required period, then the qualified biologist will coordinate with CDFG to passively relocate ringtail (excluding the early pup-rearing season: 1 May to 15 June). All activities that involve the ringtail shall be documented and reported to the CDFG and CPUC within 30 days of the activity.			
B-38: The Project could result in mortality of American badgers.	Mitigation Measures AQ-1a, B-1a, B-1b, and B-3a, above.	Refer to AQ-1a, B-1a, B-1b, and B-3a, above.	Refer to AQ-1a, B-1a, B-1b, and B-3a, above.	Refer to AQ-1a, B-1a, B-1b, and B-3a, above.
	B-38 Conduct focused surveys for American badgers and passively relocate during the non-breeding season. SCE shall implement pre-construction surveys for American badger within suitable habitat on non-NFS lands. If present, occupied badger dens shall be flagged and ground-disturbing activities avoided within 50 feet of the occupied den avoided. Maternity dens shall be avoided during pup-rearing season (15 February through 1 July) and a minimum 200-foot buffer established. Buffers may be modified with the concurrence of CDFG and CPUC. Maternity dens shall be flagged for avoidance, identified on construction maps, and a biological monitor shall be present during construction. If avoidance of a non-maternity den is not feasible, badgers shall be relocated by slowly excavating the burrow (either by hand or mechanized equipment under the direct supervision of the biologist, removing no more that 4 inches at a time) before or after the rearing season (15 February through 1 July). Any relocation of badgers shall occur only after consultation with the CDFG, USACE (as appropriate), and CPUC monitor. A written report documenting the badger removal shall be provided to the CDFG, USACE (as appropriate), and CPUC within 30 days of relocation.	• SCE shall submit documentation providing pre-construction survey results for badgers to the CPUC and FS review and approval. • SCE's designated biologist shall monitor compliance to ensure previously occupied dens are not re-occupied, and provide a copy of the monitoring reports to the CPUC and FS for review on a weekly basis.	• Project activities do not disturb identified (flagged) areas. • Minimize disturbance to badgers, as verified by the EM.	Prior to and during construction.
B-39: The Project could result in the loss of wetland habitats.	Mitigation Measures AQ-1a, B-1a, B-1b, B-2, B-3a, B-12, and H-1a, above/below.	Refer to AQ-1a, B-1a, B-1b, B-2, B-3a, B-12, and H-1a, above/below.	Refer to AQ-1a, B-1a, B-1b, B-2, B-3a, B-12, and H-1a, above/below.	Refer to AQ-1a, B-1a, B-1b, B-2, B-3a, B-12, and H-1a, above/below.
B-42: The Project would result in effects to Management Indicator Species.	Mitigation Measures AQ-1a, B-1a, B-1b, B-1c, B-2, B-3a, B-3b, B-3c, B-5, B-8b, B-9, B-30, H-1a, and H-1b, above/below.	Refer to AQ-1a, B-1a, B-1b, B-1c, B-2, B-3a, B-3b, B-3c, B-5, B-8b, B-9, B-30, H-1a, and H-1b, above/below.	Refer to AQ-1a, B-1a, B-1b, B-1c, B-2, B-3a, B-3b, B-3c, B-5, B-8b, B-9, B-30, H-1a, and H-1b, above/below.	Refer to AQ-1a, B-1a, B-1b, B-1c, B-2, B-3a, B-3b, B-3c, B-5, B-8b, B-9, B-30, H-1a, and H-1b, above/below.

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Impact	Measure	Monitoring Requirement	Determination of Effectiveness	Timing of Action
Cultural Resources				
C-1: Construction may diminish the integrity of properties eligible for the National Register of Historic Places.	**C-1a Development and Execution of a Programmatic Agreement (PA).** Since the Project's effects on historic properties cannot be fully determined before the Project has been approved, and the CPUC is a non-federal agency with decision-making responsibilities, the Forest Service, USACE, CPUC, and SCE, along with the Advisory Council on Historic Preservation if they choose to participate, will develop and execute a PA for the TRTP with the SHPO in accordance with 36 CFR 800.14(b)(ii) and (iii). The PA will guide the resolution of adverse effects to and management of historic properties. Consultation to develop the PA will follow 36 CFR 800.6. The PA will contain minimum standards and guidelines for identifying historic properties and evaluating their significance. It will include requirements for development and implementation of Historic Properties/Historical Resources Management Plans, Construction Phase Management Plans, archaeological monitoring, reporting, professional qualifications, artifact curation, Native American consultation, treatment of human remains, discovery of unknown cultural resources, cost, dispute resolution, amendment, termination, confidentiality, annual meetings, and duration.	• The CPUC, FS and SCE shall develop a Programmatic Agreement (PA) which will guide the resolution of adverse effects on historic properties. • The PA will be completed 30 days prior to the start of construction.	• Identify significant cultural resources. • Avoid or reduce impacts to significant cultural resources.	Prior to construction.
	C-1b Inventory Cultural Resources in the APE. APM CR-1 calls for intensive archaeological inventories of areas that may be disturbed by construction. As described in Section 3.5.2, cultural resource inventories have been completed for most of the APE. However, some elements of the Project remain undefined and additional inventories may be necessary. Prior to construction and all other surface disturbing activities, SCE shall submit cultural resources inventory reports to the Forest Service, USACE, and CPUC for any portions of the APE which have not been inventoried previously, including but not limited to existing and newly proposed access and spur roads, construction turn-arounds, guard pole locations, marshalling yards, wire setup areas, helicopter staging areas, helicopter landing zones, and any other projected areas of potential ground disturbance outside of the previously surveyed areas. The nature and extent of additional inventory shall be determined by the Forest Service, USACE, and CPUC in consultation with the State Historic Preservation Officer (SHPO). Results of these inventories shall also be filed with the appropriate Information Centers of the California Historical Resources Information System. Site-specific field surveys also shall be undertaken at all projected areas of impact within the previously surveyed corridor that coincide with previously recorded resource locations to further refine the assessment of potential Project effects. The selected tower locations and other direct impact areas shall be staked prior to the cultural resource field surveys.	• SCE shall conduct field surveys in preparation of a cultural resources inventory report which will include recommendations regarding eligibility for the NRHP. The report will be submitted to the CPUC and FS for approval.	• Identify significant cultural resources in the APE. • Avoid or reduce impacts to significant cultural resources.	Prior to construction.

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Impact	Measure	Monitoring Requirement	Determination of Effectiveness	Timing of Action
	C-1c Avoid and Protect Cultural Resources. APMs CR-2, CR-2a, and CR-2c call for avoidance of impacts through Project redesign or use of protective buffer zones. The Forest Service, USACE, and CPUC may require the relocation of transmission lines, ancillary facilities, or temporary facilities or work areas, if any, where relocation would avoid or reduce damage to cultural resource values. Where operationally feasible, NRHP-eligible resources shall be protected from direct Project impacts by Project redesign and inclusion of sites in exclusion areas. All cultural resources that will not be impacted directly but are within 50 feet of direct impact areas shall be designated as Environmentally Sensitive Areas (ESAs). Protective fencing or other markers, at the Forest Service, USACE, or CPUC's discretion, shall be erected and maintained to protect ESAs from inadvertent trespass for the duration of construction in the vicinity. Construction personnel and equipment shall be instructed on how to avoid ESAs. ESAs shall not be identified specifically as cultural resources. A monitoring program shall be developed as part of the Historic Properties Treatment Plan (see Mitigation Measure C-1e, Develop and implement a Historic Properties Treatment Plan) and implemented by the SCE to ensure the effectiveness of ESAs.	• SCE's professional archaeologist shall monitor and provide a copy of the monitoring reports to the CPUC and FS for review on a weekly basis. • Compliance with the Historic Properties Treatment Plan (see Mitigation Measure C-1d).	Avoid or reduce impacts to significant cultural resources.	Prior to and during construction.
	C-1d Evaluate the Significance of Cultural Resources that Cannot be Avoided. APMs CR-3, CR-3a, and CR 3b call for formal significance evaluation of archaeological sites and historical buildings and structures that cannot be avoided during construction. APM CR-3c calls for consultation with Native Americans regarding traditional cultural values that may be associated with archaeological sites. Where the Forest Service, USACE, and/or CPUC decide that cultural resources cannot be protected from direct impacts by Project redesign or avoidance, SCE shall undertake additional studies to evaluate the resources' NRHP eligibility and to recommend further treatment, if necessary. The nature and extent of this evaluation shall be determined by the Forest Service in consultation with the USACE, CPUC, SCE, and the SHPO. Consultation shall include direct contact with Native American tribal representatives to seek their views on the significance of resources having a Native American component. Significance evaluations will be based on surface remains, subsurface testing, archival and ethnographic resources, and in the framework of the historic context and research questions important to the general Project area. Results of those evaluation studies and recommendations for mitigation of Project effects shall be incorporated into a Historic Properties Treatment Plan consistent with Mitigation Measure C 1e (Develop and implement a Historic Properties Treatment Plan).	• Determine potentially eligible cultural resources that cannot be protected from direct impacts, and complete a significance evaluation. • Incorporate evaluation into the Historic Properties Treatment Plan (see Mitigation Measure C-1d).	• Identify significant and unavoidable impacts to cultural resources. • Minimize direct impacts to cultural resources.	Prior to and during construction.

Table A.1-2. Mitigation Monitoring Program

Impact	Measure	Monitoring Requirement	Determination of Effectiveness	Timing of Action
	C-1e Develop and Implement Historic Properties/ Historical Resources Treatment Plan. Upon Forest Service, USACE, and CPUC approval of the inventory report and the NRHP eligibility evaluations, consistent with Mitigation Measures C-1b (Inventory cultural resources in the Final APE), C-1c (Avoid and protect resources), and C-1d (Evaluate the significance of cultural resources that cannot be avoided), SCE shall prepare and submit for approval a Historic Properties Treatment Plan (HPTP) or Historical Resources Management Plan (HRMP) for NRHP/CRHR-eligible cultural resources to mitigate or avoid identified impacts. Treatment of cultural resources shall follow the procedures established by the Advisory Council on Historic Preservation for compliance with Section 106 of the National Historic Preservation Act and the Secretary of Interiors Standards and Guidelines for the Treatment of Historic Properties. Mitigation alternatives may include, but are not limited to, avoidance, recordation, additional analysis of existing collections, and data recovery excavation. The HPTP or HRMP (herein HP/HRMP) shall be submitted to the Forest Service, USACE, and CPUC for review and approval. As part of the HP/HRMP, SCE shall prepare a research design and a scope of work for data recovery or additional treatment of significant sites that cannot be avoided. Data recovery on most resources would consist of sample excavation and/or surface artifact collection, and site documentation. A possible exception would be a site where human remains or sacred features are discovered that cannot be avoided. The HP/HRMP shall define and map all known significant properties affected, or potentially affected, by the Project, and shall identify the cultural values that contribute to their eligibility for the NRHP. A Construction Phase Management Plan shall be included that details how cultural resources will be avoided and protected during construction, in accordance with the PA. Measures shall include, at a minimum, designation and marking of Environmentally Sensitive Areas (ESAs), archaeological monitoring, personnel training, and effectiveness reporting. The plan shall detail what measures will be used; how, when, and where they will be implemented; and how protective measures and enforcement will be coordinated with construction personnel. The HP/HRMP shall also define any additional areas that are considered to be of high-sensitivity for discovery of buried NRHP-eligible cultural resources, including burials, cremations, or sacred features. The HP/HRMP shall detail provisions for monitoring construction in these high-sensitivity areas. It shall also detail procedures for halting construction, making appropriate notifications to agencies, officials, and Native Americans,	• SCE shall prepare a research design and a scope of work for data recovery or additional treatment of significant sites that cannot be avoided. • The HPTP shall map and define all known significant properties within 50 feet of the Project, and at a minimum will include the following elements: marking of ESAs, archeological monitoring, personnel training, and effectiveness reporting.	• Identify significant cultural resources in the APE. • Avoid or reduce impacts to significant cultural resources.	Prior to and during construction.

Table A.1-2. Mitigation Monitoring Program

Impact	Measure	Monitoring Requirement	Determination of Effectiveness	Timing of Action
	assessing NRHP-eligibility in the event that unknown cultural resources are discovered, and the timelines for assessing NRHP-eligibility, formulating a mitigation plan, and implementing treatment. Treatment plans for unanticipated discoveries shall be approved by the Forest Service, USACE, CPUC, appropriate Native Americans, and the SHPO prior to implementation. The HP/HRMP shall include provisions for analysis of data in a regional context, reporting of results within one year of completion of field studies, and curation of artifacts and data (maps, field notes, archival materials, recordings, reports, photographs, and analysts' data) at a facility that is approved by Forest Service, USACE, and CPUC, and dissemination of reports to local and State repositories, libraries, and interested professionals. The Forest Service will retain ownership of artifacts collected from Forest Service managed lands. SCE shall attempt to gain permission for artifacts from privately held land to be curated with the other Project collections. The HP/HRMP shall specify that archaeologists and other discipline specialists con-ducting the studies meet the Secretary of the Interior's Professional Qualifications Standards (per 36 CFR 61).			
	C-1f Conduct Data Recovery Excavation or Other Actions to Reduce Adverse Effects. If NRHP eligible resources, as determined by the CPUC, Forest Service, USACE, and SHPO, cannot be protected from direct impacts of the Project, SCE shall implement data-recovery investigations or other actions to reduce adverse effects to the characteristics of each property that make it eligible for the NRHP. For archaeological sites eligible under Criterion d, significant data would be recovered through excavation and analysis. For properties eligible under Criteria a, b, or c, treatment may include historical documentation, photography, collection of oral histories, architectural or engineering documentation, preparation of a scholarly work, or some form of public awareness or interpretation. Information gathered during the evaluation phase and the research design element of the HP/HRMP shall guide plans and data thresholds for data recovery; treatment will be based on the resource's research potential beyond that realized during resource recordation and evaluation studies. If data recovery excavation is necessary, appropriate sampling methods will be proposed. Sampling will be confined, as much as possible, to the direct impact area. Data-recovery methods, sample sizes, and procedures shall be detailed in the HP/HRMP consistent with Mitigation Measure C-1e (Develop and implement Historic Properties/Historical Resources Treatment Plan) and implemented by SCE only after approval by the Forest Service, USACE, and CPUC. Following any field investigations required for data recovery, SCE	• SCE shall prepare a research design and a scope of work for data recovery or additional treatment of significant sites that cannot be avoided. • Compliance with the Historic Properties Treatment Plan (see Mitigation Measure C-1d).	• Identify significant and unavoidable impacts to cultural resources. • Avoid or reduce impacts to significant cultural resources.	Prior to and during construction.

Table A.1-2. Mitigation Monitoring Program

Impact	Measure	Monitoring Requirement	Determination of Effectiveness	Timing of Action
	shall document the field studies and findings, including an assessment of whether adequate data were recovered to reduce adverse Project effects, in a brief field closure report. The field closure report shall be submitted to the Forest Service, USACE, and CPUC for their review and approval, as well as to the appropriate State repositories and local governments. Construction work within 100 feet of cultural resources that require data-recovery fieldwork shall not begin until authorized by the Forest Service, USACE, or CPUC, as appropriate.			
	C-1g Conduct Cultural Resources Monitoring. APM CR-5 calls for preparation of a construction monitoring and inadvertent discovery plan. A professional archaeologist shall monitor subsurface construction disturbance at all locations identified in the HP/HRMP where monitoring is required (see Mitigation Measure C-1e, Develop and implement a Historic Properties/Historical Resources Treatment Plan). These locations and their boundaries shall be defined and mapped in the HP/HRMP. Intermittent monitoring may occur in areas of moderate archaeological sensitivity at the discretion of the Forest Service, USACE, and/or CPUC. Archaeological monitoring shall be conducted by a qualified archaeologist familiar with the types of historical and prehistoric resources that could be encountered within the Project APE, and under direct supervision of a principal archaeologist. The qualifications of the principal archaeologist and archaeological monitors shall be approved by the Forest Service, USACE, and CPUC. A Native American monitor may be required at culturally sensitive locations. SCE shall retain and schedule any required Native American monitors. Compliance with and effectiveness of the cultural resources monitoring plan shall be documented by SCE in a monthly report to be submitted to the Forest Service, USACE, and CPUC, for the duration of Project construction. In the event that cultural resources are not properly protected by ESAs, all Project work in the immediate vicinity shall be diverted by the archaeological monitor until authorization to resume work has been granted by the Forest Service, USACE, and CPUC. SCE shall notify the Forest Service of any damage to cultural resource ESAs. SCE shall consult with the Forest Service, USACE, and CPUC to mitigate damages and to increase effectiveness of ESAs. At the discretion of the Forest Service, USACE, and CPUC, such mitigation may include, but not be limited to modification of protective measures, refinement of monitoring protocols, data-recovery investigations, or payment of compensatory damages in the form of non-destructive cultural resources studies or protection.	• SCE shall conduct full-time monitoring by a qualified archaeologist at all High-Sensitivity Areas and ESAs identified in the HPTP. • SCE shall conduct intermittent monitoring in areas of moderate archaeological sensitivity. • Compliance with the Historic Properties Treatment Plan (see Mitigation Measure C-1d). • SCE shall submit a monthly report to the CPUC and FS for the duration of construction.	• Identify potential impacts to cultural resources due to construction disturbance. • Avoid or reduce impacts to identified cultural resources.	During construction.

Table A.1-2. Mitigation Monitoring Program

Impact	Measure	Monitoring Requirement	Determination of Effectiveness	Timing of Action
	C 1h Workers Environmental Awareness Program. APM CR-2b calls for a pre-construction worker education program. All construction personnel shall be trained regarding the recognition of possible buried cultural remains and protection of all cultural resources, including prehistoric and historic resources during construction, prior to the initiation of construction or ground-disturbing activities. SCE shall complete training for all construction personnel. Training shall inform all construction personnel of the procedures to be followed upon the discovery of archaeological materials, including Native American burials. Training shall inform all construction personnel that Environmentally Sensitive Areas (ESAs) must be avoided and that travel and construction activity must be confined to designated roads and areas. All personnel shall be instructed that unauthorized collection or disturbance of artifacts or other cultural materials on or off the ROW by SCE, their representatives, or employees will not be allowed. Violators will be subject to prosecution under the appropriate State and federal laws and violations will be grounds for removal from the Project. Unauthorized resource collection or disturbance may constitute grounds for the issuance of a stop work order. The following issues shall be addressed in training or in preparation for construction: • All construction contracts shall include clauses that require construction personnel to attend training so they are aware of the potential for inadvertently exposing buried archaeological deposits, their responsibility to avoid and protect all cultural resources, and the penalties for collection, vandalism, or inadvertent destruction of cultural resources. • SCE shall provide a background briefing for supervisory construction personnel describing the potential for exposing cultural resources, the location of any potential ESA, and procedures and notifications required in the event of discoveries by Project personnel or archaeological monitors. Supervisors shall also be briefed on the consequences of intentional or inadvertent damage to cultural resources. Supervisory personnel shall enforce restrictions on collection or disturbance of artifacts or other cultural resources. • Upon discovery of potential buried cultural materials by archaeologists or construction personnel, or damage to an ESA, work in the immediate area of the find shall be diverted and SCE's archaeologist notified. Once the find has been inspected and a preliminary assessment made, SCE's archaeologist will consult with the Forest Service, USACE, or CPUC, as appropriate, to make the necessary plans for evaluation and treatment of the find(s) or mitigation of adverse effects to ESAs. SCE shall provide to the CPUC, USACE, and Forest Service a list of	• SCE shall complete training for all construction personnel. • SCE shall provide to the CPUC and FS a list of construction personnel who have completed the cultural resources identification training prior to start of construction.	Avoid or reduce impacts to identified cultural resources.	During construction.

Table A.1-2. Mitigation Monitoring Program

Impact	Measure	Monitoring Requirement	Determination of Effectiveness	Timing of Action
	construction personnel who have completed the cultural resources identification training prior to start of construction, and this list shall be updated by SCE as required when new personnel start work. No construction worker may work in the field without first participating in the Environmental Awareness Training.			
	C-1i Protect and Monitor NRHP-Eligible Properties. SCE shall design and implement a long-term plan which will be included in the HP/HPMP to protect NRHP-eligible sites from direct impacts of Project operation and maintenance and from indirect impacts, such as erosion, that result from the presence of the Project. The plan shall be developed in consultation with the Forest Service, USACE, and CPUC to design measures that will be effective against Project maintenance impacts and Project-related vehicular impacts. The plan shall also include protective measures for significant properties within the TRTP corridor that will experience operational and access impacts as a result of the proposed Project. The proposed measures may include restrictive fencing or gates, permanent access and spur road closures, signage, stabilization of erosion, site capping, site patrols, interpretive/educational programs, and/or other measures that will be effective for protecting cultural resources. The plan shall be property specific and shall include provisions for monitoring and reporting its effectiveness and for addressing inadequacies or failures that result in damage to significant properties. The plan shall be submitted to the Forest Service, USACE, and CPUC for review and approval one year after execution of the PA as stated in the PA. Monitoring of selected sites shall be conducted annually by a professional archaeologist for a period of three years following completion of Project construction. Monitoring shall include inspection of all site loci and defined surface features, documented by photographs from fixed photo-monitoring stations and written observations. A monitoring report shall be submitted to the Forest Service, USACE, and CPUC within one month following the annual resource monitoring. The report shall indicate any properties that have been impacted by erosion or vehicle or maintenance impacts. For properties that have been impacted, SCE shall provide recommendations for mitigating impacts and for improving protective measures. After the third year of resource monitoring, the Forest Service, USACE, or CPUC, as appropriate, will evaluate the effectiveness of the protective measures and the monitoring program. Based on that evaluation, the Forest Service, USACE, or CPUC may require that SCE revise or refine the protective measures, or alter the monitoring protocol or schedule. If the CPUC, USACE, and Forest Service (for NFS lands) do not authorize alteration of	• SCE shall develop a long-term plan to protect NRHP-eligible sites from direct impacts, and shall submit the plan to the CPUC and FS for review and approval 30 days prior to operation. • Compliance with the Historic Properties Treatment Plan (see Mitigation Measure C-1d). • SCE shall monitor annually and submit a monitoring report prepared by professional archaeologist for five years following completion of Project construction. • If the annual monitoring program identifies adverse effects to NRHP-eligible properties from operation or long-term presence of the Project, SCE shall notify the CPUC and FS immediately and implement mitigation measures.	Prevent direct impacts to cultural resources.	Post-construction.

Table A.1-2. Mitigation Monitoring Program

Impact	Measure	Monitoring Requirement	Determination of Effectiveness	Timing of Action
	the monitoring protocol or schedule, those shall remain in effect for the duration of Project operation. If the annual monitoring program identifies adverse effects to NRHP-eligible properties from operation or long-term presence of the Project, or if, at any time, SCE, Forest Service, USACE, or CPUC become aware of such adverse effects, SCE shall notify the Forest Service, USACE, and CPUC immediately and implement mitigation for adverse effects, as directed by the agencies. At the discretion of the Forest Service, USACE, and CPUC, such mitigation may include, but not be limited to modification of protective measures, refinement of monitoring protocols, data-recovery investigations, or payment of compensatory damages in the form of non-destructive cultural resources studies or protection.			
C-2: Native American human remains could be uncovered, exposed, and/or damaged during Construction.	**C-2 Treatment of human remains discovered during construction.** APM CR-6 addresses the inadvertent discovery of human remains. If human remains are discovered during construction, all work will be diverted from the area of the discovery and the CPUC, USACE, and Forest Service authorized officer will be informed immediately. SCE shall follow all State and federal laws, statutes, and regulations that govern the treatment of human remains. As requested, SCE shall assist and support the CPUC, USACE, and Forest Service to comply with NAGPRA. SCE shall comply with all relevant Public Resource Codes and Health and Safety Codes regarding the discovery and handling of human remains, shall support consultation with Native Americans and appropriate agencies and commissions, and shall comply with and implement actions and studies as directed by the CPUC, USACE, and/or Forest Service.	SCE shall monitor compliance during construction.	Avoid or reduce impacts to Native American human remains.	During construction.
Environmental Contamination and Hazards				
E-2: Excavation or grading could result in mobilization of existing soil or groundwater contamination from known sites	**E-2a Perform Phase I ESAs Along Existing Transmission Line Rights-of-Way (ROWs).** SCE shall conduct Phase I Environmental Site Assessments (ESAs) within a 0.25-mile corridor along the segments identified below to determine whether there is a record of hazardous material contamination which would affect construction activities. This investigation will determine the likelihood of on-site contamination and shall identify the need for further investigation and/or remediation of soil or groundwater within areas of ground disturbance for the Project. For example, if there would be little or no human contact with contaminated materials by avoidance of the area or because no excavation is required during construction, no further mitigation would be required. However, if Project construction activities would involve human contact with contaminated materials that could potentially affect the health or safety of workers or the public during construction of the Project, then Mitigation	• SCE shall submit Phase I ESAs (for the five areas identified in the measure) to the CPUC and FS. • SCE shall monitor compliance and ensure Mitigation Measure E-2b shall be implemented if necessary.	Avoid or reduce potential mobilization of existing contamination.	Prior to and during construction.

Table A.1-2. Mitigation Monitoring Program

Impact	Measure	Monitoring Requirement	Determination of Effectiveness	Timing of Action
	Measure E-2b (Perform Phase II Investigations for potentially contaminated sites) shall be implemented. - Segment 7 from S7 MP 1.8 to MP 15.8 - Segment 8A from S8A MP 2.2 to MP 7.0, S8A MP 15.2 to MP 15.5, S8A MP 24 to 35.2 - Segment 8B from S8B MP 0.0 to MP 6.8 - Segment 8C from S8C MP 0.0 to MP 6.4 - Segment 11 from S11 MP 26 to MP 36.2			
	E-2b Perform Phase Ii Investigations for Potentially Contaminated Sites. Phase II Environmental Site Investigations (ESIs) shall be performed on sites that have been determined by the Phase I ESAs performed under APM HAZ-1 and Mitigation Measure E-2a (Perform Phase I ESAs along existing transmission line rights-of-way) to be potentially contaminated. If it is determined that disturbance or excavation of contaminated soils or groundwater would occur during construction at a given site, SCE would undertake a Phase II ESI involving sampling and further characterization of potentially contaminated areas within the Project ROW or reroute the line away from the contamination area. Should further investigation reveal high levels of hazardous materials, SCE would mitigate health and safety risk according to Los Angeles County Certified Unified Program Agency (CUPA) or Regional Water Quality Control Board (RWQCB) regulations or requirements. This would include site-specific Health and Safety Plans, Work Plans, and/or Remediation Plans.	SCE shall submit Phase II ESIs as required by APM HAZ-1 and Mitigation Measure E-2a to the CPUC and FS.	Avoid or reduce potential mobilization of existing contamination.	Prior to and during construction.
E-3: Landfill gas and/or natural gas located near active, inactive or abandoned oil wells could be encountered during excavation or grading, resulting in explosions or exposure of workers to toxic gases.	**E-3a Determine if Landfill Gases are Present.** To assess the likelihood that contamination from identified landfills could be present in the Project alignment construction zone, SCE shall complete a search of landfill records, plans, maps and gas monitoring to determine the limits of landfill waste and landfill gas plume for all landfills listed below. For all locations at which the records review cannot confirm a gas-free landfill perimeter adjacent to the Project construction zone, a soil vapor survey shall be conducted. The soil vapor survey shall consist of driving probes in areas of proposed excavation and grading activities along the transmission line corridors and substation sites. Vapor samples shall be tested for methane, other flammable gases, and volatile organic compounds. Laboratory test results shall be reported to the Department of Toxic Substances Control (DTSC) or the appropriate County Environmental Health Division and shall include an assessment of the contamination potential in the excavation area. Documentation of all site research and a copy of the Los Angeles CUPA approval letter shall be provided to the CPUC at least 30 days prior to the	• SCE shall complete a search of landfill records, plans, maps and gas monitoring to determine the limits of landfill waste and landfill gas plume for all landfills listed. • Documentation of all site research and a copy of the Los Angeles CUPA approval letter shall be provided to the CPUC and FS.	Avoid or reduce potential encounters with landfill gases.	Thirty (30) days prior to construction.

Table A.1-2. Mitigation Monitoring Program

Impact	Measure	Monitoring Requirement	Determination of Effectiveness	Timing of Action
	start of construction within the appropriate Project segment. **Landfill Sites Near Project Alignment** **Segment** / **Milepost** / **Corresponding EDR Site ID No.** Segment 7 / MP 2 / 35 Segment 7 / MP 4.2 / 47 Segment 7 / MP 4.3-4.4 / 50-52, 56 Segment 7 / MP 4.7-4.9 / 62, 64 Segment 7 / MP 10.8 / 165 Segment 7 / MP 14.2-14.5 / 185, 193 Segment 7 / MP 14.8-15.8 / 0 Segment 8A / MP 4.8-6.0 / 207 Segment 8B / MP 0.3 / 254 Segment 8B / MP 4.4 / 219			
	E-3b Implement Personnel Safety and Monitoring Measures. If laboratory tests indicate the presence of landfill gases in the construction areas, a Health and Safety Plan shall be developed by a licensed industrial hygienist and a gas monitoring program shall be implemented by SCE or its contractors. A Health and Safety Plan shall also be developed for work in areas within 500 feet of active, inactive or abandoned oil wells that includes requirements for gas monitoring of excavations. A copy of the Health and Safety Plan and monitoring program shall be submitted to the appropriate CUPA agency and the CPUC at least 30 days prior to the start of construction within the appropriate Project segment.	• SCE shall submit a copy of the Health and Safety Plan to the CPUC and FS for review and approval. • If personnel training is included in the Health and Safety Plan, completed sign-in sheet(s) with date, name, and signature of attendees (construction, operations and maintenance staff) will be provided to the CPUC and FS.	No soil or groundwater is contaminated as a result of improper handling and/or storage of hazardous materials during construction, as verified by the EM.	Thirty (30) days prior to and during construction.
	E-3c Verify Location and Status of Abandoned Oil and Natural Gas Wells. Prior to excavation and construction activities, SCE shall contact the California Department of Conservation, Division of Oil, Gas and Geothermal Resources (DOGGR) for specific information on wells located within 500 feet of the transmission line route, including location and abandonment details. SCE shall avoid construction near (within 50 feet) abandoned oil or gas wells. If a tower or trench is located within 50 feet of a plugged or abandoned well, SCE shall coordinate with DOGGR and provide written confirmation to the CPUC that the well has been correctly abandoned and does not require remedial plugging or the installation of a gas venting system. If documentation of proper abandonment is not available, SCE shall provide and implement a work plan for natural gas testing and controls for the work area and excavations which complies with OSHA standards for protection of workers. The work plan shall include, at a minimum, the	• SCE shall obtain specific information from the DOGGR regarding wells located within 500 feet of the Project. • For wells located within 50 feet of the Project, SCE shall coordinate with DOGGR and provide written confirmation to the CPUC that the well has been correctly abandoned. • If documentation of proper abandonment is not available, SCE shall provide and implement a work plan outlining natural gas testing and controls for the work area and excavations.	• Unexpected wells are not encountered during the construction period. • Proper procedures are implemented if an unexpected well is encountered.	Prior to and during construction.

Table A.1-2. Mitigation Monitoring Program

Impact	Measure	Monitoring Requirement	Determination of Effectiveness	Timing of Action
	following: testing of areas where hazardous atmosphere exists or could reasonably be expected to exist (excavations and work areas within 50 feet of identified oil or gas wells), and if hazardous atmosphere is identified controls such as proper respiratory protection or ventilation must be provided. Additionally, the work plan shall require regular testing of controls used to reduce atmospheric contaminants to acceptable levels. The work plan shall also require that where adverse atmospheric conditions may exist or develop in an excavation area, emergency rescue equipment (e.g., breathing apparatus, a safety harness and line, basket stretcher, etc.) must be kept readily available. If an unrecorded well is encountered during construction, SCE shall stop construction and notify DOGGR immediately. Although SCE would not be responsible to properly abandon oil wells in the vicinity of the Project, construction at the location will resume after SCE has coordinated with DOGGR to verify well status and provided the CPUC with written confirmation that the well has been correctly abandoned and does not require remedial plugging or the installation of a gas venting system. If documentation of proper abandonment is not available, SCE shall provide and implement a work plan, with the above-described specifications, for natural gas testing and controls for the work area and excavations.	• If an unrecorded well is encountered during construction, SCE shall stop construction and notify DOGGR. • CPUC will monitor for compliance.		
E-4: Unanticipated preexisting soil and/or groundwater contamination could be encountered during excavation or grading.	**E-4a Appoint Individuals With Correct Training for Sampling, Data Review, and Regulatory Coordination.** In the event that potential contaminated soil or groundwater is encountered during construction activities, samples shall be collected by an Occupational Safety and Health Administration (OSHA) trained individual with a minimum of 40-hour Hazardous Waste Operations and Emergency Response (HAZWOPER) worker training. Laboratory data from suspected contaminated material shall be reviewed by the contractor's Health and Safety Officer and/or SCE's Field Environmental Representative and they shall coordinate with the appropriate regulatory agency (RWQCB or local CUPA agency) if contamination is confirmed, to determine the suitable level of worker protection and the necessary handling and/or disposal requirements.	• In the event that potential contaminated soil or groundwater is encountered during construction activities, samples shall be collected by an OSHA trained individual. • If contamination is confirmed, SCE shall coordinate with the appropriate regulatory agency.	Determine the suitable level of worker protection.	During construction.
	E-4b Document Compliance With APM HAZ-3. If the visual or olfactory evidence of contamination in the exposed soil is observed during grading or excavation work, the location and the potential contamination, results of laboratory testing, recommended remediation (if contamination is verified), and actions taken shall be documented in a report and submitted to the CPUC and FS (for NFS lands) for each event. This report shall be submitted within 30 days of receipt of laboratory data.	• If contamination is observed during grading or excavation work, a report documenting compliance with APM HAZ-3 must be submitted to the CPUC and FS within 30 days of receipt of laboratory data.	Determine the suitable level of worker protection.	During construction.

Table A.1-2. Mitigation Monitoring Program

Impact	Measure	Monitoring Requirement	Determination of Effectiveness	Timing of Action
Geology, Soils, and Paleontology				
G-1: Project activities could interfere with access to known energy resources.	**G-1 Coordination With Oil Field Operations.** Operations and management personnel for the oil fields shall be consulted regarding access requirements, and SCE and its contractors shall coordinate construction activities across and along necessary oil field access roads in a manner to limit interference with oil field operations. A plan to avoid or minimize interference with oil field operations shall be prepared in conjunction with oil field operators prior to construction. SCE shall document compliance with this measure by submitting the plan to the CPUC for review 30 days prior to the start of construction in the affected Project segments.	• SCE and its contractors shall coordinate construction activities across and along necessary oil field access roads. • SCE shall submit a plan to the CPUC and FS documenting compliance 30 days prior to construction.	Minimize interference with oil field operations.	Prior to, during, and after construction.
G-2: Erosion could be triggered or accelerated due to construction activities.	Mitigation Measure H-1a, below.	Refer to H-1a, below.	Refer to H-1a, below.	Refer to H-1a, below.
G-3: Excavation and grading during construction activities could cause slope instability or trigger landslides.	**G-3 Conduct Geological Surveys for Landslides and Protect Against Slope Instability.** Design-level geotechnical investigations performed by SCE shall include geological surveys for landslides that will allow identification of specific areas with the potential for unstable slopes, landslides, earth flows, and debris flows along the approved transmission line route and in other areas of ground disturbance, such as access and spur roads and staging and work areas. The geotechnical investigations shall evaluate subsurface conditions, identify potential hazards, and provide information for development of excavation plans and procedures. If the results of the geotechnical survey indicate the presence of unstable slopes at or adjacent to Project structures, appropriate support and protection measures shall be designed and implemented to maintain the stability of slopes adjacent to newly graded or re-graded access and spur roads, work areas, and Project structures during and after construction, and to minimize potential for damage to Project facilities. These design measures shall include, but are not limited to, retaining walls, visqueen, removal of unstable materials, and avoidance of highly unstable areas. Appropriate construction methods and procedures, in accordance with State and federal health and safety codes, shall be followed to protect the safety of workers and the public during drilling and excavation operations. SCE shall document compliance with this measure by submitting a report to the CPUC and FS (for NFS lands) for review at least 30 days prior to final Project design. The report shall document the investigations and detail the specific support and protection measures that will be implemented. Additionally, along Segment 8A (between approximately S8A MPs 5.4 and 6.6), where portions of the proposed project alignment and associated access roads are located	• Thirty (30) days prior to construction, SCE shall submit a geologic/geotechnical report to the CPUC and FS for review and approval. • CPUC and/or FS will monitor compliance at construction areas.	Project construction activities do not cause slope instabilities, as verified by the EM.	Prior to and during construction.

Table A.1-2. Mitigation Monitoring Program

Impact	Measure	Monitoring Requirement	Determination of Effectiveness	Timing of Action
	adjacent to the Puente Hills Landfill in an area where known slope stability issues and landslides are present, SCE shall coordinate with the County Sanitation Districts of Los Angeles County (LACSD) regarding known landslides and landslide repairs along the southwestern boundary of the landfill and shall submit the geological survey and slope stability reports, including recommended support and protection measures for Segment 8 to the LACSD for review at least 30 days prior to final project design.			
G-4: Project structures could be damaged by surface fault rupture at crossings of active faults exposing people or structures to hazards.	**G-4 Avoid Placement of Project Structures on Active Fault Traces.** Prior to final Project design SCE shall perform a fault evaluation study to confirm the location of mapped traces of active and potentially active faults crossed by the Project route or other Project structures. For crossings of active faults, the Project design shall be planned so as not to locate towers or other Project structures on the traces of active faults; and in addition, Project components shall be placed as far as feasible outside the areas of mapped fault traces. Compliance with this measure shall be documented to the CPUC and FS in a report submitted for review at least 60 days prior to the start of construction.	• Sixty days prior to construction, SCE shall submit a fault evaluation study to the CPUC and FS for review and approval. • CPUC and/or FS will verify tower placement and monitor for compliance.	Project components at fault crossings are not damaged by surface fault ruptures.	Prior to, during, and after construction.
G-5: Project structures could be damaged by seismically induced groundshaking and/or ground failure exposing people or structures to hazards.	**G-5a Reduce Effects of Groundshaking.** The design-level geotechnical investigations performed by SCE shall include site-specific seismic analyses to evaluate ground accelerations for design of Project components. Based on these findings, Project structure designs shall be modified/strengthened, as deemed appropriate by the Project engineer, if the anticipated seismic forces are found to be greater than standard design load stresses on Project structures. Study results and proposed design modifications shall be provided to the CPUC and FS for review at least 60 days before final Project design.	• Prior to construction, SCE shall submit a geologic/geotechnical report, including site-specific seismic analyses and specific requirements to mitigate damage to Project components from seismic activity, to the CPUC for review and approval. • CPUC /FS will monitor compliance during construction.	• Seismic requirements specified in the geologic/geotechnical report are applied, as verified by the EM. • Seismic activity, such as groundshaking, does not damage Project components.	Prior to, during, and after construction.
	G-5b Conduct Geotechnical Investigations for Liquefaction. Because seismically induced liquefaction-related ground failure has the potential to damage or destroy Project components, the design-level geotechnical investigations to be performed by SCE shall include investigations designed to assess the potential for liquefaction to affect the approved Project and all associated facilities, specifically at tower locations in areas with potential liquefaction-related impacts (portions of Segments 5, 7, 11, 8A, 8B, and 8C underlain by alluvium with the potential for shallow groundwater). Where these hazards are found to exist, appropriate engineering design and construction measures shall be incorporated into the Project designs as deemed appropriate by the Project engineer. Design measures that would mitigate liquefaction-related impacts could include construction of pile foundations, ground improvement of liquefiable zones, installation of flexible bus connections, and incorporation of slack in cables to allow ground	• Sixty (60) days prior to construction, SCE shall submit a geologic/geotechnical report, providing engineering design and construction measures to minimize impacts to the Project from liquefaction, to the CPUC and FS for review and approval. • CPUC and/or FS will monitor compliance during construction.	• Engineering design and construction measures recommended in the geologic/ geotechnical report are applied, as verified by the EM. • Liquefaction does not damage Project components.	Prior to, during, and after construction.

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	deformations without damage to structures. Study results and proposed solutions to mitigate liquefaction shall be provided to the CPUC and FS for review at least 60 days before final Project design.			
G-6: Project structures could be damaged by problematic soils exposing people or structures to hazards.	**G-6 Conduct Geotechnical Studies to Assess Soil Characteristics and Aid in Appropriate Foundation Design.** The design-level geotechnical studies to be performed by SCE shall identify the presence, if any, of potentially detrimental soil chemicals, such as chlorides and sulfates. Appropriate design measures for protection of reinforcement, concrete, and metal-structural components against corrosion shall be utilized, such as use of corrosion-resistant materials and coatings, increased thickness of Project components exposed to potentially corrosive conditions, and use of passive and/or active cathodic protection systems. The geotechnical studies shall also identify areas with potentially expansive or collapsible soils and include appropriate design features, including excavation of potentially expansive or collapsible soils during construction and replacement with engineered backfill, ground-treatment processes, and redirection of surface water and drainage away from expansive foundation soils. Studies shall conform to industry standards of care and American Society for Testing and Materials (ASTM) standards for field and laboratory testing. Study results and proposed solutions shall be provided to the CPUC and FS, as appropriate, for review at least 60 days before final Project design.	• Sixty (60) days prior to construction, SCE shall submit a geologic/geotechnical report to the CPUC and FS for review and approval, including identification of potentially detrimental soil chemicals along the Project alignment and design measures to protect against corrosion and ensure stable foundations. • CPUC and/or FS will monitor compliance during construction.	• Engineering design measures recommended in the geologic/ geotechnical report are applied, as verified by the EM. • Corrosive, expansive, or collapsible soils do not damage Project components.	Prior to, during, and after construction.
G-7: Transmission line structures could be damaged by landslides, earth flows, or debris slides, during operation.	Mitigation Measure G-3, above.	Refer to G-3, above.	Refer to G-3, above.	Refer to G-3, above.
Hydrology and Water Quality				
H-1: Construction activities would degrade surface water quality through erosion and sedimentation.	Mitigation Measure B-2, above.	Refer to B-2, above.	Refer to B-2, above.	Refer to B-2, above.
	H-1a Implement an Erosion Control Plan and Demonstrate Compliance With Water Quality Permits. SCE shall develop and submit to the CPUC and FS for approval 30 days prior to construction an Erosion Control Plan, and implement Best Management Practices (BMPs), as described below. (Note: The Erosion Control Plan may be part of the same document as the Stormwater Pollution Prevention Plan.) Within the Erosion Control Plan, the applicant shall identify the location of all soil-disturbing activities, including but not limited to new and/or improved access and spur roads, the location of all streams and drainage structures that would be directly affected by soil-disturbing activities (such as stream crossings by access roads), and the location and type of all BMPs that would be installed to protect aquatic	• SCE shall submit an Erosion Control Plan and Sediment Transport Plan, including the BMPs contained in this mitigation measure, to the CPUC and FS for review and approval. This erosion control plan will be included in the Project SWPPP. • The applicant shall submit to the CPUC and FS evidence of all required permits.	• BMPs included in the SWPPP are applied, as verified by the EM. • Avoid degradation of surface water quality.	Thirty (30) days prior to and during construction.

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Impact	Measure	Monitoring Requirement	Determination of Effectiveness	Timing of Action
	resources. The Erosion Control Plan shall include a proposed schedule for the implementation and maintenance of erosion control measures and a description of the erosion control practices, including appropriate design details. As part of the Erosion Control Plan, SCE shall maintain a logbook of all precipitation events within the Project area that produce more than one inch of precipitation within a 24-hour period. The logbook shall contain the date of the precipitation event, the approximate duration of the event, and the amount of precipitation (measured as the largest amount recorded by a rain gage or weather station within one mile of the Project). Additionally, the logbook shall include a narrative evaluation (and/or a numerical evaluation, if required by the FS or other jurisdictional agency) of the erosion-prevention effectiveness of the existing BMPs, as well as a description of any post-storm modifications to those BMPs. The logbook shall be submitted to the CPUC and FS for review within 30 days following the first storm event (after construction has begun) that produces greater than one inch of precipitation within a 24-hour period. SCE shall re-submit the logbook annually after the first storm of the rainy season that produces more than one inch of precipitation within a 24-hour period. The logbook shall be retired 5 years after completion of construction. In addition to the Erosion Control Plan, the applicant shall submit to the CPUC and the FS evidence of possession of all required permits before engaging in soil-disturbing construction/demolition activities, before entering flowing or ponded water, or before constructing a crossing at flowing or ponded water. Such permits may include, but are not limited to, a Streambed Alteration Agreement from the California Department of Fish and Game, a Clean Water Act (CWA) Section 404 permit from the USACE, a CWA Section 402 NPDES General Permit for Storm Water Discharges Associated with Construction Activities (General Permit) from the applicable Regional Water Quality Control Board(s) (RWQCBs), and/or a CWA Section 401 certification from the applicable RWQCBs. In addition, if construction-related excavation activities on National Forest System (NFS) lands encounter perched groundwater, triggering the need for dewatering activities to occur in compliance with Applicant-Proposed Measure HYD-6 (Drilling and Construction Site Dewatering Management), SCE shall notify the Forest Service at the onset of dewatering and, upon the completion of dewatering activities at the affected site(s), SCE shall submit to the Forest Service written description of all executed dewatering activities, including steps taken to return encountered groundwater to the subsurface.	• CPUC and/or FS will monitor compliance during construction.		
	H-1b Dry Weather Construction. Any construction activities within the ANF shall be scheduled to avoid anticipated precipitation events that are predicted to produce more than one inch of precipitation over a 24-hour	• SCE shall submit a construction schedule to the CPUC and FS for review and approval.	• Construction activities will occur under dry conditions, as verified	Prior to and during construction.

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Impact	Measure	Monitoring Requirement	Determination of Effectiveness	Timing of Action
	period, unless expressly authorized by the FS. If an unexpected precipitation event occurs while construction activities are already underway, SCE shall contact the FS for guidance. The FS may require cessation of construction activities within their jurisdiction during any precipitation event in order to prevent excessive erosion and to protect aquatic resources. On NFS lands, SCE shall also observe any criteria promulgated by the FS regarding construction during precipitation events. SCE shall provide documentation to the CPUC monitor of all wet-weather coordination with the FS.	• CPUC and/or FS will monitor compliance during construction.	by the EM. • Avoid degradation of surface water quality.	
H-2: Construction activities would degrade water quality through the accidental release of potentially harmful or hazardous materials.	Mitigation Measure H-1b, above.	Refer to H-1b, above.	Refer to H-1b, above.	Refer to H-1b, above.
H-4: Project structures would cause erosion, sedimentation, or other flood-related damage by impeding flood flows.	Mitigation Measure H-1a, above.	Refer to H-1a, above.	Refer to H-1a, above.	Refer to H-1a, above.
H-5: Project structures would be inundated by mudflow.	Mitigation Measure G-3, above.	Refer to G-3, above.	Refer to G-3, above.	Refer to G-3, above.
Land Use				
L-1: Construction of the Project would temporarily disrupt, displace, or preclude existing residential land uses.	**L-1a Construction Liaison – Property Owners.** SCE shall provide a toll-free general phone number, and the name and contact information for a local public liaison (or liaisons) to all affected property owners within 300 feet of construction-related activities. The toll-free access number and the identified local public liaison(s) shall act as points of contact and interface between residents and construction crews for that area. The toll-free number and local public liaison(s) shall be available both in person and by phone, as necessary, for at least 14 days prior to the start of any construction-related activities and for up to six months following construction. The local public liaison(s) shall respond to all construction-related questions and concerns within a 72-hour period during construction when contact information is provided. Post-construction, replies shall be made within a two-week period. SCE shall provide summary documentation of all complaints, comments, and concerns communicated to the liaison every two months for the duration of construction and for one year following the completion of construction. The compliance documentation will be treated as confidential and shall	• At least 60 days prior to construction, SCE shall submit documentation to the CPUC and FS describing the coordination efforts with property owners. • SCE shall provide documentation of all complaint, comments and concerns every two months for the duration of construction and for one year following the completion of construction. • CPUC and/or FS will monitor compliance during construction.	• Impacts to property owners are avoided. • Property owners' complaints, comments and concerns are addressed.	Prior to and during construction, and during operation.

Table A.1-2. Mitigation Monitoring Program

Impact	Measure	Monitoring Requirement	Determination of Effectiveness	Timing of Action
	include the name and address of the person contacting the local public liaison(s), the date of contact, and what actions were taken by the local public liaison(s) to rectify and/or address the complaints, comments or concerns expressed. The compliance documentation shall be submitted to the CPUC throughout the duration of construction and for one year following construction.			
	L-1b Advance Notification of Construction – Property Owners. SCE shall give at least 14 days advance notice of the start of any construction-related activities to potentially affected property owners. The notification shall include the toll-free general phone number, contact information for the local public liaison(s) (Mitigation Measure L-1a, Construction liaison – Property owners), including a phone number (or phone numbers), as well as an internet website address where additional information related to construction can be found. Notification shall be provided by: (1) mailing notices to all property owners within 300 feet of all approved ROW segments, construction-related work areas, and substation sites; and, (2) placing notices in local newspapers.	• SCE shall submit copies of all notices to the CPUC and FS for review and approval. • SCE shall submit proof of publication of notices in local newspapers to the CPUC and FS.	Residential and commercial uses along the transmission line route are notified of construction activities, as verified by the EM.	Prior to and during construction.
	L-1c Quarterly Construction Updates – Property Owners. Following publication/transmittal of the advance notification of construction (Mitigation Measure L-1b, Advance notification of construction – Property owners), SCE shall provide all affected property owners with updates and changes to all of the information provided in the pre-construction notification as related to their Segment-specific location. The updates shall be provided every quarter for the duration of all construction-related activities. Post-construction noticing for restoration activities shall be provided annually. The updates shall continue to provide the toll-free number and the name and phone number of the local public liaison(s) to respond to all construction-related questions and concerns. The local public liaison(s) shall continue to respond to all questions and complaints within a 72-hour period during construction and within two weeks post-construction (Mitigation Measure L-1a, Construction liaison – Property owners). The updates shall be: (1) mailed to all property owners within 300 feet of all approved ROW segments, construction-related work areas, and substation sites; (2) placed in local newspapers; and, (3) posted on the Project's Internet website (Mitigation Measure L-1b).	• SCE shall submit copies of all notices to the CPUC and FS for review and approval. • SCE shall submit proof of publication of notices in local newspapers to the CPUC and FS.	Residential and commercial uses along the transmission line route are notified of construction activities, as verified by the EM.	Prior to and during construction.

Table A.1-2. Mitigation Monitoring Program

Impact	Measure	Monitoring Requirement	Determination of Effectiveness	Timing of Action
L-2: Construction of the Project would temporarily disrupt, displace, or preclude existing non-residential land uses.	Mitigation Measures L-1a through L-1c, above.	Refer to L-1a through L-1c, above.	Refer to L-1a through L-1c, above.	Refer to L-1a through L-1c, above.
	L-2a Construction Plan Provisions – Non-Residential Property Owners. SCE shall incorporate provisions into its construction plans and schedules to minimize the length of time that construction-related activities occur in areas actively used for non-residential purposes, such as commercial and service uses, industrial uses, public/special uses, and educational facilities. SCE shall ensure that all affected non-residential property owners within 300 feet of the ROW are always provided with at least one point of vehicular (passenger car and truck) and pedestrian access to their respective properties throughout all phases of construction. Immediately following the completion of construction, SCE shall ensure that all affected non-residential properties and uses affected by construction outside of the ROW are fully restored to their pre-construction conditions.	• SCE shall submit incorporated provisions to the CPUC and FS for review and approval. • SCE shall ensure that all affected non-residential properties and uses are fully restored to their pre-construction conditions.	• Minimize construction-related disruptions to non-residential uses along the transmission line route, as verified by the EM. • Pre-construction conditions are restored.	Prior to and during construction.
	L-2b Aircraft Flight Path and Safety Provisions and Consultations. Prior to construction, SCE shall consult with the Federal Aviation Administration (FAA) and ensure the filing of all forms and associated specifications per the requirements of Federal Aviation Regulations (FAR) Title 14, Part 77. In addition, prior to the start of construction, SCE shall consult with all affected Airport Land Use Commissions (or their alternative process) and the FS to ensure that construction, operation, and maintenance of the Project does not conflict with local aircraft operations or associated safety provisions.	• SCE shall submit documentation of the coordination efforts with the FS, FAA and the Airport Land Use Commissions to the CPUC and FS.	Avoid interference with aircraft operations.	Prior to and during construction.
L-4: Operation and maintenance of the Project would cause long-term disruption of existing and planned non-residential land uses.	**L-4 Consult With Federal, State, and Local Agencies.** Prior to construction, SCE shall consult with all federal, State, and local agencies, including local agency consortiums, having jurisdiction over lands within one-half mile of the Project's ROW and ancillary facilities to minimize that no permanent restrictions or preclusions of their land management practices. The SCE shall additionally ensure that a liaison to these agencies is available for the operational life of the Project to address and reconcile any future potential conflicts with land management practices. SCE will provide affected agencies with the name and contact information of the liaison and update that contact information as necessary.	SCE shall submit documentation of this coordination to the CPUC and FS.	Coordination efforts will minimize the potential for long-term disruption of existing and planned non-residential land uses.	Prior to and during operation.
L-5: Construction, operation or maintenance of the Project would conflict with relevant federal, State, or local land use	Mitigation Measures L-2b and L-4, above.	Refer to L-2b and L-4, above.	Refer to L-2b and L-4, above.	Refer to L-2b and L-4, above.

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Impact	Measure	Monitoring Requirement	Determination of Effectiveness	Timing of Action
plans, goals, or policies.				
Noise				
N-1: Construction noise would substantially disturb sensitive receptors.	**N-1a Implement Best Management Practices for Construction Noise.** SCE shall implement the following noise-suppression techniques, at a minimum, to avoid possible violations of local rules, standards, and ordinances during construction: • On construction equipment, use noise reduction features (e.g., mufflers and engine shrouds) that are no less effective than those originally installed by the manufacturer. • Install temporary sound walls or acoustic blankets around stationary noise sources (e.g., generators, pumps) to shield adjacent sensitive receptors. Where feasible, these sound walls or acoustic blankets shall have a height of no less than 8 feet, a Sound Transmission Class (STC) of 27 or greater, and a surface with a solid face from top to bottom without any openings or cutouts. • Minimize unnecessary construction vehicle idling time (see also Mitigation Measure AQ-1g: Restrict diesel engine idling to 5 minutes). The ability to limit construction vehicle idling time is dependent upon the sequence of construction activities and when and where vehicles are needed or staged. A "common sense" approach to vehicle use shall be applied; if a vehicle is not required for use immediately or continuously for construction activities, its engine shall be shut off. (Note: certain equipment, such as large diesel powered vehicles, require extended idling for warm-up and repetitive construction tasks and would therefore not be subject to being shut off when not in use.)	CPUC and/or FS will monitor compliance during construction.	• Noise levels in along the project route are minimized, as verified by the EM. • Few if any complaints are received from residents and businesses.	During construction.
	N-1b Avoid Sensitive Receptors During Mobile Construction Equipment Use. SCE shall route all construction traffic and helicopter flight away from residences, schools, and recreational facilities to the maximum extent feasible.	CPUC and/or FS will monitor compliance during construction.	• Noise levels in the vicinity of sensitive receptors are minimized, as verified by the EM. • Few if any complaints are received from residents and businesses.	Prior to and during construction.
N-2: Construction noise levels would violate local standards.	Mitigation Measures N-1a, N-1b, and L-2b above.	Refer to N-1a, N-1b, and L-2b, above.	Refer to N-1a, N-1b, and L-2b, above.	Refer to N-1a, N-1b, and L-2b, above.
Public Services and Utilities				

Table A.1-2. Mitigation Monitoring Program

Impact	Measure	Monitoring Requirement	Determination of Effectiveness	Timing of Action
PSU-1: Emergency services would be needed if an accident or other emergency incident occurs at a construction site.	Mitigation Measure F-1, below.	Refer to F-1, below.	Refer to F-1, below.	Refer to F-1, below.
	PSU-1a Revise SCE's Fire Management Plan. Appendix D of the Proponent's Environmental Assessment (PEA) includes the Transmission Line Project Fire Plan to reduce the risk of igniting a fire during construction and operation as well as controlling the spread of a fire should one occur. The Plan shall be revised with the following provisions and submitted to the CPUC and FS no less than 60 days prior to construction: • The Smoking and Fire Rules require the Constructor to designate smoking areas "…in a barren area or in an area cleared to mineral soil at least three feet in diameter." SCE shall revise the Plan to mandate that these smoking areas are located at a radius of at least 50 feet from all hazardous material, gas and oil storage areas, and equipment service areas. • In Section 1.6 of the Fire Plan, Precautions in Areas of Fire Hazards, SCE shall designate Critical Protection Sites. In particular, these sites will be areas associated with dry habitats, chaparral vegetation, inhabited property, and a considerable history of wildfires. Designations of these sites inform construction crews of the need for the precautions noted in Section 1.6, which include the following: prohibit smoking on the jobsite; require the use of spark arrestors on equipment exhaust; designation of a Fire Patrolperson whose responsibility shall be solely to monitor the Constructor's fire prevention activities; require portable firefighting equipment, shovels, axes, and other necessary firefighting equipment; and observe all other precautionary measures that may be ordered by the FS, Division of Forestry of the State, and County Fire Departments.	• SCE shall submit the revised Fire Management Plan to the CPUC and FS. • CPUC and/or FS will monitor compliance during construction.	Minimize potential for wildfires.	Sixty (60) days prior to and during construction.
	PSU-1b Review of Construction Methods by County Fire Departments. SCE shall coordinate with the Kern, Los Angeles, and San Bernardino County Fire Departments to review the specific construction methods and equipment, and identify any additional requirements that will minimize the potential for wildfires. Prior to construction, SCE shall include documentation of this coordination in the Transmission Line Project Fire Plan, and submit the Plan to the CPUC, FS (for NFS lands), and the county fire departments no less than 60 days prior to the start of construction, such as the following: • Any motor, engine, welding equipment, cutting torch, grinding device or equipment from which a spark, fire, or flame may originate shall not be used without first: (a) clearing away all flammable material for a distance of 10 feet, and (b) having on hand a round-point shovel with an overall length of not less than 46 inches and a fire extinguisher or water-filled backpack pump fully equipped and ready to use. This does not apply to	SCE shall submit documentation of this coordination to the CPUC and FS.	Coordination efforts will minimize the potential for wildfires.	Thirty (30) days prior to and during construction.

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	power saws and other portable tools powered by a gasoline-fueled internal combustion engine (see next bullet). • Any portable gasoline-powered tool (chainsaws, etc.) shall not be used within 25 feet of any flammable materials without providing one round-point shovel with an overall length of not less than 46 inches or a fire extinguisher having a minimum rating of 2-BC. The fire tools must be unobstructed and within 25 feet of the tool operation at all times. Motor vehicles shall not be parked or operated outside of cleared work areas except for the specific purpose of clearing vegetation.			
	PSU-1c Practice Safe Welding Procedures. SCE shall select a welding site that is free of native combustible material and/or clear the site of such material to minimize the fire hazard. All welding on supporting structures shall be performed during fabrication of the structures at the fabricator's yard, to the extent practicable.	CPUC and/or FS will monitor compliance.	Minimize presence of hazardous material at welding sites.	Prior to and during construction.
	PSU-1d Fire Preventive Construction Equipment Requirements. SCE shall meet the following requirements for gasoline, diesel, or other hydrocarbon fuel-powered equipment prior to construction: • The exhausts of all equipment powered by gasoline, diesel, or other hydrocarbon fuel shall be equipped with effective spark arrestors. • The spark arrestor shall be designed to prevent the escape from the exhaust of carbon or other flammable particles over 0.0232 inches. Motor trucks, truck tractors, buses, and passenger vehicles (except motorcycles) shall not be subject to this provision if their exhaust systems are equipped with mufflers. • All welding rigs shall be equipped with a minimum of one 20-pound or two 10-pound fire extinguishers, and a minimum of five gallons of water in a fire-fighting apparatus.	SCE shall submit documentation of compliance to the CPUC and FS.	Minimize potential fire hazard.	Prior to and during construction.
PSU-2: Temporary lane closures during the construction period would interfere with emergency response vehicles.	Mitigation Measure T-1a, below.	Refer to T-1a, below.	Refer to T-1a, below.	Refer to T-1a, below.
PSU-4: Utility systems would be temporarily disrupted during the construction period.	**PSU-4 Notification of Utility Service Interruption.** Prior to Project construction in which a utility service interruption is known to be unavoidable, SCE shall notify members of the public, the jurisdiction, and the service providers that would be affected by the planned outage by mail. SCE shall also publish notice in a newspaper of local jurisdiction. The notice shall specify the estimated duration of the planned outage, and shall be published no less than seven days prior to the outage. Copies of notices and	SCE shall submit copies of notices and dates of public notification to the CPUC and FS.	Coordination efforts will minimize disruption to public works maintenance yards.	Thirty (30) days prior to and during construction.

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Impact	Measure	Monitoring Requirement	Determination of Effectiveness	Timing of Action
	dates of public notification shall be provided by SCE to the CPUC and FS (NFS lands) no later than 30 days following notification.			
PSU-5: Public Works maintenance yards would be disrupted during the construction period.	**PSU-5 Notification of Public Service Interruption.** Prior to the start of construction activities that would restrict access to a maintenance yard, SCE shall notify the Los Angeles County Public Works Department of the service locations to be affected and the duration of restricted activities at each site, and coordinate in order to avoid multiple or extended disruptions. Documentation of coordination efforts shall be completed and submitted to the CPUC and FS (NFS lands) upon request.	• SCE shall notify the Los Angeles County Public Works Department of potential disruptions. • Documentation of coordination efforts shall be submitted to the CPUC and FS upon request.	Coordination efforts will minimize disruption to public works maintenance yards.	Prior to and during construction
PSU-9: The amount of waste material recycled during construction activities would not adhere to State standards.	**PSU-9 Recycle Construction Waste.** SCE shall recycle a minimum of 50 percent of the waste generated during construction activities along the entire Project route. Following the completion of construction activities, SCE shall submit documentation to the CPUC and FS verifying the recycling of 50 percent of generated Project waste.	Following the completion of construction activities, SCE shall submit documentation to the CPUC and FS verifying the recycling of 50 percent of generated Project waste.	Recycling efforts will adhere to State standards.	During and after construction.
Traffic and Transportation				
T-1: Closure of roads to through traffic or reduction of travel lanes would result in substantial congestion.	**T-1a Prepare Traffic Control Plans.** Prior to the start of construction, SCE shall submit Traffic Control Plans (TCPs) to all agencies with jurisdiction over public roads that would be affected by overhead construction activities as part of the required traffic encroachment permits. TCPs shall define the locations of all roads that would need to be temporarily closed due to construction activities, including aerial hauling by helicopter and conductor stringing activities. The TCPs shall define the use of flag persons, warning signs, lights, barricades, cones, etc. to provide safe work areas and to warn, control, protect, and expedite vehicular and pedestrian traffic. The measures included in the TCPs shall be consistent with the standard guidelines outlined in the Standard Specifications for Public Works Construction, the U.S. Department of Transportation's Manual on Uniform Traffic Control Devices (MUTCD), and the Work Area Traffic Control Handbook (WATCH). Copies of the TCPs shall be sent to the FS and to the planning/or traffic departments of the affected local jurisdictions at least 30 days prior to the start of construction. TCPs shall also include measures to avoid disruptions or delays in access for emergency service vehicles and to keep emergency service agencies fully informed of road closures, detours, and delays. Police departments, fire departments, ambulance services, and paramedic services shall be notified at least one month in advance by SCE of the proposed locations, nature, timing, and duration of any construction activities and advised of any access restrictions that could impact their effectiveness. Provisions shall be ready at all times to accommodate emergency vehicles, such as immediately	• SCE shall provide copies of the TCPs submitted to all agencies with jurisdiction over public roads to CPUC and FS for review. • SCE shall submit documentation of coordination with service providers (police, fire, ambulance, paramedics) to the CPUC and FS for review. • CPUC and/or FS will monitor compliance during construction.	Traffic on public roadways affected by construction activities remains generally free-flowing, as verified by the EM.	Prior to and during construction.

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Impact	Measure	Monitoring Requirement	Determination of Effectiveness	Timing of Action
	stopping work for emergency vehicle passage, short detours, and alternate routes developed in conjunction with local agencies. TCPs shall also identify all emergency service agencies, include contact information for those agencies, assign responsibility for notifying the service providers, and specify coordination procedures. Copies of the TCPs shall be provided to all affected police departments, fire departments, ambulance and paramedic services. Documentation of coordination with service providers shall be provided to the CPUC and FS 30 days prior to the start of construction.			
	T-1b Restrict Lane Closures. Prior to the start of construction, SCE shall submit TCPs to all agencies with jurisdiction over public roads that would be affected by overhead construction activities as part of the required traffic encroachment permits. TCPs shall define the locations of all roads that would need to be temporarily closed due to construction activities, including aerial hauling by helicopter and conductor stringing activities. The TCPs shall define the use of flag persons, warning signs, lights, barricades, cones, etc. to provide safe work areas and to warn, control, protect, and expedite vehicular and pedestrian traffic. The measures included in the TCPs shall be consistent with the standard guidelines outlined in the Caltrans Traffic Manual, the Standard Specifications for Public Works Construction, and the Work Area Traffic Control Handbook (WATCH). Copies of the TCPs shall be sent to the FS and to the planning/or traffic departments of the affected local jurisdictions at least 30 days prior to the start of construction. TCPs shall also include measures to avoid disruptions or delays in access for emergency service vehicles and to keep emergency service agencies fully informed of road closures, detours, and delays. Police departments, fire departments, ambulance services, and paramedic services shall be notified at least one month in advance by SCE of the proposed locations, nature, timing, and duration of any construction activities and advised of any access restrictions that could impact their effectiveness. Provisions shall be ready at all times to accommodate emergency vehicles, such as immediately stopping work for emergency vehicle passage, short detours, and alternate routes developed in conjunction with local agencies. TCPs shall also identify all emergency service agencies, include contact information for those agencies, assign responsibility for notifying the service providers, and specify coordination procedures. Copies of the TCPs shall be provided to all affected police departments, fire departments, ambulance and paramedic services. Documentation of coordination with service providers shall be provided to the CPUC and FS 30 days prior to the start of construction.	CPUC and/or FS will monitor compliance during construction.	Traffic on public roadways affected by construction activities remains generally free-flowing, as verified by the EM.	During construction.
T-2: Construction traffic	**T-2 Prepare Construction Transportation Plan.** Where construction	• SCE shall submit a Construction	Construction workers	Prior to and

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Impact	Measure	Monitoring Requirement	Determination of Effectiveness	Timing of Action
would result in congestion on area roadways.	traffic has the potential to significantly affect regional and local roadways by generating additional vehicle trips, SCE shall prepare a Construction Transportation Plan (CTP) describing alternate traffic routes, timing of commutes, reduction in crew-related traffic, and other mitigation methods for reducing construction-generated additional traffic on regional and local roadways. The CTP shall also require construction workers to park personal vehicles at primary and secondary marshalling yards and carpool to work locations in order to limit the number of construction vehicles on the road. Construction vehicles shall be required to park within the Project ROW or on access roads to the maximum extent possible. SCE shall submit the CTP to Caltrans and the affected local jurisdictions for review and approval at least 30 days prior to commencing construction activities.	Transportation Plan identifying carpooling opportunities (meeting locations, etc.) to the CPUC for review and approval. • CPUC and /or FS will monitor compliance during construction.	carpool to the project area, as verified by the EM.	during construction.
T-3: Construction activities could temporarily interfere with emergency response.	Mitigation Measures T-1a and T-1b, above.	Refer to T-1a and T-1b, above.	Refer to T-1a and T-1b, above.	Refer to T-1a and T-1b, above.
T-4: Construction activities could temporarily disrupt transit routes.	**T-4 Avoid Disruption of Bus Service.** SCE will coordinate with the Los Angeles Metropolitan Transit Authority, Foothill Transit, Pasadena Area Transit System, Montebello Municipal Bus Lines, Norwalk Transit District, and Omnitrans at least 30 days prior to construction in the respective service territory of each agency noted to reduce potential interruption of bus transit services. Documentation of coordination efforts shall be submitted to the CPUC upon request.	• SCE shall submit documentation to the CPUC and FS of coordination efforts with the transit services noted in the measure. • CPUC and/or FS will monitor compliance during construction.	Bus service is not disrupted as a result of the Project, as verified by the EM.	Thirty (30) days prior to and during construction.
T-5: Construction activities would cause a temporary disruption to rail traffic or operations.	**T-5 Obtain and Comply With Railroad Permits.** SCE shall obtain permits/approvals from each of the affected railway operators (Union Pacific Railroad, Metrolink, and/or Amtrak) to ensure construction activities comply with each company's safety requirements and to avoid disruption to or congestion of rail traffic. Copies of permits shall be submitted to the CPUC prior to construction across or adjacent to rail lines.	• SCE shall submit documentation to the CPUC and FS of coordination efforts with railway operators noted in the measure. • CPU and/or FS will monitor compliance during construction.	Rail service is not disrupted as a result of the Project, as verified by the EM.	Thirty (30) days prior to and during construction.
T-6: Construction activities could temporarily interfere with the use of pedestrian/bicycle paths.	**T-6 Ensure Pedestrian and Bicycle Circulation and Safety.** Where construction will result in temporary closures of sidewalks or other pedestrian facilities, SCE shall provide temporary pedestrian access, through detours or safe areas along the construction zone, where feasible. Where construction activity will result in bike route or bike path closures, appropriate detours shall be established, where feasible, and detour signs shall be posted. Detours and closures required for safe pedestrian and bicycle access through or around the construction area shall be identified in a circulation plan included in the TCP's required under Mitigation Measure T-1. All detours and related signage shall be consistent with the standard	• SCE shall provide temporary pedestrian or bicycle access where sidewalks or bike paths are closed due to construction. • CPUC and/or FS will monitor compliance during construction.	Pedestrian/bicycle paths are not disrupted or are adequately re-routed, as verified by the EM.	Prior to and during construction.

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Impact	Measure	Monitoring Requirement	Determination of Effectiveness	Timing of Action
	guidelines outlined in the U.S. Department of Transportation's Manual on Uniform Traffic Control Devices (MUTCD).			
T-7: Construction would result in localized shortages of public parking along the Project ROW.	Mitigation Measure T-2, above.	Refer to T-2, above.	Refer to T-2, above.	Refer to T-2, above.
T-8: Construction would conflict with planned transportation projects.	**T-8 Avoid Conflicts With Planned Transportation Improvements.** Prior to final Project design SCE shall coordinate Project design with the California Department of Transportation (District 6, District 7 and District 8), the Los Angeles County Metropolitan Transit Authority, and the traffic departments or public works departments of the counties of Kern, Los Angeles, and San Bernardino and the individual cities through which the proposed transmission route traverses, and to ensure that Project structures are appropriately placed to avoid conflict with any planned transportation projects.	• SCE shall submit documentation to the CPUC of coordination efforts with Caltrans and the Los Angeles County MTA. • CPUC will monitor compliance during construction.	No conflicts with planned improvements to SR-14, as verified by Caltrans.	Prior to and during construction
T-10: Project transmission structures could present an aviation hazard.	**T-10 Notify US Military.** SCE shall provide a complete copy of the Project application, including the general location of the entire project alignment and the heights of towers to be located within each segment of the proposed Project to the Range Sustainability Officer of the Naval Air Systems Command.	SCE shall submit proof of notification to the CPUC and FS.	Prevent aviation hazards.	Prior to construction.
T-11: Underground construction activities would temporarily restrict access to properties.	**T-11 Provide Continuous Access to Properties.** SCE shall provide at all times the ability to quickly lay a temporary steel plate trench bridge upon request to ensure driveway access to businesses, and shall provide continuous access to properties when not actively constructing the underground alignment. In the event that trench stability could be compromised by the laying of a temporary steel plate bridge during an early phase of trench construction, SCE may defer a request for access to the soonest possible time until the stability of the trench has been assured, provided SCE has provided 48-hour advance notification of the potential for disrupted access to any business that may experience such delayed access. The notification shall include information on restoring access and the estimated amount of time that access may be blocked. In addition, SCE shall develop construction plans that will minimize blocked access during the workday.	• SCE shall submit constructions plans and proof of notification to the CPUC and FS. • CPUC will monitor for compliance during construction.	• Avoid restricted access to private properties. • Provide notification in the event that access will be disrupted.	Prior to and during construction.
Visual Resources				
V-1: Temporary visibility of construction activities and equipment involved with the Project would	**V-1 Clean Up Staging Areas, Storage Areas, Marshalling Yards, Helicopter Staging Areas, Access And Spur Roads, and Structure Locations on a Regular Periodic Basis.** SCE shall keep construction-related operations areas clean and tidy by storing building materials and	CPUC and/or FS will monitor for compliance.	Avoid or minimize degradation of visual quality.	During construction.

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Impact	Measure	Monitoring Requirement	Determination of Effectiveness	Timing of Action
alter the landscape character and visual quality of landscape views.	equipment within the proposed construction staging areas and/or generally away from public view when feasible. SCE shall remove construction debris promptly at regular intervals. For areas of non-NFS lands where cleared vegetation would be visible from sensitive viewing locations, SCE shall dispose of cleared vegetation and woody material in a manner that is not visually evident and does not create visual contrasts. For NFS lands, in areas where cleared vegetation would be visible from sensitive viewing locations, SCE shall dispose of cleared vegetation and woody material off-site (not necessarily off-NFS lands), or the cleared vegetation shall be chipped and stored for restoration work, as approved by the FS, and in a manner that is not visually evident and does not create visual contrasts.			
V-2: For a landscape that currently has no transmission lines, introduction of a new transmission line in a new ROW would adversely affect landscape character and visual quality.	Mitigation Measure V-1, above.	Refer to V-1, above.	Refer to V-1, above.	Refer to V-1, above.
	V-2a Use Tubular Steel Poles Instead of Lattice Steel Towers in Designated Areas. Where feasible, SCE shall use tubular steel poles, rather than lattice steel towers, in locations designated by the CPUC to reduce visual impacts as seen from sensitive receptor locations and/or to match existing and/or future wind turbine generator monopoles and/or to accomplish community desires. SCE shall submit a Structure Type and Treatment Plan to the CPUC as soon as possible after Project approval, demonstrating compliance with this.	• SCE shall submit a Structure Type and Treatment Plan for the lattice steel towers, tubular steel poles, and any other visible structures to the CPUC, as applicable, for review and approval. • CPUC and/or FS will monitor compliance during construction.	Views of the new transmission line will be less prominent.	Prior to and during construction.
	V-2b Treat Surfaces With Appropriate Colors, Textures, and Finishes. For all structures that are visible from sensitive viewing locations outside NFS lands, and for all NFS lands, SCE shall treat surfaces with appropriate galvanizing treatments, per APM AES-1, to most effectively blend the structures with the visible backdrop landscape, as determined by the CPUC (for non-NFS lands) and the FS (for NFS lands). For structures that are visible from more than one sensitive viewing location, if backdrops are substantially different when viewed from different vantage points, the darker color shall be selected, because dark colors tend to blend into landscape backdrops more effectively than lighter colors, which may contrast and reflect light, producing glare. At locations where a lattice steel tower or a tubular steel pole would be silhouetted against the skyline, non-reflective, light gray colors shall be selected to blend with the sky. The transmission line conductors shall be non-specular and non-reflective, per APM AES-4, and the insulators shall be non-reflective and non-refractive, per APM AES-3. SCE shall consult with the CPUC and the FS to ensure that the objectives of this measure are achieved. SCE shall submit a Structure Type and Treatment Plan for the lattice steel towers, tubular steel poles, conductors,	CPUC and/or FS will monitor compliance during construction.	Views of the new transmission line will be less prominent.	Prior to and during construction.

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	insulators, substation structures, fences/walls, retaining walls, and any other visible structures, to the CPUC and FS, as appropriate, after Project approval, demonstrating compliance with this measure.			
	V-2c Establish Permanent Screen. At Vincent Substation, SCE shall establish a permanent screen of sufficient height for immediate visual screening around the new expansion area of Vincent Substation. Plant materials selected for screening shall be locally appropriate, wind-resistant, non-invasive, and acclimated to the particular environment and micro-climate. Other screening materials shall blend in with the local landscape. SCE shall consult with the CPUC to ensure that the objectives of this measure are achieved. SCE shall submit a landscaping plan for Vincent Substation that demonstrates compliance with this measure to the CPUC for review and approval at least 60 days prior to the start of construction at this substation.	• At least 60 days prior to construction at the Vincent Substation, SCE shall submit a landscaping plan to the CPUC for review and approval. • CPUC and/or FS will monitor compliance during construction.	Views of the substation will be partially screened by specific plantings.	Sixty (60) days prior to and during construction.
	V-2d At Road Crossings, Structures Should be Offset so That They are Equidistant on Each Side of the Road Where Feasible. To the extent practical, in locations designated by the CPUC and the FS (for NFS lands), SCE shall relocate new transmission line structures at road crossings and trail crossings so that conductors are approximately mid-span at the road or trail and structures are kept away from the roadway or trail as far as possible. V-2d is compatible and complementary to APM AES-6 (Transmission Structures Set Back from Major Roadways).	SCE shall coordinate with the CPUC and FS to determine where structures should be offset.	Minimize visual complexity from sensitive receptor locations.	Prior to and during construction.
V-3: For a landscape with an existing transmission line, increased structure size and new materials would result in adverse visual effects.	Mitigation Measures V-1, V-2a through V-2c, V-2d, V-4b and V-4d, above/below.	Refer to V-1, V-2a through V-2c, V-2d, V-4b and V-4d, above/below.	Refer to V-1, V-2a through V-2c, V-2d, V-4b and V-4d, above/below.	Refer to V-1, V-2a through V-2c, V-2d , V-4b and V-4d, above/below.
	V-3a Match Spans of Existing Transmission Structures. If the new Project components are adjacent to an existing transmission line, SCE shall, where feasible, match existing structure spacing and spans as closely as possible in order to reduce visual complexity as seen from sensitive receptor locations. All new structures should also match the heights of existing transmission line structures to the extent possible as dictated by variation in terrain and kV-capacity of lines.	• SCE will submit a Structure Span and Spacing Plan, including construction drawings detailing structure locations, spacing, and spans to the CPUC and FS for review and approval. • CPUC and/or FS will monitor compliance during construction.	The number of off-set tower placements is reduced and/or avoided to minimize visual complexity.	Prior to and during construction.
	V-3b On NFS Lands, Provide Restoration/Compensation for Impacts to Landscape Character And Visual Quality. All reasonable efforts shall be made to meet the Scenic Integrity Objectives (SIOs) shown on the SIO Map in the ANF Land Management Plan. SIO adjustments that exceed a drop of more than one SIO level would require a Project-specific amendment to Forest Plan (Part 3) Standards S9 and S10. In order to compensate for the Project's long-term visual impacts to the landscape character and visual	• SCE shall submit a Landscape Restoration/Compensation Plan to the CPUC and FS for review and approval. • CPUC and/or FS will monitor for compliance.	Minimize impacts to landscape character and visual quality.	Sixty (60) days prior to and during construction.

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Impact	Measure	Monitoring Requirement	Determination of Effectiveness	Timing of Action
	quality, including but not limited to impacts to landscape character and visual quality of scenic highway and scenic trail viewsheds, SCE and the Forest Supervisor shall reach a consensus on what is a commensurate amount of restoration, monetary compensation, or landscape character/visual quality improvement.			
V-4: Vegetative clearing and/or earthwork associated with road improvements and pulling/splicing locations would adversely affect landscape character and visual quality.	**V-4a Construct, Operate, and Maintain the Project Using Existing Access and Spur Roads Where Feasible.** For non-NFS lands and in locations designated by the CPUC, to protect landscape character and promote visual quality, SCE shall remove existing transmission line towers and conductors using existing and already maintained access roads and spur roads, and shall construct the new transmission line using the existing and already maintained network of access roads and spur roads to the greatest practical extent. SCE shall submit plans for any new access roads and spur roads, and any maintenance plans for un-maintained access and spur roads, demonstrating compliance with this measure, to the CPUC for review and approval at least 60 days prior to the start of construction. For NFS lands, to protect landscape character and promote visual quality, SCE shall use only those access roads and spur roads designated by the FS for that purpose. For the new LST at Mill Creek Summit, SCE shall maintain vegetative screening as seen from the PCT, trailhead, and PCT feeder trail to the extent feasible and practical and as GO-95 allows. In an effort to protect the scenic integrity along the PCT, SCE and the FS have agreed that for the new LST at Mill Creek Summit, the existing vegetation around this tower and along the PCT, for the most part, shall not be cleared and will be preserved to the greatest degree possible without violating GO-95 Rule 35. The only sections that should be cleared of vegetation for operation and maintenance at this specific tower site is the area directly underneath the base of the new tower and the immediate space adjacent to FS Road 3N17 and the new tower (STR 34 M7-T2).	• SCE shall submit plans and construction drawings for access roads and spur roads to the CPUC and other affected agencies for review and approval. • CPUC and/or FS will monitor compliance during construction.	Views of new access and spur roads will be less prominent.	Sixty (60) days prior to and during construction.
	V-4b Slope-Round and Re-Contour in Areas as Prescribed. For areas of non-NFS lands where natural terrain includes rounded landforms, where soil types are conducive, and where cuts-and-fills and excavated materials would be visible from sensitive viewing locations, SCE shall employ slope-rounding techniques to blend earthwork with natural contours where feasible. Greater land area would be disturbed by this measure, possibly increasing exposure to soil erosion and possibly causing more vegetation disturbance, but the goal of this measure is a permanent landform that is natural-appearing in the long-term and may be more conducive to wildlife movement. During and following re-contouring, applicable mitigation	• SCE shall submit an excavation plan to the CPUC for review and approval. • CPUC will monitor compliance during construction.	Views of excavated materials will be less prominent.	Sixty (60) days prior to and during construction.

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	measures of the other issue area sections shall be applied, including biological resources, cultural resources, geology and soils, hydrology and water resources, wilderness and recreation, land use, and possibly agricultural resources. SCE shall submit plans for proposed new, upgraded, or newly maintained access roads and spur roads or structure pads to the CPUC for approval at least 60 days prior to construction.			
	V-4c Avoid Locating New Roads in Bedrock on NFS Lands. Where feasible, re-opened and/or new access road and spur road locations on NFS lands shall be designed to avoid bedrock cuts, and shall be located in soil material to protect landscape character, ensure revegetation opportunities, and promote visual quality. SCE shall submit road construction plans to the CPUC and FS for review and approval at least 60 days prior to the start of construction.	SCE shall submit road construction plans to the CPUC and FS, as applicable, for review and approval.	Designs will avoid bedrock cuts and protect landscape character.	Sixty (60) days prior to and during construction.
	V-4d Dispose of Excavated Materials as Prescribed. For non-NFS lands, SCE shall dispose of excavated materials (soil, rocks, and concrete, and reinforcing steel) in a manner that is not visually evident and does not create visual contrasts. For NFS lands, SCE shall dispose of excavated materials (excess soil and rocks) in disposal areas (either on-NFS lands or off-NFS lands) as designated by the FS. For NFS lands, the FS will designate whether any footings from existing transmission structures need to be removed. Any designated footings designated for removal (concrete, reinforcing steel, angle steel, anchor bolts, etc.) shall be disposed off-NFS lands in disposal areas that do not create visual contrasts. These sites shall be pre-approved by the CPUC and FS.	• SCE shall submit an excavation plan to the CPUC and FS, as applicable, for review and approval. • CPUC and/or FS will monitor compliance during construction.	Views of excavated materials will be less prominent.	Sixty (60) days prior to and during construction.
V-5: New metal surfaces associated with transmission infrastructure would potentially reflect sunlight and produce glint and glare in certain lighting conditions.	Mitigation Measure V-2b, above.	Refer to V-2b, above.	Refer to V-2b, above.	Refer to V-2b, above.
V-6: The Project would contribute to the long-term loss or degradation of a scenic highway viewshed or a scenic trail viewshed.	Mitigation Measure V-3b, above.	Refer to V-3b, above.	Refer to V-3b, above.	Refer to V-3b, above.
V-7: The Project would conflict with established	Mitigation Measure V-3b, above.	Refer to V-3b, above.	Refer to V-3b, above.	Refer to V-3b, above.

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Impact	Measure	Monitoring Requirement	Determination of Effectiveness	Timing of Action
visual resource management plans or landscape conservation plans.				
Wilderness and Recreation				
R-1: Construction activities would restrict access to or disrupt activities within established recreational areas.	**R-1a Coordinate Construction Schedule and Maintenance Activities With Managing Officer(s) for Affected Recreation Areas.** SCE shall develop the Project construction schedule and coordinate construction with the authorized officer(s) or the agencies of all recreational areas affected by Project construction,including but not limited to the following: FS (ANF); U.S. Army Corps of Engineers (USACE); California Department of Fish and Game (CDFG); Pacific Crest Trail Association (PCTA); California State Park and Recreation Commission; California Department of Parks and Recreation; Kern County Department of Parks and Recreation; Los Angeles County Department of Parks and Recreation; San Bernardino County Regional Parks; Puente Hills Landfill Native Habitat Preservation Authority (Habitat Authority); Watershed Conservation Authority (WCA); and San Gabriel and Lower Los Angeles Rivers and Mountains Conservancy (RMC). Through coordination efforts with the agencies listed above as well as any additional agencies that manage recreational resources which would be affected by the Project, SCE shall ensure the following occurs unless otherwise approved by the affected agencies: • Construction and maintenance activities are scheduled to avoid heavy recreational use periods (including major holidays) to the maximum extent feasible, with the understanding that such efforts may not always be feasible; • Staging areas for Project-related equipment, materials, and vehicles are located in areas with least possible effect on recreational activities and opportunities; and • Timetables for the required period of usage of each staging area are developed and adhered to in coordination with all affected resource agencies. In addition to coordination of construction activities, SCE shall also coordinate maintenance activities with the FS and the USACE, as applicable, when such activities occur on federal lands. SCE and the presiding federal agency will need to determine what type of maintenance activities require prior approval, versus those that may be conducted on a routine basis without additional coordination. All Project activities on federal lands are subject to the approval of the presiding federal agency (FS or	• SCE shall submit documentation to the CPUC describing the coordination efforts with the authorized officer(s) of each affected agency. • CPUC and/or FS will monitor compliance during construction.	Few if any complaints are received from recreationists regarding preclusion of established recreational areas in the Project area.	Thirty (30) days prior to and during construction.

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	USACE). The purpose of this requirement is to ensure that the FS and USACE are aware of any maintenance activities on federal lands that are more intensive than what is considered routine. SCE shall document its coordination and provide this documentation to the CPUC and the FS no less than 30 days prior to the onset of construction activities.			
	R-1b Identify and Provide Noticing of Alternative Recreation Areas. SCE shall coordinate with the authorized recreation officer(s) or the agencies of all recreational areas affected by Project activities described under Mitigation Measure R-1a (Coordinate construction schedule and maintenance activities with managing officer(s) for affected recreation areas), the purpose of which is to accomplish the following: • Identify recreational areas (i.e., trails, parks, day-use areas) that would be closed during Project construction or maintenance activities; • To the extent feasible, identify alternative recreational areas for each resource that would be made unavailable to the public due to Project construction or maintenance activities; and • Post a public notice which identifies alternative recreational areas at FS Ranger Stations within the ANF and at all recreational areas to be closed due to Project construction or maintenance activities. SCE shall document these coordination efforts to identify and provide noticing of alternative recreational areas and submit this documentation to the CPUC and the FS no less than 30 days prior to construction activities that would occur within one-half mile of wilderness or recreation areas that would be affected by such activities.	• SCE shall submit documentation to the CPUC and FS describing the coordination efforts to identify alternative recreation sites/facilities with the authorized officer(s) of the each agency listed in Mitigation Measure R-1b. • CPUC and/or FS will monitor compliance during construction, including verification of public notice postings.	Alternate recreational areas are available to the public during construction, as verified by the EM.	Thirty (30) days prior to and during construction.
	R-1c Notification of Temporary Closure of OHV Routes. SCE shall coordinate with the FS (ANF) to identify all Operational Maintenance Level (OML) 2 roads and other designated off-highway vehicle (OHV) routes which would be closed or otherwise made unavailable for use as a result of Project construction and/or maintenance activities. Included in this coordination effort, SCE shall prepare a public notice which identifies all OML 2 roads and OHV routes to be closed as a result of Project construction and/or maintenance activities and shall comply with the following: • Distribute the public notice to relevant FS Ranger Stations within the ANF; • Publish the public notice in local newspapers which service communities bordering the ANF; • Publish updated notices in local newspapers if any significant changes in	• SCE shall submit proof of public notices and documentation of coordination efforts to the CPUC and FS. • CPUC and/or FS will monitor compliance.	Minimize disruption to OHV activities.	Thirty (30) days prior to and during construction.

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	scheduling occur; and • Maintain public notices and postings throughout the OML 2 road / OHV route closure period. SCE shall document these coordination efforts related to OML 2 road / OHV route closures and submit this documentation to the CPUC and FS no less than 30 days prior to construction activities that would affect OHV routes.			
	R-1d Notification of Temporary Closure and Reroute of the Pacific Crest National Scenic Trail (PCT). SCE shall coordinate with the FS and with the Pacific Crest Trail Association (PCTA) regarding temporary closure of the PCT that would occur during Project construction and maintenance activities. The following shall be included in this coordination effort: • SCE and the PCTA shall identify trail diversions to be applied at each point where the PCT would be temporarily closed to through-traffic as a result of Project construction and maintenance activities; and • SCE shall post public notices of temporary closures/diversions of the PCT at FS Ranger Stations within the ANF and at additional locations determined to be appropriate by the PCTA. The public notice shall provide information on temporary trail reroutes that would be implemented during construction and maintenance activities as well as the time period for implementation of such reroutes. SCE shall document these coordination efforts, including the location of all posted notices, and submit this documentation to the CPUC and the FS for approval no less than 30 days prior to construction activities that would occur within one-half mile of the PCT.	• SCE shall submit proof of public notices and documentation of coordination efforts to the CPUC and FS. • CPUC and/or FS will monitor compliance.	Minimize disruption to PCT uses and activities.	Thirty (30) days prior to and during construction.
	R-1e SCE Shall Compensate ANF for Lost Income from Adventure Pass Sales Due to Recreation Area Closures Associated With the Project. Prior to the onset of Project construction in the ANF, SCE shall coordinate with the FS to identify recreational resources on NFS lands in the ANF that would be temporarily closed as a direct result of Project construction. A resource is only considered to be closed directly as a result of Project construction if the resource is made entirely inaccessible to the public as a sole result of Project activities; in other words, no other factors contribute to the resource's inaccessibility. SCE shall coordinate with the FS in reviewing financial records of the Adventure Pass program as well as recreational use data for the ANF, in order to determine a compensation amount comparable to the direct impacts of the Project.	SCE shall identify and assist the FS in completing the backlogged maintenance.	Minimize disruption to recreational resources.	Prior to construction.
R-2: Operation and maintenance activities would restrict access to or disrupt activities	Mitigation Measure R-1a through R-1d, above.	Refer to R-1a through R-1d, above.	Refer to R-1a through R-1d, above.	Refer to R-1a through R-1d, above.

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within established recreational areas.				
R-4: The Project would cause or contribute to degradation of the Pacific Crest National Scenic Trail.	Mitigation Measure R-1a, R-1d, and R-1e above.	Refer to R-1a, R-1d, and R-1e, above.	Refer to R-1a, R-1d, and R-1e, above.	Refer to R-1a, R-1d, and R-1e, above.
R-5: The Project would contribute to degradation of Off-Highway Vehicle (OHV) trails or Open Riding Areas, or would result in a loss of recreational opportunity for OHV users.	**R-5 Avoid Permanent Upgrades to Forest System Roads.** SCE shall avoid the permanent upgrade of Forest System roads as a result of Project construction or operation and maintenance activities unless otherwise approved by the FS. Any road upgrades that are required to accommodate construction of the Project shall be temporary in nature. Following construction of the Project, existing OML standards designated for any temporarily improved roads shall be adhered to, thereby returning improved roads to existing maintenance practices, unless otherwise authorized by the FS. As determined to be necessary through coordination between SCE and the FS and at the discretion of the FS, SCE shall develop a plan for returning improved Forest System roads to existing conditions. SCE shall implement the restrictions for road improvements and maintenance set forth in the Special Use or Road Use Authorization to be issued by the FS for the Project.	• If necessary, SCE shall develop a plan for returning improved Forest System roads to existing conditions. • CPUC and/or FS will monitor compliance.	Minimize impacts to OHV trails.	Prior to and during construction.
R-6: The Project would facilitate unmanaged recreational uses that would contribute to the long-term loss or degradation of recreational opportunities.	Mitigation Measure R-5, above.	Refer to R-5, above.	Refer to R-5, above.	Refer to R-5, above.
Wildfire Prevention and Suppression				
F-1: Construction and/or maintenance activities would reduce the effectiveness of firefighting.	**F-1 Prepare Wildland Traffic Control Plans.** SCE shall develop wildland traffic control plans in consultation with the FS and Puente Hills Landfill Natural Habitat Preservation Authority (PHLNHPA), as appropriate. The wildland traffic control plans shall stipulate mechanisms through which narrow roads shall be kept passable for emergency service providers in a wildfire-related or other emergency situation. SCE shall appoint a Road Master, who shall administer the wildland traffic control plans and facilitate emergency vehicle access in the event of a wildfire-related or other emergency. The wildland traffic control plans shall identify strategic locations	• SCE shall submit the wildland traffic control plans to the FS and PHLNHPA. • CPUC and/or FS will monitor compliance during construction.	Minimize potential for interference with firefighting activities.	Thirty (30) days prior to and during construction.

Table A.1-2. Mitigation Monitoring Program

Impact	Measure	Monitoring Requirement	Determination of Effectiveness	Timing of Action
	for adequate construction and maintenance vehicle parking, as necessary, in consultation with the land management agency, and alternate routes for large equipment and vehicle evacuation shall be identified to the extent possible. Wildland traffic control plans shall be prepared in consultation with the land management agencies for both construction and maintenance activities and shall be submitted to the FS and PHLNHPA at least 30 days prior to construction in areas managed by thee agencies.			
F-3: Construction and/or maintenance activities would increase the risk of wildfire.	**F-3a Revise SCE's Fire Management Plan for Maintenance Activities.** SCE's Fire Management Plan shall be revised to be applicable to Project maintenance activities located off NFS lands. All provisions of the Plan that are applicable to construction crews and activities shall be made applicable to maintenance crews and activities. The revised Plan shall be submitted to the CPUC and FS for review at least 60 days prior to construction.	SCE shall submit the revised Plan to the CPUC and FS for review and approval.	Minimize risk of wildfire during maintenance activities.	Sixty (60) days prior to construction, and during operation and maintenance.
	F-3b Cease Work During Red Flag Warning Events. During Red Flag Warning events, as issued daily by the National Weather Service in State Responsibility Areas (SRA) and Local Responsibility Areas (LRA), all non-emergency construction and maintenance activities off NFS lands shall cease in affected areas. An exception shall be made for transmission line maintenance and testing activities required to maintain accordance with NERC Reliability Standards. All maintenance and testing activities shall employ fire-safe practices as required by the Fire Management Plan (APM HAZ-4 as modified by Mitigation Measure F-3a).	CPUC and/or FS shall monitor compliance.	Minimize risk of wildfire.	During construction and operation.
	F-3c Ensure Open Communication Pathways. All construction crews and inspectors shall be provided with radio and cellular telephone access that is operational along the entire length of the approved route to allow for immediate reporting of fires. Communication pathways and equipment shall be tested and confirmed operational each day prior to initiating construction activities at each construction site. All fires shall be reported to the fire agencies with jurisdiction in the Project area immediately upon ignition. Each crew member shall carry at all times a laminated card listing pertinent telephone numbers for reporting fires and defining immediate steps to take if a fire starts. Information on contact cards shall be updated and redistributed to all construction crew-members, as needed, prior to the initiation of construction activities and on the day the information change goes into effect. Outdated cards shall be destroyed.	• A laminated card with emergency contact names and numbers shall be submitted to the CPUC and FS for review and approval. • CPUC and/or FS will monitor compliance.	Minimize risk of the spread of wildfires.	Thirty (30) days prior to construction, and during construction.
	F-3d Remove Hazards from the Work Area. SCE shall clear dead and decaying vegetation from the work area prior to starting construction and/or maintenance work. The work area includes only those areas where personnel are active or where equipment is in use or stored, and may include portions of the transmission ROW, construction laydown areas, pull	CPUC and/or FS will monitor compliance.	Removal of potential fire hazards will reduce the risk of wildfire.	Prior to and during construction and maintenance.

Table A.1-2. Mitigation Monitoring Program

Impact	Measure	Monitoring Requirement	Determination of Effectiveness	Timing of Action
	sites, access roads, parking pads, and any other sites adjacent to the ROW where personnel are active or where equipment is in use or stored. Cleared dead and decaying vegetation shall either be removed or chipped and spread onsite in piles no higher than six (6) inches.			
	F-3e Comply With Non-Smoking Policy on PHLNHPA Lands. SCE and contractor personnel shall comply with the non-smoking policy on PHLNHPA lands during construction and maintenance activities, and this commitment shall be written into SCE's Fire Management Plan for construction and maintenance.	CPUC, FS and SCE will monitor compliance.	Eliminate potential for wildfire due to smoking.	During construction and maintenance.
	F-3f Share Costs for ANF Fuelbreak Maintenance. SCE shall enter into a cost-sharing agreement with the FS for maintenance of the existing system of fuelbreaks. Cost-sharing for fuelbreak maintenance shall be required for backbone fuelbreaks in close proximity to the Project or that transect the path of the Project. A backbone fuelbreak is an identified key ridge or other linear geographical feature that has a high level of effectiveness in slowing or containing a wildfire. Backbone fuelbreaks in the vicinity of the Project include: Santa Clara Divide, Mill Creek, Flintridge, Clear Creek, Millard, Brown Mountain, Clamshell, Santa Anita Dam, Chantry and Monrovia (a.k.a. Redbox/Rincon). SCE's responsibility under the cost-sharing agreement would be proportional to the Project's potential impacts on wildfire prevention and suppression.	SCE shall submit a proposal for the cost-sharing agreement to the FS for review and approval.	Efficient fuelbreak maintenance.	Sixty (60) days prior to construction.
	F-3g Provide Transmission Line Safety Training to ANF Staff. SCE shall provide transmission line safety training to FS (ANF) staff prior to the start of the official fire season on an annual basis.	• SCE shall establish and conduct training sessions annually. • An outline of the program will be provided to the FS for review and approval. • Completed sign-in sheet(s) with date, name, and signature of attendees will be provided to the FS.	Efficient fuelbreak maintenance.	Annually, prior to fire season and prior to construction.
F-4: Construction and/or maintenance activities would increase the risk of personnel injury or death in the event of fire.	Mitigation Measure F-3b, above.	Refer to F-3b, above.	Refer to F-3b, above.	Refer to F-3b, above.
	F-4 Prepare and Implement Emergency Evacuation Plan. SCE shall prepare an Emergency Evacuation Plan to ensure the safe and expedient ground-based evacuation of personnel in the event of an uncontrolled fire in the Project area, including addressing the Tujunga Creek bridge area. The Plan shall make explicit the following elements: a schedule of the locations of all personnel during the fire season, conditions under which to evacuate, chain of command, communications with ANF Emergency Operations Center, and identification of evacuation routes. An emergency evacuation	• SCE shall submit the Emergency Evacuation Plan to the FS and PHLNHPA. • The FS and PHLNHPA shall monitor compliance.	Ensure safe and expedient evacuation in the event of an emergency.	Thirty (30) days prior to and during construction.

Table A.1-2. Mitigation Monitoring Program

Impact	Measure	Monitoring Requirement	Determination of Effectiveness	Timing of Action
	officer shall be appointed to educate personnel about emergency evacuation routes prior to each day's construction activities, to carry out the Plan in the event that an evacuation order is issued or that a nearby uncontrolled fire threatens personnel safety, and to update the plan should access conditions change. The Emergency Evacuation Plan shall be submitted to the FS and PHLNHPA, as appropriate, for review and comment at least 30 days prior to Project construction.			
F-6: Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread.	Mitigation Measure B-3a, above.	Refer to B-3a, above.	Refer to B-3a, above.	Refer to B-3a, above.
Electrical Interference and Hazards				
EIH-1: The Project would cause radio, television, communications, or electronic equipment interference.	**EIH-1a Limit the Conductor Surface Electric Gradient.** As part of the design and construction process for the Project, SCE shall limit the conductor surface electric gradient in accordance with the Institute of Electrical and Electronic Engineers Radio Noise Design Guide.	SCE shall submit the design and construction process to the CPUC for review and approval.	Minimize electrical interference.	Prior to construction.
	EIH-1b Document and Resolve Electronic Interference Complaints. After energizing the transmission line, SCE shall respond to, document, and resolve radio/television/electronic equipment interference complaints received. These records shall be made available to the CPUC for review upon request. All unresolved disputes shall be referred by SCE to the CPUC for resolution.	Complaints and SCE's response to complaints shall be documented and available to the CPUC for review.	Resolve issues related to electrical interference.	During operation.
EIH-2: The Project would cause induced currents and shock hazards in joint use corridors.	**EIH-2 Implement Grounding Measures.** As part of the siting and construction process for the Project, SCE shall identify objects (such as fences, metal buildings, and pipelines) within and near the ROW that have the potential for induced voltages and shall implement electrical grounding of metallic objects in accordance with SCE's standards. The identification of objects shall document the threshold electric field strength and metallic object size at which grounding becomes necessary. SCE shall install all necessary grounding measures prior to energizing the transmission lines. Thirty days prior to energizing the lines, SCE shall notify in writing, subject to the review and approval of the CPUC, all property owners within and adjacent to the Project ROW of the date the line is to be energized. The written notice shall provide a contact person and telephone number for answering questions regarding the line and guidelines on what activities should be limited or restricted within the ROW. SCE shall respond to and document complaints received and the responsive action taken. These	• SCE shall submit documentation regarding grounding measures. • SCE shall submit proof of public notices to the CPUC. • Complaints and SCE's response to complaints shall be documented and available to the CPUC for review. • CPUC will monitor compliance during construction.	• Minimize potential for shock hazards. • Property owners are notified.	Thirty (30) days prior to construction, during construction, and prior to operation.

Table A.1-2. Mitigation Monitoring Program

Impact	Measure	Monitoring Requirement	Determination of Effectiveness	Timing of Action
	records shall be made available to the CPUC for review upon request. All unresolved disputes shall be deferred by SCE to the CPUC for resolution. The written notice shall describe the nature and operation of the lines, and SCE's responsibilities with respect to grounding all conducting objects. In addition, the notice shall describe the property owner's responsibilities with respect to notification for any new objects, which may require grounding and guidelines for maintaining the safety of the ROW.			

Table A.1-3. Monitoring Plan for Applicant-Proposed Measures

Applicable Impact(s)	Measure	Monitoring Requirement	Effectiveness Criteria	Timing of Action
Agricultural Resources				
AG-1, AG-3, AG-4 (Refer to Table A.1-2 above for full impact titles)	**APM AG-1: Coordinate with Landowner.** Prior to construction and as a part of acquisition of new easements on agricultural lands, SCE would coordinate with agricultural landowners and identify feasible site-specific measures to minimize impacts to ongoing agricultural operations, including, but not limited to, financial consideration for crop loss. General measures that would be implemented to the extent feasible are detailed below.	• SCE shall provide documentation of coordination efforts with property owners) impacted by the Project and will be submitted to the CPUC for review. • CPUC shall monitor compliance during construction.	Interference with agricultural operations would be limited or avoided.	Thirty (30) days prior to and during construction.
AG-1, AG-3, AG-4	**APM AG-2: Locate Project Activities to Minimize Impacts to Active Agricultural Operations.** For example, to the extent practical, SCE would: • Locate new towers adjacent to existing towers in order to consolidate obstructions to the movement of agricultural machinery • Locate access roads, spur roads, staging areas, and pulling/splicing locations in areas that minimize impacts to agricultural operations • Minimize removal of perennial crops	CPUC shall monitor compliance during construction.	Interference with agricultural operations would be limited or avoided.	Prior to and during construction
AG-1, AG-3	**APM AG-3: Avoid Harvest Season.** To the extent feasible, construction in agricultural fields would be scheduled after the end of harvest season.	CPUC shall monitor compliance during construction.	Interference with agricultural operations would be limited or avoided.	Prior to and during construction.
Air Quality				
Applicable impacts not identified in Section 3.3 (Air Quality)	**APM AQ-1:** Use low sulfur fuel (e.g., <15ppm).	SCE will provide records of fuel purchases to the CPUC upon request.	NOx emissions are reduced.	Prior to and during construction.
	APM AQ-2: Use of clean burning on-road and off-road diesel engines. Where feasible, heavy-duty diesel powered construction equipment manufactured after 1996 (with federally-mandated "clean" diesel engines) would be utilized (see Mitigation Measure AQ-1b).	SCE or its construction contractor will submit a list of diesel-fueled on-road and off-road equipment to the CPUC prior to construction indicating compliance.	NOx, VOC, and SO2 emissions are reduced.	Prior to and during construction.
	APM AQ-3: Construction workers will carpool when possible (see proposed Mitigation Measure AQ-1a and AQ-1c).	• As part of the Construction Transportation Plan (see Mitigation Measure T-2), SCE will identify carpooling opportunities (meeting locations, etc.). • CPUC and/or FS will monitor compliance during construction.	Minimize traffic congestion, thereby minimizing emissions.	Prior to and during construction.

Table A.1-3. Monitoring Plan for Applicant-Proposed Measures

Applicable Impact(s)	Measure	Monitoring Requirement	Effectiveness Criteria	Timing of Action
	APM AQ-4: Restrict vehicle idling time to less than 10 minutes whenever possible (see proposed Mitigation Measure AQ-1g).	CPUC and/or FS will monitor compliance at construction areas.	NOx emissions are reduced.	During construction.
	APM AQ-5: Properly maintain mechanical equipment (see proposed Mitigation Measure AQ-1f).	SCE shall provide maintenance records to the CPUC upon request.	Mechanical equipment is properly maintained, which reduces NOx emissions.	During construction.
	APM AQ-6: Use particle traps and other appropriate controls to reduce diesel particulate matter (DPM) where possible. Utilize equipment such as specialized catalytic converters (oxidation catalysts) to control approximately 20 percent of DPM, 40 percent of carbon monoxide, and 50 percent of hydrocarbon emissions (see proposed Mitigation Measure AQ-1b).	SCE shall provide maintenance records to the CPUC upon request.	Mechanical equipment is properly maintained, which reduces NOx emissions.	Prior to and during construction.
	APM AQ-7: Implement feasible fugitive dust control measures as provided in KCAPCD's Rule 402 and AVAQMD and SCAQMD Rule 403 (see proposed Mitigation Measure AQ-1a).	• SCE shall submit a construction FDECP to the CPUC and FS for review and approval. • SCE shall incorporate the requirements of the FDECP into the plans and specifications, and require compliance by the construction contractor. • CPUC will monitor compliance at construction areas.	• Fugitive dust (PM10) emissions are reduced. • Effectiveness can be determined by monitoring implementation of the control measures detailed in the FDECP.	Prior to and during construction.
	APM AQ-8: As feasible, restrict construction operations during the morning hours and during high wind events when NOX emissions are more likely to contribute to O3 formation (see proposed Mitigation Measure AQ-1a).	CPUC and/or FS will monitor compliance at construction areas.	NOx emissions are reduced.	During construction.
	APM AQ-9: Efficiently schedule staff and daily construction activities to minimize the use of unnecessary/duplicate equipment when possible (see proposed Mitigation Measure AQ-1c).	CPUC and/or FS will monitor compliance at construction areas.	NOx emissions are reduced.	During construction.
Biological Resources				
B-1, B-4, B-5, B-7, B-8, B-15, B-22, B-23, B-24, B-25, B-26, B-27, B-33, B-35, B-36, B-37, B-38, B-39, B-40	**APM BIO-1: Pre-Construction Surveys.** Pre-construction biological clearance surveys would be performed to minimize impacts on special-status plants or wildlife species.	• SCE will submit documentation providing the results of pre-construction surveys to the CPUC and FS for impacted areas. • CPUC and/or FS will review and approve the identification, mapping, and flagging of listed and sensitive plant species, as well as modification to the design for relocation of roads, laydown areas, towers, and other	• Minimize disturbance to special-status plants and wildlife species, as verified by the EM. • Effectiveness can be determined by monitoring implementation of the control measures.	Prior to construction.

Table A.1-3. Monitoring Plan for Applicant-Proposed Measures

Applicable Impact(s)	Measure	Monitoring Requirement	Effectiveness Criteria	Timing of Action
		ground disturbing activities to avoid sensitive plants to the extent feasible. • If avoidance of sensitive plants is not possible, CPUC and/or FS will monitor transplanted or seeded plants to confirm health of listed and sensitive plant species for up to five years ensuring that survival would continue without further maintenance after five years. • If special-status wildlife species are present, SCE will submit a monitoring plan with compliance measures determined in consultation with the USFWS and CDFG. • SCE's designated biologist will monitor and provide a copy of the monitoring reports to the CPUC and Forest Biologist (NFS lands) for review on a weekly basis.		
B-1, B-3, B-7, B-8, B-15, B-16, B-17, B-22, B-23, B-24, B-25, B-26, B-27, B-29, B-30, B-31, B-39, B-40	**APM BIO-2: Minimize Impacts to Vegetation.** Every effort would be made to minimize vegetation removal and permanent loss at construction sites. If necessary, native vegetation would be flagged for protection. A project revegetation plan would be prepared for areas of native habitat temporarily affected during construction.	• At least sixty (60) days prior to construction, SCE will submit a Habitat Restoration and Revegetation Plan to the CPUC and Forest Service for review and approval. • CPUC and/or FS will monitor compliance with the plan.	Successful implementation of requirements set forth in the Habitat Restoration Plan, as verified by the EM.	Prior to, during, and after construction.
B-1, B-2, B-7, B-8, B-15, B-22, B-23, B-24, B-25, B-26, B-27, B-39, B-40	**APM BIO-3: Avoid Impacts to State and Federal Jurisdictional Wetlands.** Construction crews would avoid impacting the streambeds and banks of any streams along the route to the extent feasible. If necessary, a Streambed Alteration Agreement (SAA) would be secured from California Department of Fish and Game. Impacts would be mitigated based on the terms of the SAA. No streams with flowing waters and or those capable of supporting special-status species would be expected to be adversely impacted from project implementation.	• Prior to construction, SCE will submit final Project design plans and specification to the CPUC and Forest Service for review and approval. • If necessary, SCE will secure a SAA from the CDFG. • CPUC and/or FS will monitor compliance at construction areas.	Avoid streambeds and banks of streams along the route, as verified by the EM.	Prior to and during construction.
B-1, B-2, B-3, B-7, B-8, B-15, B-16, B-17, B-18, B-20, B-22, B-23, B-24,	**APM BIO-4: BMPs.** Construction and Operations Crews would be directed to use Best Management Practices (BMPs) where applicable. These measures would be identified prior to construction and incorporated into	• SCE will submit documentation of BMPs to the CPUC and FS for review and approval.	BMPs are applied, as verified by the EM.	Prior to and during construction.

Table A.1-3. Monitoring Plan for Applicant-Proposed Measures

Applicable Impact(s)	Measure	Monitoring Requirement	Effectiveness Criteria	Timing of Action
B-25, B-26, B-27, B-29, B-30, B-31, B-32, B-33, B-36, B-37, B-38, B-39, B-40	the construction and maintenance operations.	• CPUC and/or FS will monitor compliance at construction areas.		
B-1, B-2, B-3, B-7, B-8, B-15, B-16, B-17, B-18, B-20, B-23, B-24, B-25, B-26, B-27, B-29, B-30, B-31, B-32, B-35, B-36, B-38, B-40	**APM BIO-5: Biological Monitors.** Biological Monitors would be assigned to the Project. The monitors would be responsible for ensuring that impacts to special-status species, native vegetation, wildlife habitat, or unique resources would be avoided to the fullest extent possible. Where appropriate, monitors would flag the boundaries of areas where activities need to be restricted in order to protect native plants and wildlife, or special-status species. These restricted areas would be monitored to ensure their protection during construction.	SCE's designated biologists will monitor and provide monitoring reports to the CPUC and the Forest Biologist (NFS lands) for review on a weekly basis.	Construction activities remain outside flagged areas, as verified by the EM.	During construction.
B-1, B-2, B-3, B-7, B-8, B-15, B-16, B-17, B-16, B-18, B-20, B-23, B-24, B-25, B-26, B-27, B-29, B-30, B-31, B-32, B-33, B-36, B-37, B-38, B-40	**APM BIO-6: Worker Environmental Awareness Program.** A Worker Environmental Awareness Program (WEAP) would be prepared and all construction crews and contractors would be required to participate in WEAP training prior to starting work on the project. The WEAP training would include a review of the special-status species and other sensitive resources that could exist in the Project area, the locations of the sensitive biological resources, their legal status and protections, and measures to be implemented for avoidance of these sensitive resources. A record of all personnel trained would be maintained.	• Prior to construction, SCE will establish and conduct an Environmental Training and Monitoring Program. An outline of the program will be provided to the CPUC for review and approval. • Completed sign-in sheet(s) with date, name, and signature of attendees (construction, operations and maintenance staff) will be provided to the CPUC. • CPUC and/or FS will monitor compliance with all environmental protection measures.	All field construction personnel are properly trained to identify environmental conditions in the project area.	Prior to and during construction.
B-1, B-2, B-7, B-8, B-15, B-20, B-22, B-23, B-24, B-25, B-26, B-27, B-39, B-40	**APM BIO-7: Compensatory Mitigation.** Where significant and unavoidable impacts on any special-status resources cannot be avoided, SCE would conduct compensatory mitigation as determined by the regulatory agency.	Monitors will record significant and unavoidable impacts, and will report to the CPUC and any applicable regulatory agency.	The regulatory agency is provided compensation.	Prior to and during construction.
B-5, B-20, B-24, B-25, B-26, B-27	**APM BIO-8: Avoid Impacts to Active Nests.** SCE would conduct project-wide raptor surveys and remove trees, if necessary, outside of the nesting season (1 February – 31 August). If a tree or pole containing a raptor nest must be removed during the nesting season, or if work is scheduled to take place in close proximity to an active nest on an existing transmission tower or pole, SCE would coordinate with the CDFG and FWS and obtain written concurrence prior to moving the nest.	• Prior to construction, SCE will submit documentation providing results of the protocol surveys for rare plants to the CPUC for review and approval. • All listed plant species shall be marked and avoided. • SCE's authorized biologist will be present during all activities immediately adjacent to or within habitats that support rare plant	• Minimize disturbance to raptors, as verified by the EM. • Effectiveness can be determined by monitoring implementation of the control measures.	Prior to and during construction.

Table A.1-3. Monitoring Plan for Applicant-Proposed Measures

Applicable Impact(s)	Measure	Monitoring Requirement	Effectiveness Criteria	Timing of Action
		species. • SCE's designated biologist will monitor compliance with measures identified in the monitoring plan and provide a copy of the monitoring reports to the CPUC for review on a weekly basis.		
B-20, B-21	**APM BIO-9: Avian Protection.** All transmission and sub-transmission towers and poles would be designed to be raptor-safe in accordance with the Suggested Practices for Raptor Protection on Power Lines: The State of the Art in 2006 (Avian Power Line Interaction Committee [APLIC] 2006).	SCE will submit tower and pole design details to the CPUC and/or FS.	Minimize disturbance to raptors, as verified by the EM.	Prior to construction.
Cultural Resources				
C-1	**APM CR-1: Conduct an intensive archaeological inventory of all areas that may be disturbed during construction and operation of the Project.** A complete cultural resource inventory of the Project area has been conducted (see Technical Appendix I). Should the Project change and areas not previously inventoried for cultural resources become part of the construction plan, SCE shall ensure that such areas are inventoried for cultural resources prior to any disturbance. All surveys shall be conducted and documented as per applicable laws, regulations, and guidelines and in accordance with professional standards.	• For known cultural resources sites, CPUC and/or FS will monitor avoidance during construction. • If a site cannot be avoided, SCE will submit a Cultural Resources Report to the CPUC, FS and other responsible agencies (CHRIS, OHP, etc.) prior to construction.	Cultural sites will be avoided, properly documented, and preserved for future generations.	Prior to and during construction.
C-1	**APM CR-2: Avoid and minimize impacts to significant or potentially significant cultural resources wherever feasible.** To the extent practical, SCE shall avoid or minimize impacts to archaeological resources, regardless of its CRHR or NRHP eligibility status. This includes siting all ground-disturbing activities defined in Section 4.6.5 and other Project components outside a buffer zone established around each recorded archaeological site within or immediately adjacent to the ROW. Because many archaeological resources comprise subsurface deposits, features, and artifacts, it may not be possible to recognize all potentially significant attributes of archaeological resources during archaeological testing. There is the potential for making unanticipated discoveries of previously unidentified remains at archaeological sites that could require efforts to reassess their CRHR or NRHP eligibility. Avoiding impacts or minimizing the area of an archaeological resource that could be affected during construction protects the resource and reduces the possibility that unanticipated discoveries would cause Project delays. SCE would avoid or minimize impacts to archaeological resources wherever practical by redesign, reroute, and implementation of avoidance procedures (i.e., establishing Environmentally Sensitive Areas), capping archaeological sites, or other protective measures within or immediately adjacent to	• For known cultural resources sites, CPUC and/or FS will monitor avoidance during construction. • If a site cannot be avoided, SCE will submit a Cultural Resources Report to the CPUC, FS and other responsible agencies (CHRIS, OHP, etc.) prior to construction.	Cultural sites will be avoided, properly documented, and preserved for future generations.	Prior to and during construction.

Table A.1-3. Monitoring Plan for Applicant-Proposed Measures

Applicable Impact(s)	Measure	Monitoring Requirement	Effectiveness Criteria	Timing of Action
	access and spur roads that would be used during construction and operations activities. Impacts will be avoided or minimized through the following measures prior to construction.			
C-1	**APM CR-2a: Project Final Design shall avoid direct impacts to significant or potentially significant cultural resources.** To the extent practical, all ground-disturbing activities defined in Section 4.6.5 and other Project components shall be sited to avoid or minimize impacts to cultural resources listed as, or potentially eligible for listing as, unique archaeological sites, historical resources, or historic properties.	• For known cultural resources sites, CPUC and/or FS will monitor avoidance during construction. • If a site cannot be avoided, SCE will submit a Cultural Resources Report to the CPUC, FS and other responsible agencies (CHRIS, OHP, etc.) prior to construction.	Cultural sites will be avoided, properly documented, and preserved for future generations.	Prior to and during construction.
C-1	**APM CR-2b: Conduct a pre-construction Worker Education Program.** SCE will design and implement a Worker Education Program that will be provided for all TRTP personnel who have the potential to encounter and alter unique archaeological sites, historical resources, or historic properties, or properties that may be eligible for listing in the CRHR or NRHP. This includes construction supervisors as well as field construction personnel. No construction worker will be involved in ground-disturbing activities without having participated in the Worker Education Program. The Worker Education Program shall include, at a minimum: • A review of applicable local, state and federal ordinances, laws and regulations pertaining to historic preservation • A discussion of disciplinary and other actions that could be taken against persons violating historic preservation laws and SCE policies • A statement by the construction company or applicable employer agreeing to abide by the Worker Education Program, SCE policies and other applicable laws and regulations • A review of archaeology, history, prehistory and Native American cultures associated with historical resources in the TRTP vicinity • A review of the SCE "Unanticipated Cultural Resources Discovery Plan" The Worker Education Program may be conducted in concert with other environmental or safety awareness and education programs for the TRTP, provided that the program elements pertaining to cultural resources is provided by a qualified instructor meeting applicable professional qualifications standards.	• SCE will submit documentation of training with a list of construction personnel who completed the training to the CPUC and FS. • A designated monitor will ensure compliance for the duration of construction.	Minimize unnecessary disruptions to cultural resources, as verified by the EM.	Prior to and during construction.
C-1	**APM CR-2c: Establish and maintain a protective buffer zone around each recorded archaeological site within or immediately adjacent to the R-O-W.** A protective buffer zone will be establish around each recorded archaeological site and treated as an "environmentally sensitive	For known archaeological sites, CPUC and/or FS will monitor avoidance during construction.	Cultural sites will be avoided, properly documented, and preserved for future	Prior to and during construction.

Table A.1-3. Monitoring Plan for Applicant-Proposed Measures

Applicable Impact(s)	Measure	Monitoring Requirement	Effectiveness Criteria	Timing of Action
	area" within which construction activities and personnel are not permitted. Monitoring will be conducted to ensure that the protective areas are maintained.		generations.	
C-1	**APM CR-3: Evaluate the significance of all cultural resources that cannot be avoided.** Cultural resources that cannot be avoided and which have not been evaluated to determine their eligibility for listing in the CRHR or NRHP will be evaluated to determine their historical significance. Evaluation studies shall be conducted and documented as per applicable laws, regulations, and guidelines and in accordance with professional standards. Evaluation of properties will take into account attributes of each property that could contribute to its historical significance. Evaluation procedures will be consistent with applicable laws, regulations, and guidelines and in accordance with professional standards as follows.	• For known cultural resources sites, CPUC and/or FS will monitor avoidance during construction. • If a site cannot be avoided, SCE will submit a Cultural Resources Report to the CPUC, FS and other responsible agencies (CHRIS, OHP, etc.) prior to construction.	Cultural sites will be avoided, properly documented, and preserved for future generations.	Prior to and during construction.
C-1	**APM CR-3a: Evaluate the significance of archaeological resources potentially eligible for CRHR or NRHP listing.** Evaluation of archaeological sites would include scientific excavation of a sample of site constituents sufficient to understand the potential of a site to yield information to address important scientific research questions per CRHR eligibility Criterion 4 and NRHP eligibility Criterion D. Sites with rock art will be evaluated to consider their eligibility per CRHR Criterion 1, and NRHP Criterion A or C.Archaeological testing as part of resource evaluation will be carried out in portions of affected sites to recover an adequate sample of cultural remains that can be used to evaluated the significance of a site per CRHR eligibility Criterion 4 or NRHP Criterion D. Archaeological testing will involve scientific excavations; identification of recovered cultural and ecological remains; cataloging, scientific analysis, and interpretation of recovered materials; preparation of scientific technical reports and reports comprehensible to the general public discussing the archaeological program and its results. Reports of any excavations at archaeological sites will be filed with the appropriate Information Center of the California Historical Resources Information System.	• For known archaeological resources sites, CPUC and/or FS will monitor avoidance during construction. • If a site cannot be avoided, SCE will submit a Cultural Resources Report to the CPUC, FS and other responsible agencies (CHRIS, OHP, etc.) prior to construction.	Cultural sites will be avoided, properly documented, and preserved for future generations.	Prior to and during construction.
C-1	**APM CR-3b: Evaluate the significance of buildings and structures potentially eligible for CRHR or NRHP listing.** Evaluation of buildings and structures would take into account engineering, aesthetic, architectural and other relevant attributes of each property. Buildings and structures will be evaluated for historical significance per CRHR eligibility Criteria 1, 2 and 3; NRHP criteria A, B, and C. A report of the evaluation of each building or structure will be prepared providing a rationale for an assessment of significance consistent with professional standards and guidelines. Reports of any significance evaluations of buildings and structures will be filed with	• For known cultural resources sites, CPUC and/or FS will monitor avoidance during construction. • If a site cannot be avoided, SCE will submit a Cultural Resources Report to the CPUC, FS and other responsible agencies (CHRIS, OHP, etc.) prior to construction.	Cultural sites will be avoided, properly documented, and preserved for future generations.	Prior to and during construction.

Table A.1-3. Monitoring Plan for Applicant-Proposed Measures

Applicable Impact(s)	Measure	Monitoring Requirement	Effectiveness Criteria	Timing of Action
	the appropriate Information Center of the California Historical Resources Information System.			
C-1	**APM CR-3c: Consult Native Americans regarding traditional cultural values that may be associated with archaeological resources.** Archaeological or other cultural resources associated with the TRTP may have cultural values ascribed to them by Native Americans. SCE will consult with Native Americans regarding evaluations of resources with Native American cultural remains.	SCE shall provide documentation of coordination with appropriate Native American tribes, if necessary.	Cultural sites will be avoided, properly documented, and preserved for future generations.	Prior to and during construction.
None identified.	**APM CR-4: Minimize unavoidable impacts to significant cultural resources, including Unique Archaeological Sites, Historical Resources, and Historic Properties.** SCE will make reasonable efforts to avoid adverse Project effects to unique archaeological sites, historical resources, and historic properties. Nevertheless, it may not be possible to situate all TRTP facilities to completely avoid impacts to significant cultural resources. Impacts to significant cultural resources will be minimized by implementing the following measures.	SCE shall submit documentation of the unavoidable impact(s) and the minimization measures to the CPUC and/or FS.	Minimize unnecessary disruptions to cultural resources, as verified by the EM.	Prior to and during construction.
None identified.	**APM CR-4a: Implement measures to minimize impacts to significant archaeological sites.** Prior to construction and during construction, the following measures will be implemented by SCE to minimize unavoidable impacts to significant archaeological sites. • To the extent practical, all ground-disturbing activities defined in Section 4.6.5 and other Project components shall minimize ground surface within the bounds of unique archaeological sites, historical resources, or historic properties. • Portions of unique archaeological sites, historical resources, or historic properties that can be avoided will be protected as environmentally sensitive areas and will remain undisturbed by construction activities. • Monitoring by qualified professionals and/or Native Americans to ensure that impacts to sites are minimized will be carried out at each affected cultural resource for the period during which construction activities pose a potential threat to the site and for as long as there is the potential to encounter unanticipated cultural or human remains. • Additional archaeological study will be carried out at appropriate sites to ascertain if Project facilities could be located on a portion of a site and cause the least amount of disturbance to significant cultural materials. • Archaeological data recovery will be carried out in portions of affected significant sites to recover an adequate sample of cultural remains that can be used to address important research questions per CRHR eligibility Criterion 4 or NRHP Criterion D. Archaeological data recovery will involve scientific excavations; identification of recovered cultural and ecological remains; cataloging, scientific analysis, and interpretation of	SCE shall submit documentation to the CPUC and/or FS whenever an archaeological study or data recovery is performed. For known archaeological sites, CPUC and/or FS will monitor avoidance during construction.	Minimize unnecessary disruptions to archaeological resources, as verified by the EM.	Prior to and during construction.

Table A.1-3. Monitoring Plan for Applicant-Proposed Measures

Applicable Impact(s)	Measure	Monitoring Requirement	Effectiveness Criteria	Timing of Action
	recovered materials; preparation of scientific technical reports and reports comprehensible to the general public discussing the archaeological program and its results. • Reports of any excavations at archaeological sites will be filed with the appropriate Information Center of the California Historical Resources Information System.			
None identified.	**APM CR-4b: Implement measures to minimize impacts to significant buildings and structures.** Prior to construction and during construction, SCE will implement the following measures to minimize unavoidable impacts to significant buildings and structures. • Locate TRTP facilities to minimize effects on significant buildings or structures. • Document significant architectural and engineering attributes consistent with National Park Service Historic American Buildings Survey/Historic American Engineering Record documentation standards. • File reports and other documentation with the National Park Service, if appropriate, and appropriate Information Center of the California Historical Resources Information System.	• SCE shall submit documentation to the CPUC and/or FS of all reports and studies related to significant buildings and structures. • For known significant buildings and structures, CPUC and/or FS will monitor avoidance during construction.	Minimize unnecessary disruptions to significant buildings and structures, as verified by the EM.	Prior to and during construction.
C-1	**APM CR-5: Prepare and Implement a Construction Monitoring and Unanticipated Cultural Resources Discovery Plan.** During construction it is possible that previously unknown archaeological or other cultural resources or human remains could be discovered. Prior to construction SCE will prepare a Construction Monitoring and Unanticipated Cultural Resources Discovery Plan to be implemented if an unanticipated discovery is made. At a minimum the plan shall detail the following elements: • Worker and supervisor training in the identification of cultural remains that could be found in the TRTP area • Worker and Supervisor response procedures to be followed in the event of an unanticipated discovery including appropriate points of contact for professionals qualified to make decisions regarding the potential significance of any find • Identification of persons authorized to stop or redirect work that could affect the discovery and their on-call contact information • Provide for monitoring of construction activities in archaeologically sensitive areas • Stipulate a minimum radius around any discovery within which work will be halted until the significance of the resource has been evaluated and mitigation implemented as appropriate • Procedures for identifying and evaluating the historical significance of any find • Procedures for consulting Native Americans in the process of	• SCE shall complete training including response procedures for all construction personnel. • SCE shall provide to the CPUC and FS a list of construction personnel who have completed the cultural resources identification training prior to start of construction. • CPUC and/or FS will monitor avoidance during construction. • SCE shall provide documentation of all procedures performed in the event that human remains are discovered.	Avoid or reduce impacts to identified cultural resources.	Prior to and during construction.

Table A.1-3. Monitoring Plan for Applicant-Proposed Measures

Applicable Impact(s)	Measure	Monitoring Requirement	Effectiveness Criteria	Timing of Action
	identification and evaluation of significance of discoveries involving Native American cultural materials • Procedures to be followed for the treatment of discovered human remains per current state law and protocol developed in consultation with Native Americans			
C-2	**APM CR-6: Inadvertent Discovery of Human Remains.** Any human remains discovered during Project activities will be protected in accordance with current state law as detailed in Technical Appendix I, specifically California Public Resources Code Sections 5097.91 and 5097.98, as amended. The discovery of human remains will be treated as defined in the *Construction Monitoring and Unanticipated Cultural Resources Discovery Plan*. Archaeological excavations at sites will not, if at all possible, inappropriately disturb or remove human remains. Native Americans will be consulted to develop a protocol to be followed if human remains are encountered during any Project activity.	• SCE shall provide documentation of coordination with appropriate Native American tribes. • CPUC and/or FS will monitor avoidance during construction.	Avoid or reduce impacts to identified cultural resources.	During construction.
None identified.	**APM CR-7: Native American Participation.** Prior to construction SCE will consult with Native Americans identified by the NAHC as having cultural ties to particular areas of the TRTP. Native Americans will be consulted regarding their participation during significance evaluations and data recovery excavations at archaeological sites with Native American cultural remains, and monitoring during Project construction. Native Americans will be consulted to develop a protocol for working with each group should human remains affiliated with that group be encountered during Project activities.	SCE shall provide documentation of coordination with appropriate Native American tribes, if necessary.	Cultural sites will be avoided, properly documented, and preserved for future generations.	Prior to and during construction.
Environmental Contamination and Hazards				
E-2	**APM HAZ-1: Phase I Environmental Site Assessment (ESA).** A Phase I ESA would be performed at each new or expanded substation location and along newly acquired transmission line rights-of-way (ROWs). The Phase I ESAs would include an electronic records search of federal, state, and local databases. The electronic records search would be contracted to Environmental Data Resources (EDR), a company which specializes in this type of work and who would produce a comprehensive report for the entire TRTP ROW. The EDR Report is used to identify sites located on federal, state, and local government agency databases which may have the potential to impact the proposed Project. The EDR report would be reviewed and, based on such review, any potential areas of concern along the ROW would be identified for further assessment. In addition, a Phase I ESA, which is compliant with ASTM 1927-05 (ASTM, 2005) would be performed on all property to be acquired. Based on the results of the Phase I ESAs, additional assessment, characterization, and remediation of	• SCE shall submit Phase I ESAs according to this measure, and shall submit documentation to the FS and CPUC. • CPUC and/or FS monitor compliance and ensure proper excavation measures are implemented if necessary.	• Avoid or reduce potential of encountering hazardous materials. • Avoid or reduce potential of mobilization of existing contamination.	Prior to and during construction.

Table A.1-3. Monitoring Plan for Applicant-Proposed Measures

Applicable Impact(s)	Measure	Monitoring Requirement	Effectiveness Criteria	Timing of Action
	potential or known subsurface impacts may be conducted prior to construction activities. Such remediation could include the relocation of T/L structures as necessary to avoid impacted areas, or the removal and disposal of impacted soils and/or groundwater according to applicable regulations.			
E-1	**APM HAZ-2: Hazardous Materials and Waste Handling Management**. Hazardous materials used and stored on site for the proposed construction activities – as well as hazardous wastes generated on site as a result of the proposed construction activities – would be managed according to the specifications outlined below. • Hazardous Materials and Hazardous Waste Handling: A Project-specific hazardous materials management and hazardous waste management program would be developed prior to initiation of the Project. The program would outline proper hazardous materials use, storage and disposal requirements as well as hazardous waste management procedures. The program would identify types of hazardous materials to be used during the Project and the types of wastes that would be generated. All Project personnel would be provided with Project-specific training. This program would be developed to ensure that all hazardous materials and wastes were handled in a safe and environmentally sound manner. Hazardous wastes would be handled and disposed of according to applicable rules and regulations. Employees handling wastes would receive hazardous materials training and shall be trained in hazardous waste procedures, spill contingencies, waste minimization procedures and treatment, storage and disposal facility (TSDF) training in accordance with OSHA Hazard Communication Standard and 22 CCR. SCE would use landfill facilities that are authorized to accept treated wood pole waste in accordance with HSC 25143.1.4(b). • Construction Stormwater Pollution Prevention Plan (SWPPP): A Project-specific construction SWPPP would be prepared and implemented prior to the start of construction of the transmission line and substations. The SWPPP would utilize Best Management Practices (BMPs) to address the storage and handling of hazardous materials and sediment runoff during construction activities (California Stormwater Quality Association, 2004). • Transport of Hazardous Materials: Hazardous materials that would be transported by truck include fuel (diesel fuel and gasoline) and oil and lubricants for equipment. Containers used to stored hazardous	• SCE shall complete training for handling of hazardous materials and waste for all construction personnel. • SCE shall provide to the CPUC and FS a list of construction personnel who have completed the training prior to start of construction. • SCE shall submit the hazardous materials management and hazardous waste management program, the SWPPP, and the Emergency Response Plan to the CPUC and FS for review and approval. • Written procedures for the transport of hazardous materials, and the fueling and maintenance of construction equipment and helicopters shall be submitted to the CPUC and FS for review and approval.	• OSHA compliant storage and handling of hazardous materials and waste. • Efficient and effective procedures are in place and result in transport of hazardous materials that is in compliance with U.S. Department of Transportation and Caltrans regulations. • Efficient and effective procedures are in place and result in adequate fueling and maintenance of construction equipment and helicopters. • Immediate and efficient response procedures are in place in the event of a hazardous spill.	Prior to construction.

Table A.1-3. Monitoring Plan for Applicant-Proposed Measures

Applicable Impact(s)	Measure	Monitoring Requirement	Effectiveness Criteria	Timing of Action
	materials would be properly labeled and kept in good condition. Written procedures for the transport of hazardous materials used would be established in accordance with U.S. Department of Transportation and Caltrans regulations. A qualified transporter would be selected to comply with U.S. Department of Transportation and Caltrans regulations. • Fueling and Maintenance of Construction Equipment: Written procedures for fueling and maintenance of construction equipment would be prepared prior to construction. Vehicles and equipment would be refueled on site or by tanker trucks. Procedures would include the use of drop cloths made of plastic, drip pans and trays to be placed under refilling areas to ensure that chemicals do not come into contact with the ground. Refueling stations would be located in designated areas where absorbent pad and trays would be available. The fuel tanks would also contain a lined area to ensure that accidental spillage does not occur. Drip pans or other collection devices would be placed under the equipment at night to capture drips or spills. Equipment would be inspected daily for potential leakage or failures. Hazardous materials such as paints, solvents, and penetrants would be kept in an approved locker or storage cabinet. • Fueling and Maintenance of Helicopters: Written procedures for fueling and maintenance of helicopters would be prepared prior to construction. Helicopters would be refueled at helicopter staging areas or local airports. Procedures would include the use of drop cloths made of plastic, drip pans and trays to be placed under refilling areas to ensure that chemicals do not come into contact with the ground. Refueling areas would be located in designated areas where absorbent pad and trays are available. • Emergency Release Response Procedures: An Emergency Response Plan detailing responses to releases of hazardous materials would be developed prior to construction activities. It would prescribe hazardous materials handling procedures for reducing the potential for a spill during construction, and would include an emergency response program to ensure quick and safe cleanup of accidental spills. All hazardous materials spills or threatened release, including petroleum products such as gasoline, diesel, and hydraulic fluid, regardless of the quantity spilled would be immediately reported if the spill has entered a navigable water,			

Table A.1-3. Monitoring Plan for Applicant-Proposed Measures

Applicable Impact(s)	Measure	Monitoring Requirement	Effectiveness Criteria	Timing of Action
	stream, lake, wetland, or storm drain, if the spill impacted any sensitive area including conservation areas and wildlife preserved, or if the spill caused injury to a person or threatens injury to public health. All construction personnel, including environmental monitors, would be aware of state and federal emergency response reporting guidelines.			
E-4	**APM HAZ-3: Soil Management Plan**. A Soil Management Plan would be developed and implemented for construction of the proposed Project. The objective of the Soil Management Plan is to provide guidance for the proper handling, onsite management, and disposal of impacted soil that might be encountered during construction activities. The plan would include practices that are consistent with the California Title 8, Occupational Safety and Health Administration (Cal-OSHA) regulations, as well as appropriate remediation standards that are protective of the planned use. Appropriately trained professionals would be on site during preparation, grading, and related earthwork activities to monitor soil conditions encountered. The Soil Management Plan would provide guidelines for the following: • Identifying impacted soil • Assessing impacted soil • Soil excavation • Impacted soil storage • Verification sampling • Impacted soil characterization and disposal In the event that potentially contaminated soils were encountered within the footprint of construction, soils would be tested and stockpiled. The appropriate CUPA would determine whether further assessment is warranted.	• SCE shall submit the Soil Management Plan to the CPUC and FS for review and approval. • CPUC and/or FS will monitor compliance during construction.	OSHA compliant handling, management, disposal of impacted soil.	Prior to and during construction.
E-5	**APM HAZ-5: Spill Prevention, Countermeasure, and Control Plan and Hazardous Materials Business Plan** • Spill Prevention, Countermeasure, and Control Plan (SPCC Plan). In accordance with Title 40 of the CFR, Part 112, SCE would prepare a SPCC for proposed and/or expanded substations. The plans would include engineered and operational methods for preventing, containing, and controlling potential releases, and provisions for quick and safe cleanup. • Hazardous Materials Business Plans (HMBPs). Prior to operation of	• SCE shall submit the SPCC Plan and HMBPs to the CPUC and FS for review and approval. • CPUC and/or FS will monitor compliance during construction.	• Avoid hazardous spills. • Quick and safe cleanup in the event of a spill.	Prior to and during construction.

Table A.1-3. Monitoring Plan for Applicant-Proposed Measures

Applicable Impact(s)	Measure	Monitoring Requirement	Effectiveness Criteria	Timing of Action
	new or expanded substations, SCE would prepare or update and submit, in accordance with Chapter 6.95 of the CHSD, and Title 22 CCR, an HMBP. The required documentation would be submitted to the CUPA. The HMBPs would include hazardous materials and hazardous waste management procedures and emergency response procedures including emergency spill cleanup supplies and equipment.			
Geology, Soils, and Paleontology				
G-4, G-5	**APM GEO-1: Seismic Design.** For new substation construction (e.g., expansion of Antelope Substation), specific requirements for seismic design will be followed based on the Institute of Electrical and Electronic Engineers' 693 "Recommended Practices for Seismic Design of Substation". (See Mitigation Measure G-6)	• Prior to construction, SCE will submit a geologic/geotechnical report, documenting site-specific geotechnical investigations, to the CPUC and Forest Service for review and approval. • CPUC and/or FS will monitor compliance during construction.	• Engineering design measures recommended in the geologic/geotechnical report are applied, as verified by the EM. • Seismic activity does not damage expansion area at Antelope Substation.	Prior to, during, and after construction.
G-3, G-4, G-5, G-6, G-7	**APM GEO-2: Perform Geotechnical Studies.** Prior to final design of substation facilities and transmission line tower foundations, a geotechnical study would be performed to identify site-specific geologic conditions in enough detail to support good engineering practice. (See Mitigation Measures G-1, G-4, G-5, G-6, G-7, G-8, and G-9)	• Prior to construction, SCE will submit a geologic/geotechnical report, documenting site-specific geotechnical investigations, to the CPUC and Forest Service for review and approval. • CPUC and/or FS will monitor compliance during construction.	Geologic conditions do not damage Project components.	Prior to, during, and after construction.
G-2	**APM GEO-3: Construction SWPP.** Transmission line and substation construction activities would be performed in accordance with the soil erosion/water quality protection measures specified in the Construction SWPPP. (See Mitigation Measures G-2 and H-1a)	• Prior to construction, SCE will submit a copy of the Construction SWPPP to the CPUC and FS for review and approval. • CPUC and/or FS will monitor compliance during construction.	Project construction activities do not cause soil erosion or degrade water quality.	Prior to and during construction.
G-8	**APM PAL-1:** The following mitigation measures have been developed to reduce the potential impacts of project construction on paleontological resources to a less than significant level. The measures are derived from the guidelines of the SVP and meet the requirements of Kern and Los Angeles counties and CEQA. These mitigation measures have been used throughout California and have been demonstrated to be successful in protecting paleontological resources while allowing timely completion of	• Prior to construction, SCE's appointed paleontological monitor will prepare a mitigation plan for the Project and submit it to the CPUC and FS (NFS lands) for review and approval. • The paleontological monitor will monitor compliance at construction	Unique or significant fossils are not damaged by Project excavation.	During construction.

Table A.1-3. Monitoring Plan for Applicant-Proposed Measures

Applicable Impact(s)	Measure	Monitoring Requirement	Effectiveness Criteria	Timing of Action
	construction (See Mitigation Measure G-10): • A certified paleontologist would be retained by SCE to supervise monitoring of construction excavations and to produce a mitigation plan for the proposed Project. Paleontological monitoring would include inspection of exposed rock units and microscopic examination of matrix to determine if fossils are present. The monitor would have authority to temporarily divert grading away from exposed fossils in order to recover the fossil specimens. • If microfossils are present, the monitor would collect matrix for processing. In order to expedite removal of fossiliferous matrix, the monitor may request heavy machinery to assist in moving large quantities of matrix out of the path of construction to designated stockpile areas. Testing of stockpiles would consist of screen washing small samples to determine if significant fossils are present. Productive tests would result in screen washing of additional matrix from the stockpiles to a maximum of 6,000 pounds per locality to ensure recovery of a scientifically significant sample. • Quaternary Alluvium, Colluvium, and Quaternary Landslide Deposits have a low paleontological sensitivity level, and would be spot-checked on a periodic basis to insure that older underlying sediments are not being penetrated. • A certified paleontologist would prepare monthly progress reports to be filed with the client. • Recovered fossils would be prepared to the point of curation, identified by qualified experts, listed in a database to allow analysis, and deposited in a designated repository. • At each fossil locality, field data forms would record the locality, stratigraphic columns would be measured, and appropriate scientific samples submitted for analysis. • The certified paleontologist would prepare a final mitigation report to be filed with the client, the lead agency, and the repository.	areas where excavation is being conducted in geologic units of moderate to high sensitivity. Areas of low sensitivity will be spot-checked periodically. • Monitoring reports will be submitted to the CPUC and FS (NFS lands) for review on a monthly basis. • If a fossil is recovered, SCE will prepare the fossil to the point of curation, list it in a database to allow analysis, and deposit it in a designated repository. • At each fossil locality, field data forms will record the locality, stratigraphic columns will be measured, and appropriate scientific samples will be submitted for analysis. • The paleontological monitor will prepare a final mitigation report and submit it to SCE, CPUC, FS, and the repository.		
Hydrology and Water Quality				
E-1, H-1, H-2, H-5	**APM HYD-1: Construction SWPPP.** A Construction SWPPP would be developed for the Project. Notices of Intent (NOIs) would be filed with the SWRCB and/or the RWQCBs, and a Waste Discharge Identification Number (WDID) would be obtained prior to construction. The SWPPP would be stored at the construction site for reference or inspection review. In addition, grading permit applications would be submitted, as applicable, to local jurisdictions. Implementation of the SWPPP would help stabilize graded areas and waterways, and reduce erosion and sedimentation. The plan would designate BMPs that would be adhered to during construction	• SCE will submit a SWPPP to the CPUC and Forest Service for review and approval. • CPUC and/or FS will monitor compliance during construction.	BMPs included in the SWPPP are applied, as verified by the EM.	Prior to and during construction.

Table A.1-3. Monitoring Plan for Applicant-Proposed Measures

Applicable Impact(s)	Measure	Monitoring Requirement	Effectiveness Criteria	Timing of Action
	activities. Erosion minimizing efforts such as straw wattles, water bars, covers, silt fences, and sensitive area access restrictions (for example, flagging) would be installed before clearing and grading begins. Mulching, seeding, or other suitable stabilization measures would be used to protect exposed areas during construction activities. During construction activities, measures would be in place to ensure that contaminates are not discharged from the construction sites. The SWPPP would define areas where hazardous materials would be stored, where trash would be placed, where rolling equipment would be parked, fueled and serviced, and where construction materials such as reinforcing bars and structural steel members would be stored. Erosion control during grading of the construction sites and during subsequent construction would be in place and monitored as specified by the SWPPP. A silting basin(s) would be established, as necessary, to capture silt and other materials, which might otherwise be carried from the site by rainwater surface runoff. In addition to a Construction SWPPP, all additionally required documents and procedures (as required in the anticipated April 2009 CGP) will be developed. These procedures may include effluent monitoring, receiving water monitoring, additional staff training, additional documentation, online reporting of all documentation and monitoring results, and project risk analysis.			
H-1, H-2, H-3	**APM HYD-2: Environmental Training Program.** An environmental training program would be established to communicate environmental concerns and appropriate work practices, including spill prevention and response measures, and SWPPP measures, to all field personnel. A monitoring program would be implemented to ensure that the plans are followed throughout the period of construction.	• Prior to construction, SCE will establish and conduct an Environmental Training Program. An outline of the program will be provided to the CPUC for review and approval. • Completed sign-in sheet(s) with date, name, and signature of attendees (construction, operations and maintenance staff) will be provided to the CPUC.	No soil or groundwater is contaminated as a result of improper handling and/or storage of hazardous materials during construction, as verified by the EM.	Prior to and during construction.
G-2, H-2, H-3	**APM HYD-3: Accidental Spill Control.** The Construction SWPPP identified above would include procedures for quick and safe cleanup of accidental spills. The Construction SWPPP would prescribe hazardous materials handling procedures for reducing the potential for a spill during construction, and would include an emergency response program to ensure quick and safe cleanup of accidental spills. The SWPPP would identify areas where refueling and vehicle maintenance activities and storage of hazardous materials, if any, would be permitted.	• SCE will submit a SWPPP to the CPUC and Forest Service for review and approval. • CPUC and/or FS will monitor compliance during construction.	BMPs included in the SWPPP are applied, as verified by the EM.	Prior to and during construction.

Table A.1-3. Monitoring Plan for Applicant-Proposed Measures

Applicable Impact(s)	Measure	Monitoring Requirement	Effectiveness Criteria	Timing of Action
E-1, H-2	**APM HYD-4: Non-storm Water and Waste Management Pollution Controls**. Oil-absorbent materials, tarps, and storage drums would be used to contain and control any minor releases of transformer oil. In the event that excess water and liquid concrete escapes from foundations during pouring, it would be directed to bermed areas adjacent to the borings where the water would infiltrate or evaporate and the concrete would remain and begin to set. Once the excess concrete has been allowed to set up (but before it is dry), it would be removed and transported to an approved landfill for disposal.	• Prior to construction, SCE will submit a Hazardous Substance Control and Emergency Response Plan with grading permit applications to the appropriate oversight agency based on grading location, as well as to the CPUC and Forest Service for review and approval. • CPUC and/or FS will monitor compliance during construction.	No soil or groundwater is contaminated as a result of improper handling and/or storage of hazardous materials during construction, as verified by the EM.	Prior to and during construction.
None identified.	**APM HYD-5: Hazardous Material Identification.** A Phase I Environmental Site Assessment (ESA) would be performed at each new or expanded substation location and along newly acquired transmission line R-O-Ws. Depending on the results of the Phase I ESA, soil sampling would be conducted and remedial activities would be implemented, if applicable. If hazardous materials were encountered during any construction activities, work would be stopped until the material was properly characterized and appropriate measures were taken to protect human health and the environment. If excavation of hazardous materials is required, they would be handled, transported, and disposed of in accordance with federal, state, and local regulations.	• SCE shall submit Phase I ESAs according to this measure, and shall submit documentation to the FS and CPUC. • CPUC and/or FS monitor compliance and ensure proper excavation measures are implemented if necessary.	• Avoid or reduce potential of encountering hazardous materials. • Avoid or reduce potential of mobilization of existing contamination.	Prior to and during construction.
None identified.	**APM HYD-6: Drilling and Construction Site Dewatering Management.** Any dewatering operations associated with drilling and LST/TSP footing installation would follow applicable state and local regulatory requirements. If groundwater were encountered while excavating or constructing the transmission line or substations, dewatering operations would be performed. These operations would include, as applicable, the use of sediment traps and sediment basins in accordance with BMP NS-2 (Dewatering Operations) from the California Stormwater Quality Association's (CASQA) California Stormwater BMP Handbook – Construction (CASQA, 2003).	CPUC and/or Forest Service will monitor compliance during construction.	Dewatering operations abide by the California Stormwater BMP Handbook, as verified by the EM.	Prior to and during construction.
H-4, H-5	**APM HYD-7:Flood and Erosion Structure Damage Protection**. Transmission towers or other structures would not be placed within waterway protection corridors (floodways) defined by city and county codes. Aboveground project features such as transmission line towers and substation facilities will be designed and engineered to withstand potential flooding and erosion hazards. Although some project features may need to be placed within 100-year floodplain boundaries, they will be designed per applicable floodplain development guidelines. Measures would include specially designed footings to withstand flooding due either to a 100-yr flood event or a failure of a nearby upstream dam or reservoir. The main	• Prior to construction, SCE will submit final Project design plans and specification, specifically noting location of towers with respect to known waterways, to the CPUC and Forest Service for review and approval. • CPUC and/or FS will monitor compliance at construction areas.	Avoid waterway protection corridors.	During construction.

Table A.1-3. Monitoring Plan for Applicant-Proposed Measures

Applicable Impact(s)	Measure	Monitoring Requirement	Effectiveness Criteria	Timing of Action
	Project facilities (i.e., substations) will be located outside of known watercourses.			
None identified.	**APM HYD-8: Operation Storm Water Management Plan.** The post-construction (Operation) Storm Water Management Plan (SWMP) for Vincent Substation would be updated. The SWMP identifies potential pollutants based on the activities that take place at the site, and discusses the appropriate Best Management Practices that should be used to prevent pollutants from entering the storm water and non-storm water runoff from the site. The SWMP also includes requirements for periodic site training for employees and inspections by onsite personnel.	• SCE will submit a SWMP to the CPUC and Forest Service for review and approval. • CPUC and/or FS will monitor compliance during construction.	BMPs included in the SWMP are applied, as verified by the EM.	During operation.
Noise				
N-1, N-2	**APM NOI-1: Limit Hours and Days for Construction**. SCE would comply with all applicable noise ordinances pertaining to construction hour limitations. In the event that construction must occur outside the allowable work hours, a variance would be obtained.	CPUC will monitor compliance during construction.	Local noise standard violations are minimized, as verified by the EM.	During construction.
None identified.	**APM NOI-2: Substation Noise Minimization**. SCE would conduct noise studies at substations where noise emitting equipment is proposed (e.g., Antelope and Vincent substations). The results of these studies would be used to determine appropriate noise minimization measures, such that no local noise ordinance limits would be exceeded. Measures to accomplish this may include specifying quieter equipment from the manufacturer, installing noise control devices, and installing sound barriers and enclosures.	• SCE shall submit noise studies and proposed minimization measures to the CPUC. • CPUC will monitor compliance during construction.	Local noise standard violations are minimized, as verified by the EM.	Prior to and during construction.
N-1, N-2	**APM NOI-3: Advance Notification**. SCE would provide advanced notification of construction to the pertinent businesses and residences when appropriate and feasible.	SCE shall submit copies of notices and dates of public notification to the CPUC and FS.	Coordination efforts will minimize disruption to businesses and residents.	Prior to and during construction.
N-1	**APM NOI-4: Establish Toll Free Number**. SCE would establish a toll free telephone number for receiving questions or complaints during construction and develop procedures for responding to callers.	SCE shall submit documentation of the toll free number to the CPUC and FS.	Provide response for questions and/or complaints.	Prior to and during construction.
Public Services and Utilities				
PSU-1	**APM PUB-1: Fire Management Plan.** Establishes standards and practices that would minimize the risk of fire danger, and in case of fire, provide for immediate suppression and notification.	SCE shall submit the Fire Management Plan to the CPUC and FS for review and approval.	Avoid or reduce potential for fires.	Prior to and during construction.

Table A.1-3. Monitoring Plan for Applicant-Proposed Measures

Applicable Impact(s)	Measure	Monitoring Requirement	Effectiveness Criteria	Timing of Action
Traffic and Transportation				
T-1	**APM TRA-1: Minimize Street Use**. Construction activities would be designed to minimize work on or use of local streets.	• Prior to construction, SCE will submit a Construction Transportation Plan (See Mitigation Measure T-2) to the CPUC and Forest Service for review and approval. • CPUC and/or FS will monitor compliance during construction.	Traffic on public roadways remains generally free-flowing, as verified by the EM.	Prior to and during construction.
T-1	**APM TRA-2: Obtain Permits**. When local streets must be used for more than normal traffic purposes, an encroachment permit or similar authorization would be obtained from Caltrans, County, and/or local jurisdictions (or other agency) as applicable.	• Prior to construction, SCE will submit copies of all encroachment permits or similar authorizations obtained for the Project. • CPUC and/or FS will monitor compliance with permits/authorizations during construction.	Encroachment conditions are authorized.	Prior to and during construction.
T-1, T-5	**APM TRA-3: Incorporate Protective Measures**. Any construction or installation work requiring the crossing of a local street, highway, or rail line would incorporate the use of guard poles, netting, or similar means to protect moving traffic and structures from the activity. If necessary on state highways, continuous traffic breaks operated by the CHP would be planned and provided.	• Prior to construction, SCE will provide copies of the TCPs submitted to the applicable jurisdictions, to CPUC and FS for review. • CPUC and/or FS will monitor compliance during construction.	Traffic at road/rail crossings remains free-flowing during construction activities, as verified by the EM.	Prior to and during construction.
T-1	**APM TRA-4: Prepare Traffic Management Plans.** Traffic control and other management plans would be prepared where necessary to minimize project impacts on local streets.	• Prior to construction, SCE will provide copies of the Traffic Management Plans to the CPUC and FS. • CPUC and/or FS will monitor compliance during construction.	Traffic on public roadways affected by construction activities remains generally free-flowing, as verified by the EM.	Prior to and during construction.
T-9	**APM TRA-5: Repair Damaged Streets**. Any damage to local streets would be repaired, and streets would be restored to their pre-project condition.	CPUC and/or FS will monitor compliance following completion of construction.	Minimize permanent damage to roadways.	Within two months of completing construction.
Visual Resources				
V-2, V-5	**APM AES-1: Transmission Lines - Reduce Light Reflection off Towers/Poles.** Lattice steel towers (LSTs) and tubular steel poles (TSPs) will be constructed of steel that is galvanized and treated at the factory to create a dulled finish that will reduce reflection of light off of the tower members. As appropriate to the context, the galvanized coating will also be darkened to allow the towers to blend into the backdrops.	CPUC and/or FS will monitor for compliance.	Reduced glare in comparison to non-galvanized tower/poles.	Prior to construction.

Table A.1-3. Monitoring Plan for Applicant-Proposed Measures

Applicable Impact(s)	Measure	Monitoring Requirement	Effectiveness Criteria	Timing of Action
V-3	**APM AES-2: Transmission Lines - TSPs Near Existing Residential Development.** In areas that are in close proximity to existing residential development, TSPs will be specified to provide tower structures that relate visually to the other elements in these settings. The exceptions to this principle are: 1) LSTs are specified at turning tower locations and at long spans because, structurally, TSPs do not have the strength to withstand the forces exerted by the conductors at these locations; and 2) LSTs may be used to match existing structure types adjacent to the Project in the transmission corridor.	CPUC and/or FS will monitor for compliance.	Views of the transmission line will be less prominent.	Prior to and during construction.
None identified.	**APM AES-3: Transmission Lines - Nonreflective/Nonrefractive Insulators.** The insulators specified for this proposed Project will be made of materials that do not reflect or refract light.	CPUC and/or FS will monitor for compliance.	Avoid reflection or refraction of light in comparison to untreated insulators.	Prior to construction.
None identified.	**APM AES-4: Transmission Lines - Nonreflective/Nonrefractive Conductors.** The conductors specified for the Project will be nonspecular, that is, they will be treated at the factory to dull their surfaces to reduce their potential to reflect light.	CPUC and/or FS will monitor for compliance.	Avoid or reduce reflection or refraction of light in comparison to untreated conductors.	Prior to construction.
V-3	**APM AES-5: Transmission Lines - New Structures Aligned with Existing Structures.** To the extent feasible, new transmission structures that will be located in corridors containing existing transmission lines will be located to line up with the other transmission structures to create a higher level of visual unity.	CPUC and/or FS will monitor for compliance.	Minimize visual complexity from sensitive receptor locations.	Prior to and during construction.
V-2	**APM AES-6: Transmission Lines - Transmission Structures Set Back from Major Roadways.** Where conditions permit, transmission structures will be set back from the crossings of major roadways.	CPUC and/or FS will monitor for compliance.	Views of the transmission line will be less prominent.	Prior to and during construction.
V-2	**APM AES-7: Transmission Lines - Avoid Structures in Middle of Lines of Sight.** To the extent feasible, the final locations of transmission structures will be adjusted to avoid locations that place the structures in the middle of the line of sight from streets and other important views.	CPUC and/or FS will monitor for compliance.	Views of the transmission line will be less prominent.	Prior to and during construction.
None identified.	**APM AES-8: Transmission Lines - Regrade/Revegetate Construction Sites.** Any areas around new or rebuilt transmission structures that must be cleared during the construction process will be regraded and revegetated to restore the area to an appearance that will blend back into the overall landscape context.	CPUC and/or FS will monitor for compliance.	Minimize views of excavated areas.	During construction.
None identified.	**APM AES-9: Access Roads - Use Existing Access Roads.** To the extent feasible, existing access roads will be used.	CPUC and/or FS will monitor for compliance.	Minimize views of excavated areas.	During construction.
None identified.	**APM AES-10: Access Roads - Helicopter Construction.** In mountainous areas, particularly in the ANF, helicopters will be used for construction of towers in areas where extensive new road development would be required.	CPUC and/or FS will monitor for compliance.	Minimize views of excavated areas.	During construction.

Table A.1-3. Monitoring Plan for Applicant-Proposed Measures

Applicable Impact(s)	Measure	Monitoring Requirement	Effectiveness Criteria	Timing of Action
None identified.	**APM AES-11: Access Roads - Minimize Road Modifications.** Widening and grading of roads will be kept to the minimum required for access by proposed Project construction equipment.	CPUC and/or FS will monitor for compliance.	Minimize views of excavated areas.	During construction.
None identified.	**APM AES-12: Access Roads - Dust Suppression.** During the construction period, dust suppression measures will be used to minimize the creation of dust clouds potentially associated with the use of the access roads.	CPUC and/or FS will monitor for compliance.	Minimize visual obstructions.	During construction.
None identified.	**APM AES-13: Access Roads - Cut and Fill Slope Revegetation.** Any areas of exposed cut and fill slope created in the process of widening existing access roads or creating new access roads will be revegetated, as practicable, to blend back into the surrounding landscape.	CPUC and/or FS will monitor for compliance.	Minimize views of excavated areas.	During construction.
None identified.	**APM AES-14: Marshalling Yards and Laydown Areas - Reuse Previously Disturbed/Low Visibility, Low Sensitivity Areas for Marshalling Yards.** To the extent feasible, the sites selected for use as marshalling yards and laydown areas will be areas that are already disturbed, in locations of low visual sensitivity.	SCE shall submit final locations 30 days prior to construction.	Minimize views of excavated areas.	Prior to construction.
V-1	**APM AES-15: Marshalling Yards and Laydown Areas - Cover Chain-Link Fencing with Fabric.** During the construction period, the temporary chain-link fences surrounding the marshalling yards and laydown areas will be covered with fabric to limit views into these sites and to create a unified, tidy appearance.	CPUC and/or FS will monitor for compliance.	Minimize degradation of visual quality.	During construction.
	APM AES-16: Marshalling Yards and Laydown Areas - Reduce Glare and Light Spill. The lighting specified for the marshalling yards and laydown areas will be the minimum required to meet safety and security standards. All light fixtures will be hooded to eliminate any potential for glare effects and to prevent light from spilling off the site or up into the sky. In addition, the fixtures will have sensors and switches to permit the lighting to be turned off at times when it is not required.	CPUC and/or FS will monitor for compliance.	Avoid or reduce glare and light spill from sensitive receptor locations.	During construction.
V-1	**APM AES-17: Marshalling Yards and Laydown Areas - Construction Site Cleanup.** When the construction period is over, the fencing around the marshalling yards and laydown areas will be removed, the sites will be cleaned up, and their surfaces will be restored.	CPUC and/or FS will monitor for compliance.	Sites will be restored to pre-construction conditions.	After construction.
V-2, V-5	**APM AES-18: Substations - Reflectivity Finish.** Substation equipment will be specified with a low reflectivity, neutral finish. SCE will request dull finishes. Some equipment may not be available with a dull finish.	CPUC and/or FS will monitor for compliance.	Avoid or reduce reflection of light in comparison to untreated equipment.	Prior to and during construction.
V-2, V-5	**APM AES-19: Substations - Nonreflective/Nonrefractive Insulators.** All insulators at the substations and on the takeoff equipment will be nonreflective and nonrefractive.	CPUC and/or FS will monitor for compliance.	Avoid reflection or refraction of light in comparison to untreated insulators.	Prior to and during construction.

Table A.1-3. Monitoring Plan for Applicant-Proposed Measures

Applicable Impact(s)	Measure	Monitoring Requirement	Effectiveness Criteria	Timing of Action
V-2, V-5	**APM AES-20: Substations - Low Reflectivity Finish on Structures.** The surfaces of all structures will be given low reflectivity finishes with neutral colors to minimize the contrast of the structures with their backdrops.	CPUC and/or FS will monitor for compliance.	Avoid or reduce reflection of light in comparison to untreated structures.	Prior to and during construction.
V-2, V-5	**APM AES-21: Substations - Reduce Glare and Light Spill.** The lighting specified for the new and expanded substations will be the minimum required to meet safety and security standards. All light fixtures will be hooded to eliminate any potential for glare effects and to prevent light from spilling off the site or up into the sky. In addition, the fixtures will have sensors and switches to permit the lighting to be turned off at times when it is not required.	CPUC and/or FS will monitor for compliance.	Avoid or reduce glare and light spill from sensitive receptor locations.	Prior to and during construction.
V-2, V-5	**APM AES-22: Substations - Chain-Link Dulled Finish.** The chain-link fences surrounding the substations will have a dulled, darkened finish to reduce contrast with its surroundings.	CPUC and/or FS will monitor for compliance.	Reduce visual complexity.	Prior to and during construction.
V-2, V-3	**APM AES-23: Substations - Landscape Plan.** An appropriate landscape plan will be prepared for the area on the west side of the Vincent Substation expansion to screen the equipment from view and blend the substation into the surroundings.	SCE shall document coordination efforts and submit to reports to the CPUC and FS.	• Reduce visual complexity. • Minimize degradation of visual quality.	Prior to and during construction.
Wilderness and Recreation				
R-1, R-2	**APM REC-1: Temporary closures.** When temporary, short-term park or trail closures (including off-highway vehicle [OHV] routes and the PCT) are necessary for construction activities, SCE would coordinate those closures with applicable agencies. To the extent practicable, SCE would schedule construction activities to avoid heavy recreational use periods, such as holidays.	SCE shall document coordination efforts and submit reports to the CPUC and FS.	• Avoid interruptions during heavy recreation periods. • Minimize disruption of recreation activities.	Prior to and during construction.
R-1, R-2	**APM REC-2: Closure notices.** When temporary park or trail closures are necessary, SCE would post notice of the closure onsite 30 days prior to the closure and alternative access routes, when applicable.	SCE shall submit documentation of notice to the CPUC and FS.	• Avoid interruptions during heavy recreation periods. • Minimize disruption of recreation activities.	Prior to and during construction.
None identified.	**APM REC-3: Revegetation.** Any park areas temporarily affected by Project construction would be revegetated and returned to their original state. SCE would coordinate with owners of landscaped areas, parks, and hillsides to restore disturbed areas to a condition equal to or better than original.	SCE shall document coordination with landowners and restoration efforts, and submit reports to the CPUC and FS.	Affected park areas are returned to their pre-construction conditions.	Prior to and during construction.

Table A.1-3. Monitoring Plan for Applicant-Proposed Measures

Applicable Impact(s)	Measure	Monitoring Requirement	Effectiveness Criteria	Timing of Action
Wildfire Prevention and Suppression				
F-1, F-3, F-4	**APM HAZ-4: Fire Management Plan.** The Fire Management Plan, developed by SCE and presented in the PEA as Appendix D, would be implemented.	SCE shall submit the Fire Management Plan to the CPUC and FS for review and approval.	• Avoid or reduce potential for wildfires. • Provide procedures for immediate suppression, if necessary.	Prior to and during construction.

ATTACHMENT 3

Attachment 3. Revisions to the Final EIR

Subsequent to publication of the Final Environmental Impact Report (EIR), the CPUC identified the need for minor, clarifying text revisions. Those changes are presented in this section and are hereby incorporated into the TRTP Final EIR (see the table below). Text changes from the Final EIR are shown in strikeout and underline to illustrate deletions and additions, respectively. Additionally, this attachment includes responses to comments made by Californians for Renewable Energy, Inc., on the Draft EIR/EIS. These revisions merely clarify and amplify the analysis presented in the document, or make minor clerical revisions, and do not trigger the need to recirculate per CEQA Guidelines §15088.5(b).

Citation to FEIR	Previous Final EIR Text	Revisions to Final EIR
Executive Summary		
Page ES-10 (ES.3, Alternate 7: 66kV Subtransmission Alternative)	(3) Re-routing the existing 66-kV subtransmission line through the Whittier Narrows Recreation Area in Segment 7 (S7 MP 12.0 to 13.6) immediately north of the existing 220-kV ROW to reduce the number of structures required (20-foot expanded ROW required);	(3) Re-routing the existing 66-kV subtransmission line through the Whittier Narrows Recreation Area in Segment 7 (S7 MP 12.0 to 13.6) immediately north of the existing 220-kV ROW to reduce the number of structures required (~~20~~**50**-foot expanded ROW required);
Chapter 2 – Description of Alternatives		
Page 2-9 (Section 2.2.4, Second Paragraph)	To minimize the number of physical 500-kV crossings, the Midway – Vincent No.3 500-kV would be cutover to the previously approved Antelope – Tehachapi 500-kV T/L (Segment 3A).	To minimize the number of physical 500-kV crossings, the Midway – Vincent No.3 500-kV would be cutover to the previously approved Antelope – ~~Tehachapi~~ **Windhub** 500-kV T/L (Segment 3A).
Page 2-10 (Section 2.2.4.1, Vincent – Whirlwind 500-kV T/L (S4 MP 4.0 to 19.6))	At approximately S4 MP 17.9, the alignment would turn east towards the Antelope Substation remaining along the south side of West Avenue J-8 for approximately 1.3 miles, and then turn north at approximately S4 MP 19.2 to connect to the northern end of the previously approved Antelope – Vincent 500-kV T/L (Antelope Transmission Project, Segment 2) just outside of Antelope Substation (S4 MP 19.6), which would complete the circuit to Vincent Substation.	At approximately S4 MP 17.9, the alignment would turn east towards the Antelope Substation remaining along the south side of West Avenue J-8 for approximately 1.3 miles, and then ~~turn north~~ **connect** at approximately S4 MP 19.2 to c~~onnect to~~ the northern end of the previously approved Antelope – Vincent 500-kV T/L (Antelope Transmission Project, Segment 2) just outside of Antelope Substation (S4 MP 19.6), which would complete the circuit to Vincent Substation.
Page 2-10 (Section 2.2.4.2, Vincent – Whirlwind 500-kV T/L (S4 MP 4.0 to 19.6))	The Whirlwind – Antelope 500-kV T/L would use single-circuit 500-kV LST structures as shown in Figure 2.2-65.	The Whirlwind – ~~Antelope~~ **Vincent** 500-kV T/L would use single-circuit 500-kV LST structures as shown in Figure 2.2-65.
Page 2-10 (Section 2.2.4.1, Vincent – Whirlwind 500-kV T/L (S4 MP	At approximately S4 MP 17.9, the alignment would turn east towards the Antelope Substation remaining along the south side of West Avenue J-8 for approximately 1.3 miles, and then turn north at approximately S4 MP	At approximately S4 MP 17.9, the alignment would turn east towards the Antelope Substation remaining along the south side of West Avenue J-8 for approximately 1.3 miles, and then ~~turn north~~ **connect** at approximately

Citation to FEIR	Previous Final EIR Text	Revisions to Final EIR
4.0 to 19.6))	19.2 to connect to the northern end of the previously approved Antelope – Vincent 500-kV T/L (Antelope Transmission Project, Segment 2) just outside of Antelope Substation (S4 MP 19.6), which would complete the circuit to Vincent Substation.	S4 MP 19.2 to ~~connect to~~ the northern end of the previously approved Antelope – Vincent 500-kV T/L (Antelope Transmission Project, Segment 2) just outside of Antelope Substation (S4 MP 19.6), which would complete the circuit to Vincent Substation.
Page 2-15 (Section 2.2.6.2, Structures)	Segment 11 would utilize single-circuit 500-kV LST structures, as shown in Figure 2.2-65; single-circuit 500-kV delta tower structures, as shown in cross-section Figures 2.2-56 through 2.2-58; single-circuit 220-kV LST structures, as shown in Figure 2.2-64; and single-circuit 220-kV poles, as shown in Figure 2.2-74.	Segment 11 would utilize single-circuit 500-kV LST structures, as shown in Figure 2.2-65; ~~single-~~**double**-circuit 500-kV delta tower structures, as shown in cross-section Figures 2.2-56 through 2.2-58; single-circuit 220-kV LST structures, as shown in Figure 2.2-64; and single-circuit 220-kV poles, as shown in Figure 2.2-74.
Page 2-29 (Section 2.2.9.2, Conductors)	The 220-kV subsegment of Segment 8 (Subsegment 8C) would be strung with approximately 37,800 feet per circuit of 2B-1590 kcmil ACSR with nonspecular finish.	The 220-kV subsegment of Segment 8 (Subsegment ~~8C~~**8B**) would be strung with approximately 37,800 feet per circuit of 2B-1590 kcmil ACSR with nonspecular finish.
Page 2-30 (Section 2.2.10.1, Major Equipment and Structures, Third Paragraph)	The 220-kV switchyard would be designed to accommodate the termination of the proposed new Cottonwind – Whirlwind No. 1 T/L and Cottonwind – Whirlwind No. 2 T/L, as well as the installation of two 220-kV 79.2 Megavolt-Amps Reactive (MVAR) capacitor banks.	The 220-kV switchyard would be designed to accommodate the termination of the proposed new Cottonwind – Whirlwind No. 1 T/L and Cottonwind – Whirlwind No. 2 T/L**.** ~~as well as the installation of two 220-kV 79.2 Megavolt-Amps Reactive (MVAR) capacitor banks.~~
Page 2-30 (Section 2.2.10.1, Substation Light and Power, First Paragraph)	The Whirlwind Substation's light and power system would be designed to the latest standards, with a primary and a back-up power source, as well as an emergency system provided by an onsite, approximately 250 kW, diesel generator.	The Whirlwind Substation's light and power system would be designed to the latest standards, with a primary and a back-up power source, as well as an emergency system provided by an onsite, approximately ~~250 kW~~, **500-kW** diesel generator.
Page 2-30 (Section 2.2.10.1, Substation Light and Power, Fourth Paragraph)	Under normal operating conditions, the substation would not be illuminated at night. Lighting would be used only for maintenance outages or emergency repairs occurring at night. The location of the high-pressure sodium lights are in the switchyards, around the transformer banks, and in areas of the yard where operating and maintenance activities may take place during evening hours.	Under normal operating conditions, the substation would not be illuminated at night. Lighting would be used only for maintenance outages or emergency repairs occurring at night. The location of the ~~high-pressure sodium~~ lights are in the switchyards, around the transformer banks, and in areas of the yard where operating and maintenance activities may take place during evening hours.
Page 2-31 (Section 2.2.10.1, Substation Ground Grid)	SCE would install a new grounding grid using 350 kcmil ACSR for the new 500-kV and 220-kV switchyard areas. This type of conductor has a diameter of approximately 0.75 inches (Note: This is a non-standard conductor so the diameter may vary slightly). All new 500- and 220-kV equipment would be grounded to the new grid using 350 kcmil ACSR.	SCE would install a new grounding grid using 350 kcmil ACSR for the new 500-kV and 220-kV switchyard areas. This type of conductor has a diameter of approximately 0.75 inches (Note: This is a non-standard conductor so the diameter may vary slightly). All new 500- and 220-kV equipment would be grounded to the new grid using 350 kcmil **soft drawn bare copper conductor**. ~~ACSR~~.

Citation to FEIR	Previous Final EIR Text	Revisions to Final EIR
Page 2-31 (Section 2.2.10.2)	The exceptions to the licensing were the installation of a 200 MVAR Static VAR Compensator (SVC) and two 500-kV, 150 MVAR each, shunt capacitor banks. The installation of the new equipment would be in an area of approximately 18 acres. Approximately 20 acres of additional land would be acquired by SCE; the additional land at the substation site would accommodate the additional new construction at the Antelope Substation (see Figure 2.2-76).	The exceptions to the licensing were the installation of ~~a 200 MVAR Static VAR Compensator (SVC)~~ **~~and~~ two 500-kV, 150 MVAR each, shunt capacitor banks and enough spare for a future 200 MVAR Static VAR compensator (SVC).** The installation of the new equipment would be in an area of approximately 18 acres. Approximately 20 acres of ~~additional~~ land would be acquired by SCE; the additional land at the substation site would accommodate the additional new construction at the Antelope Substation (see Figure 2.2-76).
Page 2-32 (Section 2.2.10.2, Major Equipment and Structures, Second Paragraph)	The new substation equipment would also include500-kV SVC equipment and control building to be located within the SVC yard.	The new substation equipment would also include **space for** 500-kV SVC equipment and control building to be located within the **substation** ~~SVC yard~~.
Page 2-32 (Section 2.2.10.2, Substation Light and Power, First Paragraph)	The primary power source for the Antelope Substation would be from the 13.8-kV tertiary buses of a new AA transformer bank and its related auxiliary step down transformer. The secondary power source would be from a new 12-kV line. The emergency power source would be from a diesel generator. Automatic control and switching equipment would be included.	The primary power source for the Antelope Substation would be from the 13.8-kV tertiary buses of ~~a~~ new AA transformer**s** bank and ~~its~~ **their** related auxiliary step down transformer. The secondary power source would be from a ~~new~~ **existing**12-kV line. The emergency power source would be from ~~a~~ **two 500 kW** diesel generator**s**. Automatic control and switching equipment would be included.
Page 2-32 (Section 2.2.10.2, Substation Light and Power, Second Paragraph)	Outdoor road lighting would be provided for the substation's internal roads and access areas. Outdoor equipment maintenance lighting would be provided for the 500-kV switchyard equipment, 500/220/13.8-kV auto-transformers, 500-kV SVC equipment, and 500-kV/220-kV shunt capacitor bank equipment.	Outdoor road lighting would be provided for the substation's internal roads and access areas. Outdoor equipment maintenance lighting would be provided for the 500-kV switchyard equipment, 500/220/13.8-kV auto-transformers~~, 500-kV SVC equipment~~, and 500-kV/220-kV shunt capacitor bank equipment.
Page 2-32 (Section 2.2.10.2, Substation Light and Power, Third Paragraph)	Under normal conditions, the substation would not be illuminated at night. Lighting would be used only for emergency repairs or maintenance outages during evening hours. The high-pressure sodium lights are located in the switchyards, around the transformer banks, and in areas of the yard where operating and maintenance activities may take place during evening hours.	Under normal conditions, the substation would not be illuminated at night. Lighting would be used only for emergency repairs or maintenance outages during evening hours. The ~~high-pressure sodium~~ lights are located in the switchyards, around the transformer banks, and in areas of the yard where operating and maintenance activities may take place during evening hours.
Page 2-33 (Section	The 500-kV substation expansion would be on the existing SCE-fee owned property. The 220-kV switchyard expansion would require	The 500-kV substation expansion would be on the existing SCE-fee owned property. The 220-kV switchyard expansion would require

Citation to FEIR	Previous Final EIR Text	Revisions to Final EIR
2.2.10.3)	approximately 0.2 acre of new property acquisition, and would disturb approximately 20 acres of existing and new substation land.	approximately ~~0.2~~ **0.68** acre of new property acquisition, and would disturb approximately 20 acres of existing and new substation land.
Page 2-33 (Section 2.2.10.3, Major Equipment and Structures, First Paragraph, Bullets 3 and 4)	• Mira Loma – Vincent 500-kV T/L • Other major equipment: two 500-kV 200 MVAR shunt capacitor banks and one 500-kV 600 MVAR SVC	• Mira Loma – Vincent 500-kV T/L • Other major equipment: two 500-kV 200 MVAR shunt capacitor banks ~~and one 500-kV 600 MVAR SVC~~
Page 2-33 (Section 2.2.10.3, Substation Light and Power, First Paragraph)	The existing station power and lighting system, including the substation's emergency generator, would be replaced and relocated within the expanded substation yard.	The existing station power and lighting system **remains. Two power supply circuits are added to the existing station L&P transformers to feed the new control building.** ~~, including~~ **The existing** substation emergency generator, would be replaced **by a new diesel generator set with 500-kW capacity at the original location**. ~~a large and relocated within the expanded substation yard.~~
Page 2-33 (Section 2.2.10.3, Substation Light and Power, Second Paragraph)	Under normal operating hours, the substation would not be illuminated at night. Lighting would be used only for emergency repairs or maintenance outages during evening hours. The high-pressure sodium lights are located in the switchyards, around the transformer banks, and in areas of the yard where operating and maintenance activities may take place during evening hours.	Under normal operating hours, the substation would not be illuminated at night. Lighting would be used only for emergency repairs or maintenance outages during evening hours. The ~~high-pressure sodium~~ lights are located in the switchyards, around the transformer banks, and in areas of the yard where operating and maintenance activities may take place during evening hours.
Page 2-34 (Section, 2.2.10.4, Major Equipment and Structures, First Paragraph)	Within the existing 220-kV switchyard at the Gould Substation, equipment would be installed in the existing 220-kV switchyard to terminate the new Eagle Rock – Gould 220-kV T/L. Final equipment selection would occur during the final design to search for available and applicable low-decibel equipment.	Within the existing 220-kV switchyard at the Gould Substation, equipment would be installed in the existing 220-kV switchyard to terminate the new Eagle Rock – Gould 220-kV T/L. **The 220-kV switchrack will also be equipped with bank positions including 220-kV circuit breakers and disconnect switches in order to convert the configuration to bank-on-breaker.** Final equipment selection would occur during the final design. ~~to search for available and applicable low-decibel equipment.~~
Page 2-34 (Section, 2.2.10.4, Major Equipment and Structures, Second Paragraph)	The MEER activities would include installation of all required protective relays for the new Eagle Rock – Gould 220-kV T/L. The MEER activities would also include installation of all required protective relays for the new 220-kV transformer banks circuit breakers.	The MEER activities would include installation of all ~~required~~ **new** protective relay~~s~~ **pads** for the new Eagle Rock – Gould 220-kV T/L. The MEER activities would also include installation of all required protective relay~~s~~ **pads** for the new 220-kV transformer banks circuit breakers.
Page 2-34	An upgrade to the substation's existing power	An upgrade to the substation's existing power

Citation to FEIR	Previous Final EIR Text	Revisions to Final EIR
(Section, 2.2.10.4, Substation Light and Power)	system would not be required. New lighting would be provided for the new 220-kV bus extension area. Under normal operating hours, the substation would not be illuminated at night. Lighting would be used only for emergency repairs or maintenance outages during evening hours. The high-pressure sodium lights are located in the switchyards, around the transformer banks, and in areas of the yard where operating and maintenance activities may take place during evening hours.	system would not be required. New lighting would be provided for the new 220-kV bus extension area. Under normal operating hours, the substation would not be illuminated at night. Lighting would be used only for emergency repairs or maintenance outages during evening hours. The ~~high-pressure sodium~~ lights are located in the switchyards, around the transformer banks, and in areas of the yard where operating and maintenance activities may take place during evening hours.
Page 2-34 (Section, 2.2.10.4, Substation Ground Grid Extension)	As the existing substation yard boundaries would not be modified under the proposed Project, no extension of the substation ground grid is required.	~~As the existing substation yard boundaries would not be modified under the proposed Project, no extension of the substation ground grid is required~~. **The ground grid will be upgraded for increased substation fault current.**
Page 2-34 (Section, 2.2.10.5)	The Mesa Substation portion of Segment 9 includes upgrades of the existing 220-kV switchyard with additional equipment to accommodate the connection of the new Mesa – Vincent No. 1 220-kV T/L in Segment 11 (see Figure 2.2-1v). All upgrades at the Mesa Substation would take place within the existing fence line.	The Mesa Substation portion of Segment 9 includes upgrades of the existing 220-kV switchyard with additional equipment to accommodate the connection of the ~~new~~ Mesa – Vincent No. 1 220-kV. **The new Mesa-Vincent No. 2 220-kV shall be terminated in 220-kV position 12.** T/L in Segment 11 (see Figure 2.2-1v). All upgrades at the Mesa Substation would take place within the existing fence line.
Page 2-34 (Section, 2.2.10.5, Major Equipment and Structures, Second Paragraph)	The MEER activities would include installation of all required protective relays for the new Mesa – Vincent No. 1 220-kV T/L.	The MEER activities would include installation of all required protective relays for the new Mesa – Vincent No. ~~1~~ **2** 220-kV T/L.
Page 2-34 (Section, 2.2.10.5, Substation Light and Power)	An upgrade to the substation's existing power system is not required. Under normal operating hours, the substation would not be illuminated at night. Lighting would be used only for emergency repairs or maintenance outages during evening hours. The high-pressure sodium lights are located in the switchyards, around the transformer banks, and in areas of the yard where operating and maintenance activities may take place during evening hours.	An upgrade to the substation's existing power system is not required. Under normal operating hours, the substation would not be illuminated at night. Lighting would be used only for emergency repairs or maintenance outages during evening hours. The ~~high-pressure sodium~~ lights are located in the switchyards, around the transformer banks, and in areas of the yard where operating and maintenance activities may take place during evening hours.
Page 2-35 (Section 2.2.10.6)	The Mira Loma Substation portion of Segment 9 would include the construction of a new 500-kV position to terminate the new Mira Loma –	The Mira Loma Substation portion of Segment 9 would include the construction of a new 500-kV position to terminate the new Mira Loma –

Citation to FEIR	Previous Final EIR Text	Revisions to Final EIR
	Vincent 500-kv T/L, as described under Segment 8 (see Figure 2.2-1y).	Vincent 500-kv T/L, as described under Segment 8 (see Figure 2.2-1y). **In addition, the EMS control of the station will have to be reworked to incorporate Substation Automation System (SAS) control of selected system. A new MEER will be constructed for the SAS.**
Page 2-35 (Section 2.2.10.6, Major Equipment and Structures, First Paragraph)	New equipment would be installed at existing 500-kV Line Position 2X to terminate the new Mira Loma – Vincent 500-kV T/L. Final equipment selection would occur during the final design to search for available and applicable low-decibel equipment.	New equipment would be installed at existing 500-kV Line Position 2X to terminate the new Mira Loma – Vincent 500-kV T/L. **The new MEER will be approximately 63' x 115', and will be sized for the ultimate build out of the 500-kV and 220-kV systems at the station.** Final equipment selection would occur during the final design**.** ~~to search for available and applicable low-decibel equipment~~. **The existing control building will be remodeled for the additional space to house test and maintenance personnel.**
Page 2-35 (Section, 2.2.10.6, Major Equipment and Structures, Second Paragraph)	The MEER scope of work would include installation of all required protective relays for the new Mira Loma – Vincent 500-kV T/L on Line Position No. 2X.	The MEER scope of work would include installation of **a new MEER along with** all required protective relays**.** ~~for the new Mira Loma – Vincent 500-kV T/L on Line Position No. 2X.~~
Page 2-35 (Section, 2.2.10.6, Substation Light and Power)	An upgrade to the substation's existing power system would not be required. Under normal operating conditions, the substation would not be illuminated at night. Lighting would be used only for emergency repairs or maintenance outages during evening hours. The high-pressure sodium lights are located in the switchyards, around the transformer banks, and in areas of the yard where operating and maintenance activities may take place during evening hours.	An upgrade to the substation's existing power system would not be required. Under normal operating conditions, the substation would not be illuminated at night. Lighting would be used only for emergency repairs or maintenance outages during evening hours. The ~~high-pressure sodium~~ lights are located in the switchyards, around the transformer banks, and in areas of the yard where operating and maintenance activities may take place during evening hours.
Page 2-52 (Section 2.2.12.10, Grading and Earthwork, Last bullet)	Install approximately 6,400 feet of 8-foot-high chain link perimeter fence with barbed wire surrounding the entire substation pad and two 24-foot-wide double drive gates	Install approximately 6,400 feet of 8-foot-high ~~chain link perimeter fence~~ **concrete type wall** with barbed wire surrounding the entire substation pad and two ~~24~~ **approximately 40** foot-wide **automatic** ~~double drive~~ gates
Page 2-58 (Section 2.2.12.10, Whirlwind Substation, *Whirlwind*	220-kV Capacitor Banks 1 and 2	**Future** 220-kV Capacitor Banks 1 and 2

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Substation Equipment		
Page 2-58 (Section 2.2.12.10, Antelope Substation, *Antelope Substation Equipment*, Second Paragraph)	In addition, the new 500 kV position 8 at the existing Antelope Substation would be equipped with the following equipment for the new SVC: • Two 500-kV, 3000A, 63kA, circuit breakers and foundations. • Four sets of 500-kV, 3000A, disconnecting switches with support structures and foundations. • Forty eight 500-kV, high-strength post insulators and foundations. • Three 108-foot-high steel dead-end structures and foundations. • Three tie-downs, each equipped with 2B-2156 kcmil ACSR conductor. • Three 500-kV, polymer-composite, station type surge arresters. • Three 600-foot segments of 2B-2156 kcmil ACSR conductor; total conductor length would be approximately 3,600 feet. • Install new SVC and other associated equipment on the southwest side of the substation.	~~In addition, the new 500 kV position 8 at the existing Antelope Substation would be equipped with the following equipment for the new SVC:~~ ~~• Two 500-kV, 3000A, 63kA, circuit breakers and foundations.~~ ~~• Four sets of 500-kV, 3000A, disconnecting switches with support structures and foundations.~~ ~~• Forty eight 500-kV, high-strength post insulators and foundations.~~ ~~• Three 108-foot-high steel dead-end structures and foundations.~~ ~~• Three tie-downs, each equipped with 2B-2156 kcmil ACSR conductor.~~ ~~• Three 500-kV, polymer-composite, station type surge arresters.~~ ~~• Three 600-foot segments of 2B-2156 kcmil ACSR conductor; total conductor length would be approximately 3,600 feet.~~ ~~• Install new SVC and other associated equipment on the southwest side of the substation.~~
Page 2-62 (Section 2.2.12.10, Vincent Substation, *Vincent Substation Equipment*, First Paragraph, Bullets 2 and 3)	• Install two 200 MVAR each capacitor banks at north bus east end and south bus west end • Install one new 600 MVAR SVC, connected to 500-kV switchrack position 4XN	• Install two 200 MVAR each capacitor banks, **one** at **the west end of** north bus **and one at the west end of** ~~east end and~~ south bus ~~west end~~ ~~• Install one new 600 MVAR SVC, connected to 500-kV switchrack position 4XN~~
Page 2-62 (Section 2.2.12.10, Vincent Substation, *Vincent Substation Equipment,* Second Paragraph, Bullets 2-5)	• Relocate the Westwind-Wildness 220-kV T/L termination from position 1XS to 2XN. • Upgrade Antelope-Vincent No. 1 220-kV T/L and riser conductors from 2B-1033 kcmil ACSR (twin bundle with two ACSR conductors, where each 1033 ACSR conductor has a diameter of 1.21 to 1.24 inches) to2B-1590 kcmil ACSR (twin bundle with two ACSR conductors, where each 1590 ACSR conductor has a diameter of 1.50 to 1.55 inches). • Install tie breaker #532 with disconnect	• ~~Relocate the Westwind-Wildness 220-kV T/L termination from position 1XS to 2XN.~~ • Upgrade Antelope-Vincent No. 1 220-kV T/L and riser conductors from 2B-1033 kcmil ACSR (twin bundle with two ACSR conductors, where each 1033 ACSR conductor has a diameter of 1.21 to 1.24 inches) to2B-1590 kcmil ACSR (twin bundle with two ACSR conductors, where each 1590 ACSR conductor has a diameter of 1.50 to 1.55 inches). • Install tie breaker #532 with disconnect

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	switch and T/L dead end at position 3S and terminate the Antelope - Vincent No. 2 220-kV T/L at position 3S. Use 2B-1590 kcmil ACSR conductors. • Terminate the 500-kV Mesa-Vincent No. 1 500-kV T/L (via Gould) at position 2XS and initially operate at 220-kV. • Upgrade Rio Hondo-Vincent No. 2 500-kV T/L connection to 500-kV and initialized at 220-kV and remained at Position 6S.	switch and T/L dead end at position 3S and terminate the Antelope - Vincent No. 2 220-kV T/L at position 3S. Use 2B-1590 kcmil ACSR conductors. • Terminate the 500-kV Mesa-Vincent No. 1 500-kV T/L (~~via Gould~~) at position 2~~X~~S and initially operate at 220-kV. ~~• Upgrade~~ **Rebuild the** Rio Hondo-Vincent No. 2 ~~500~~ **220**-kV T/L **to 500-kV standards** ~~connection to 500-kV and initialized~~ **initially energized** at 220-kV and ~~remained~~ **terminated** at Position 6S.
Page 2-63 (Section 2.2.12.10, Vincent Substation, *Vincent Substation Equipment*, 500-kV Systems, Bullets 1-3)	• 200/266/373 MVA step-down transformer 4 each (1 phase) • 200 MVAR capacitor bank 2 each • 600 MVAR SVC with mechanically switched capacitor (MSC) system 1 each	~~• 200/266/373 MVA step-down transformer 4 each (1 phase)~~ • 200 MVAR capacitor bank 2 each ~~• 600 MVAR SVC with mechanically switched capacitor (MSC) system 1 each~~
Page 2-63 (Section 2.2.12.10, Vincent Substation, *Vincent Substation Equipment*, Other Major Electrical Equipment, Bullet 3)	• Emergency generator 250 kW, 3-phase 120/240 V 1 each	• Emergency generator ~~250~~ **500**kW, 3-phase 120/240 V 1 each
Page 2-65 (Section 2.2.12.10, Gould Substation, 220-kV Position 2 (Eagle Rock – Pardee 220-kV Line))	220-kV Position 2 (Eagle Rock – Pardee 220-kV Line) The existing equipment at existing 220-kV position 2 is rated for 3000A and is adequate for the termination of the new Eagle Rock – Pardee 220-kV T/L. The existing 220-kV wave trap on C phase might have to be removed depending on new protection requirements.	220-kV Position 2 (~~Eagle Rock – Pardee~~ **Sylmar - Gould** 220-kV Line) **Relocate the existing Sylmar 220-kV line from 220-kV position 1 to 220-kV position 2.** The existing equipment at existing 220-kV position 2 is rated for 3000A and is adequate for the termination of the ~~new Eagle Rock – Pardee~~ **Sylmar - Gould** 220-kV T/L. ~~The existing 220-kV wave trap on C phase might have to be removed depending on new protection requirements~~. **220-kV Position 1 (Eagle Rock – Gould 220-kV Line)** **The existing equipment at the 220-kV**

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		position 1 is rated for 3000A and is adequate for termination of the new Eagle Rock-Gould 220-kV transmission line.
Page 2-66 (Section 2.2.12.10, Mira Loma Substation, *Mira Loma Substation Equipment,* Last Bullet)	• Three 600-foot segments of 3B-2156 kcmil conductor; total conductor length would be approximately 5,400 feet.	• Three 600-foot segments of 3B-2156 kcmil conductor; total conductor length would be approximately 5,400 feet. **Install a new MEER to house new protection relay panels of the 500-kV switchrack and all AA- transformer banks. Extend new conduits and control/power cables from the new MEER 500-kV switchrack and all AA-transformer banks.**
Page 2-66 (Section 2.2.12.10, Mesa Substation, *Mesa Substation Equipment*)	Within the existing 220-kV switchyard at the Mesa Substation, the following work would be performed at existing 220-kV Line Positions 11 and 12 to terminate the new Mesa – Vincent No. 2 220-kV T/L	Within the existing 220-kV switchyard at the Mesa Substation, the following work would be performed at existing 220-kV Line Positions 11 and 12 **to relocate the existing Vincent #1 and** terminate the new ~~Mesa~~ – Vincent No. 2 220-kV T/L
Page 2-66 (Section 2.2.12.10, Mesa Substation, *Mesa Substation Equipment,* 220-kV Position 12 (Vincent No. 2 220-kV T/L)	• Upgrade existing 220-kV position 12 to 4000A. • Replace two 220-kV, 3000A, 63 kA circuit breakers with two, 220-kV, 4000A, 63 kA circuit breakers. • Replace four, 220-kV, 3000A, disconnecting switches with four, 220-kV, 4000A, disconnecting switches, one with grounding attachments. • Replace existing three 200-foot segments of 1-1590 kcmil conductors; new conductor type would be determined during detailed design. • Remove existing 220-kV, 3000A, suspension-mounted, wave trap. • Replace existing 220-kV suspension-mounted CCVTs with new 220-kV CCVTs. • Reconductor existing tie-downs for 4000A capacity.	~~• Upgrade existing 220-kV position 12 to 4000A.~~ ~~• Replace two 220-kV, 3000A, 63 kA circuit breakers with two, 220-kV, 4000A, 63 kA circuit breakers.~~ ~~• Replace four, 220-kV, 3000A, disconnecting switches with four, 220-kV, 4000A, disconnecting switches, one with grounding attachments.~~ ~~• Replace existing three 200-foot segments of 1-1590 kcmil conductors; new conductor type would be determined during detailed design.~~ ~~• Remove existing 220-kV, 3000A, suspension-mounted, wave trap.~~ ~~• Replace existing 220-kV suspension-mounted CCVTs with new 220-kV CCVTs.~~ ~~• Reconductor existing tie-downs for 4000A capacity.~~ **The existing equipment at the 220-kV position 12 is rated for 3000A and is adequate for the termination of the new Vincent No. 2 220-kV transmission line. Remove and retire the wave trap and line tuner. Install twelve 3000/5A multi-ratio bushing current transformers (BCTs) (two on each pole of the circuit breaker No.33 and remove and retire the existing ones). Install new current cables for the new**

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		current transformers.
Page 2-67 (Section 2.2.12.12, First Paragraph)	Geotechnical test work considered part of TRTP would occur only after the CPUC has certified the Final EIR/EIS (for CEQA compliance) and has approved SCE's Certificate of Public Convenience and Necessity (CPCN) application (Application A.07-06-031) or the Forest Service has issued a Record of Decision (ROD) on the Project.	**Except for geological assessments and geotechnical studies prior to final engineering to identify site-specific geologic conditions and soil types,** ~~G~~**g**eotechnical test work considered part of TRTP would occur only after the CPUC has certified the Final EIR/EIS (for CEQA compliance) and has approved SCE's Certificate of Public Convenience and Necessity (CPCN) application (Application A.07-06-031) or the Forest Service has issued a Record of Decision (ROD) on the Project.
Figure 2.2-2		See updated Figure 2.2-2
Figures 2-10, 2.2-56, 2.2-57, 2.2-58	Figures 2.2-10, 2.2-56, 2.2-57, and 2.2-58 show cross sections from Segment 11 MP 0.0 to 4.0. In these cross sections under Future ROW the 500kV SC Delta Tower is shown as a triangular configuration on the top Insulator portion of the Tower.	Figures 2.2-10, 2.2-56, 2.2-57, and 2.2-58 have been updated to show a 500 kV double-circuit tower that has cross arms on one side. (See attached Figures 2.2-10, 2.2-56, 57, and 58).
Section 3.4 - Biological Resources		
Page 3.4-170 (Mitigation Measure B-8a, *Conduct protocol surveys for California red-legged frogs and implement avoidance measures*, Second Bullet)	• All trash that may attract predators of the red-legged frogs will be removed from work sites or completely secured at the end of each work day. At the Project crossing near the newly discovered population in Aliso Canyon, and anywhere California red-legged frogs are detected in or adjacent to the Project, the following shall apply: • A full-time monitor shall be present at the access road crossing near the newly discovered population of California red-legged frog in Aliso Canyon, while water is present. • Between 1 November and 31 March, no work will be authorized within one mile of occupied habitat and no vehicular crossings at wet fords of those channels will be authorized. The one-mile buffer distance may be reduced based on the topography of the site with the approval of the FWS, FS, and CPUC. • Between April 1 to 31 October, no work will be authorized within 500 feet of occupied habitat and no vehicular crossings at wet fords of those channels will be authorized.	• All trash that may attract predators of the red-legged frogs will be removed from work sites or completely secured at the end of each work day. At the Project crossing ~~near the newly discovered population~~ in Aliso Canyon, and anywhere California red-legged frogs are detected in or adjacent to the Project, the following shall apply: • A full-time monitor shall be present at the access road crossing **when in use** near the newly discovered population of California red-legged frog in Aliso Canyon, while water is present. **Use of the road will be restricted to daylight hours, except during an emergency, in order to avoid nighttime activities when red-legged frogs may be present on the access road. Traffic speed shall be maintained at 15 mph or less in the work area. Use of this roadway during rain events shall not occur during the activity period for California red-legged frogs.** • Between 1 November and 31 March, no work will be authorized within ~~one~~ 0.5 mile~~s~~ of occupied habitat and no vehicular crossings at wet fords of those

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		channels will be authorized **without an authorized monitor.** The ~~one~~ 0.5-mile buffer distance may be reduced based on the topography of the site with the approval of the ~~FWS,~~ FS~~,~~ and CPUC. **Use of paved public access roads will not be restricted (i.e. Aliso Canyon Road).** • Between April 1 to 31 October, no **access road** work will be authorized within 500 feet of occupied habitat and no vehicular crossings at wet fords of those channels will be authorized **without an authorized monitor**. **Use of paved public access roads will not be restricted (i.e. Aliso Canyon Road).**
Page 3.4-197 (Mitigation Measure B-16, *Conduct protocol or focused surveys for coastal California gnatcatcher and implement avoidance measures*, Fifth Paragraph)	SCE shall retain a FWS-permitted biologist to monitor construction activities within 100 feet of an active California gnatcatcher nests in the Montebello Hills area only and assist SCE in the implementation of the monitoring program. In the Montebello Hills, grading and vegetation management, including activities conducted during Project operations and maintenance, shall be conducted outside of the breeding season (March – August). A 300-foot buffer is required for all other areas. A biologist with applicable avian experience with the California gnatcatcher will monitor all construction activities within 300 feet of occupied California gnatcatcher habitat. The resumes of the permitted biologists will be provided to the CPUC for concurrence. This biologist will be referred to as the authorized biologist hereafter. The authorized biologist will have the authority to stop all activities until appropriate corrective measures have been completed.	SCE shall retain a FWS-permitted biologist to monitor construction activities within 100 feet of an active California gnatcatcher nests in the Montebello Hills area only and assist SCE in the implementation of the monitoring program. In the Montebello Hills, grading and vegetation management, including activities conducted during Project operations and maintenance, shall be conducted outside of the breeding season (March – August) **unless otherwise authorized by the FWS**. A 300-foot buffer is required for all other areas. A biologist with applicable avian experience with the California gnatcatcher will monitor all construction activities within 300 feet of occupied California gnatcatcher habitat. The resumes of the permitted biologists will be provided to the CPUC for concurrence. This biologist will be referred to as the authorized biologist hereafter. The authorized biologist will have the authority to stop all activities until appropriate corrective measures have been completed.
Page 3.4-225 (Mitigation Measure B-29, *Implement CDFG protocol for burrowing owls*, Third Bullet)	Any damaged or collapsed burrows will be replaced with artificial burrows in adjacent habitat.	Any damaged or collapsed burrows will be **enhanced or** replaced with artificial burrows in ~~adjacent~~ **suitable** habitat **within the right of way consistent with CDFG guidelines**.
Section 3.5 – Cultural Resources		

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Page 3.5-2 (Section 3.5.2, Fourth Paragraph)	For Project Segments 4, 5, 7, 8, 9 (Substations), and 10, which are outside the boundaries of the ANF, the APE is 250 feet wide. For any marshalling yards, wire setup areas, helicopter staging areas, helicopter landing zones, or other areas similarly used for the Project outside the 250-foot wide corridor, the APE also includes a 50-foot wide buffer beyond the proposed boundary of the proposed use area. For any access and spur roads, construction turn-arounds, guard pole locations, or other linear facility outside the 250-foot wide corridor, the APE extends for 50 feet on either side of the center line.	For Project Segments 4, 5, 7, 8, 9 (Substations), and 10, which are outside the boundaries of the ANF, the APE is 250 feet wide. For any marshalling yards, wire setup areas, helicopter staging areas, helicopter landing zones, or other areas similarly used for the Project outside the 250-foot wide corridor, the APE also includes a 50-foot wide buffer beyond the proposed boundary of the proposed use area. For any access and spur roads, construction turn-arounds, guard pole locations, or other linear facility outside the 250-foot wide corridor, the APE extends for 50 feet on either side of the center line. **Additional details on the APE may be found in Stipulation I(A) of the Programmatic Agreement.**
Page 3.5-45 (Section 3.5.6.2, under Cumulative Impact Analysis, third paragraph)	If the Project cannot be redesigned so that most of these sites are avoided, and the affected sites prove after evaluation to be historic properties eligible for the NRHP, if the impacts are extensive, and/or if the types of sites impacted by the Project are unique, unusual, or uncommon in the region, then the combination of those impacts with similar impacts of other projects would be cumulatively considerable. The overall loss of cultural resources and cumulative degradation of the regional resource base would not be mitigated to less than significant by application of the Project APMs and other mitigation measures. As a result, cumulative impacts would be Class I, significant and unavoidable.	**SCE anticipates that the Project can be designed so most archaeological sites are avoided. Any impacts to archaeological resources that cannot be avoided will not be extensive and impacts to individual sites can be mitigated to less than significant levels through application of the APMs and other mitigation measures.** If the Project cannot be redesigned so that ~~most of these sites are avoided, and the affected sites prove after evaluation to be~~ **a significant number of** historic properties eligible for the NRHP **are substantially**~~, if the impacts are extensive, and/or if the types of sites~~ impacted by the Project~~ are unique, unusual, or uncommon in the region~~, then the combination of those impacts **along** with similar impacts of other projects ~~w~~**c**ould be cumulatively considerable. **If that is the case,** ~~T~~**t**he overall loss of cultural resources and cumulative degradation of the regional resource base would not be mitigated to less than significant by application of the Project APMs and other mitigation measures. ~~As a result~~ **In that event**, cumulative impacts would be Class I, significant and unavoidable.
Section 3.6 – Environmental Contamination and Hazards		
Page 3.6-4 (Section 3.6.2, Affected Environment, last paragraph before Section	The database search would cover the entire TRTP route and would then be reviewed to identify any potential areas of concern that would require further assessment.	The database search would cover the entire TRTP route **at each new or expanded substation location and along newly acquired transmission line rights-of-way** and would then be reviewed to identify any potential areas of concern that would require

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3.6.2.1)		further assessment.
Page 3.6-41 (Mitigation Measure E-3c, *Verify location and status of abandoned oil and natural gas wells.*	Prior to excavation and construction activities, SCE shall contact the California Department of Conservation, Division of Oil, Gas and Geothermal Resources (DOGGR) for specific information on wells located within 500 feet of the transmission line route, including location and abandonment details. SCE shall avoid construction near (within 50 feet) abandoned oil or gas wells. If a tower or trench is located within 50 feet of a plugged or abandoned well, SCE shall coordinate with DOGGR and provide written confirmation to the CPUC that the well has been correctly abandoned and does not require remedial plugging or the installation of a gas venting system. If an unrecorded well is encountered during construction, SCE shall stop construction and notify DOGGR immediately. Although SCE would not be responsible to properly abandon oil wells in the vicinity of the Project, construction at the location will resume only after SCE provides the CPUC with written confirmation that the well has been correctly abandoned and does not require remedial plugging or the installation of a gas venting system.	Prior to excavation and construction activities, SCE shall contact the California Department of Conservation, Division of Oil, Gas and Geothermal Resources (DOGGR) for specific information on wells located within 500 feet of the transmission line route, including location and abandonment details. SCE shall avoid construction near (within 50 feet) abandoned oil or gas wells. If a tower or trench is located within 50 feet of a plugged or abandoned well, SCE shall coordinate with DOGGR and provide written confirmation to the CPUC that the well has been correctly abandoned and does not require remedial plugging or the installation of a gas venting system. **If documentation of proper abandonment is not available, SCE shall provide and implement a work plan for natural gas testing and controls for the work area and excavations which complies with OSHA standards for protection of workers. The work plan shall include, at a minimum, the following: testing of areas where hazardous atmosphere exists or could reasonably be expected to exist (excavations and work areas within 50 feet of identified oil or gas wells), and if hazardous atmosphere is identified controls such as proper respiratory protection or ventilation must be provided. Additionally, the work plan shall require regular testing of controls used to reduce atmospheric contaminants to acceptable levels. The work plan shall also require that where adverse atmospheric conditions may exist or develop in an excavation area, emergency rescue equipment (e.g., breathing apparatus, a safety harness and line, basket stretcher, etc.) must be kept readily available.** If an unrecorded well is encountered during construction, SCE shall stop construction and notify DOGGR immediately. Although SCE would not be responsible to properly abandon oil wells in the vicinity of the Project, construction at the location will resume ~~only~~ after SCE **has coordinated with DOGGR to verify well status and provided** ~~provides~~ the CPUC with written confirmation that the well

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		has been correctly abandoned and does not require remedial plugging or the installation of a gas venting system. **If documentation of proper abandonment is not available, SCE shall provide and implement a work plan, with the above-described specifications, for natural gas testing and controls for the work area and excavations.**
Section 3.7 – Geology, Soils, and Paleontology		
Page 3.7-63 (Mitigation Measure G-4, *Avoid placement of Project structures within active fault zones*)	Avoid placement of Project structures within active fault zones.	Avoid placement of Project structures **on** ~~within~~ active fault **traces** ~~zones~~.
Section 3.9 – Land Use		
Page 3.9-60 (Mitigation Measure L-1a, *Construction liaison – Property owners,* Second Paragraph)	SCE shall provide summary documentation of all complaints, comments, and concerns communicated to the liaison every two months for the duration of construction and for one year following the completion of construction. The compliance documentation shall include the name and address of the person contacting the local public liaison(s), the date of contact, and what actions were taken by the local public liaison(s) to rectify and/or address the complaints, comments or concerns expressed. The compliance documentation shall be submitted to the CPUC throughout the duration of construction and for one year following construction.	SCE shall provide summary documentation of all complaints, comments, and concerns communicated to the liaison every two months for the duration of construction and for one year following the completion of construction. The compliance documentation **will be treated as confidential** and shall include the name and address of the person contacting the local public liaison(s), the date of contact, and what actions were taken by the local public liaison(s) to rectify and/or address the complaints, comments or concerns expressed. The compliance documentation shall be submitted to the CPUC throughout the duration of construction and for one year following construction.
Page 3.9-69 (Mitigation Measure L-4, *Consult with federal, State, and local agencies)*	Prior to construction, SCE shall consult with all federal, State, and local agencies, including local agency consortiums, having jurisdiction over lands within one-half mile of the Project's ROW and ancillary facilities to ensure that no permanent restrictions or preclusions of their land management practices occur. The SCE shall additionally ensure that a liaison to these agencies is available for the operational life of the Project to address and reconcile any future potential conflicts with land management practices. SCE will provide affected agencies with the name and contact information of the liaison and update that contact information as	Prior to construction, SCE shall consult with all federal, State, and local agencies, including local agency consortiums, having jurisdiction over lands within one-half mile of the Project's ROW and ancillary facilities to **minimize** ~~ensure~~ permanent restrictions or preclusions of their land management practices ~~occur~~. The SCE shall additionally ensure that a liaison to these agencies is available for the operational life of the Project to address and reconcile any future potential conflicts with land management practices. SCE will provide affected agencies with the name and contact information of the liaison and update that

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	necessary.	contact information as necessary.
Section 3.10 - Noise		
Page 3.10-37 (Table 3.10-10, City of Chino Hills Municipal Code Noise Ordinance)	A significant noise impact is any noise that exceeds the City standard by 5 dBA for a cumulative period of more than five minutes in any hour; or by 10 dBA for a cumulative period of more than five minutes in any hour; or by 15 dBA for a cumulative period of more than one minute in any hour; or by 20 dBA for any period of time. Final EIR Table 3.10-10, analysis of identified regulations for the City of Chino Hills (right column) was identified as the following: Segment 8 would be located within the City of Chino Hills and would be subject to this ordinance. The measured ambient noise level of this segment varied from approximately 43 to 60 dBA. Under future wet weather conditions, the range of future corona noise along Segment 8 would be between 56 and 58 dBA at the edge of the ROW. Therefore, the proposed Project would not be in compliance with this City of Chino Hills ordinance based on potential cumulative 5-minute exposure thresholds.	A significant noise impact is any noise that exceeds the City standard ~~by 5dBA~~ **"Zone C" noise standard for that receiving land use specified in Table N-1 of the General Plan Noise Element by 5 dBA for a cumulative period of more than five minutes in any hour; or by 10 dBA for a cumulative period of more than five minutes in any hour; or by 15 dBA for a cumulative period of more than one minute in any hour; or by 20 dBA for any period of time.** Final EIR Table 3.10-10, analysis of identified regulations for the City of Chino Hills (right column) should be changed to the following: Segment 8 would be located within the City of Chino Hills and would be subject to this ordinance. ~~The measured ambient noise level of this segment varied from approximately 43 to 60 dBA.~~ **"Zone C" noise standards are defined in Table N-1 of the Chino Hills General Plan Noise Element and refer to land uses where the dBA range is 60 dBa to 80 dBA.** Under future wet weather conditions, the range of future corona noise along Segment 8 would be between 56 and 58 dBA at the edge of the ROW. Therefore, the proposed Project would not be **within City of Chino Hills "Zone C" standards of 60-80 dBA. Therefore, the proposed Project is** in compliance with this City of Chino Hills ordinance**.** ~~based on potential cumulative 5-minute exposure thresholds.~~
Section 3.14 – Visual Resources		
Page 3.14-105 (Mitigation Measure V-2c, *Establish Permanent Screen*)	At Antelope and Vincent Substations, SCE shall establish a permanent screen of sufficient height for immediate visual screening around the new expansion areas of the Antelope and Vincent Substations. Plant materials selected for screening shall be locally appropriate, wind-resistant, non-invasive, and acclimated to the particular environment and micro-climate. Other screening materials shall blend in with the local landscape. SCE shall consult with the CPUC to ensure that the objectives of this measure are achieved. SCE shall submit landscaping plans for Antelope and Vincent	At ~~Antelope and~~ Vincent Substation~~s~~, SCE shall establish a permanent screen of sufficient height for immediate visual screening around the new expansion area~~s~~ of the ~~Antelope and~~ Vincent Substation~~s~~. Plant materials selected for screening shall be locally appropriate, wind-resistant, non-invasive, and acclimated to the particular environment and micro-climate. Other screening materials shall blend in with the local landscape. SCE shall consult with the CPUC to ensure that the objectives of this measure are achieved. SCE shall submit **a** landscaping plan~~s~~ for ~~Antelope and~~ Vincent

Citation to FEIR	Previous Final EIR Text	Revisions to Final EIR
	Substations that demonstrate compliance with this measure to the CPUC for review and approval at least 60 days prior to the start of construction at these substations.	Substation~~s~~ that demonstrate**s** compliance with this measure to the CPUC for review and approval at least 60 days prior to the start of construction at ~~these~~ **this** substation~~s~~.
Figure 3.14-53c (New)	Tower Simulation Image	This figure has been updated to show the south circuit of the existing Chino-Mira Loma #1 rebuilt with double-circuit 220kV towers (Subsegment 8B). (See attached Fig 3.14-53c (Revised)
Section 3.15 – Wilderness and Recreation		
Page 3.15-79 (Mitigation Measure R-1a, *Coordinate construction schedule and maintenance activities with managing officer(s) for affected recreation areas*)	SCE shall develop the Project construction schedule and coordinate construction with the authorized officer(s) or the agencies of all recreational areas affected by Project construction. SCE shall also coordinate maintenance activities beyond the periodic visual inspections which are required by current SCE Transmission Operations and Maintenance Policies and Procedures (TOM) with these parties, including but not limited to the following: FS (ANF); California Department of Fish and Game (CDFG); Pacific Crest Trail Association (PCTA); California State Park and Recreation Commission; California Department of Parks and Recreation; Kern County Department of Parks and Recreation; Los Angeles County Department of Parks and Recreation; San Bernardino County Regional Parks; Puente Hills Landfill Native Habitat Preservation Authority (Habitat Authority); Watershed Conservation Authority (WCA); and San Gabriel and Lower Los Angeles Rivers and Mountains Conservancy (RMC). Through coordination efforts with the agencies listed above as well as any additional agencies that manage recreational resources which would be affected by the Project, SCE shall ensure the following occurs unless otherwise approved by the affected agencies: • Construction and maintenance activities are scheduled to avoid heavy recreational use periods (including major holidays) to the maximum extent feasible, with the understanding that such efforts may not always be feasible; • Staging areas for Project-related equipment, materials, and vehicles are located in areas with least possible effect	SCE shall develop the Project construction schedule and coordinate construction with the authorized officer(s) or the agencies of all recreational areas affected by Project construction~~. SCE shall also coordinate maintenance activities beyond the periodic visual inspections which are required by current SCE Transmission Operations and Maintenance Policies and Procedures (TOM) with these parties~~, including but not limited to the following: FS (ANF); **U.S. Army Corps of Engineers (USACE);** California Department of Fish and Game (CDFG); Pacific Crest Trail Association (PCTA); California State Park and Recreation Commission; California Department of Parks and Recreation; Kern County Department of Parks and Recreation; Los Angeles County Department of Parks and Recreation; San Bernardino County Regional Parks; Puente Hills Landfill Native Habitat Preservation Authority (Habitat Authority); Watershed Conservation Authority (WCA); and San Gabriel and Lower Los Angeles Rivers and Mountains Conservancy (RMC). Through coordination efforts with the agencies listed above as well as any additional agencies that manage recreational resources which would be affected by the Project, SCE shall ensure the following occurs unless otherwise approved by the affected agencies: • Construction and maintenance activities are scheduled to avoid heavy recreational use periods (including major holidays) to the maximum extent feasible, with the understanding that such efforts may not always be feasible; • Staging areas for Project-related equipment, materials, and vehicles are

Citation to FEIR	Previous Final EIR Text	Revisions to Final EIR
	on recreational activities and opportunities; and • Timetables for the required period of usage of each staging area are developed and adhered to in coordination with all affected resource agencies. SCE shall document its coordination and provide this documentation to the CPUC and the FS no less than 30 days prior to construction and maintenance activities (beyond periodic visual inspections).	located in areas with least possible effect on recreational activities and opportunities; and • Timetables for the required period of usage of each staging area are developed and adhered to in coordination with all affected resource agencies. **In addition to coordination of construction activities, SCE shall also coordinate maintenance activities with the FS and the USACE, as applicable, when such activities occur on federal lands. SCE and the presiding federal agency will need to determine what type of maintenance activities require prior approval, versus those that may be conducted on a routine basis without additional coordination. All Project activities on federal lands are subject to the approval of the presiding federal agency (FS or USACE). The purpose of this requirement is to ensure that the FS and USACE are aware of any maintenance activities on federal lands that are more intensive than what is considered routine.** SCE shall document its coordination and provide this documentation to the CPUC and the FS no less than 30 days prior to **the onset of** construction ~~and maintenance~~ activities ~~(beyond periodic visual inspections)~~.
Page 3.15-80 (Mitigation Measure R-1b, *Identify and provide noticing of alternative recreation areas*)	SCE shall coordinate with the authorized recreation officer(s) or the agencies of all recreational areas affected by Project construction and maintenance activities (beyond periodic visual inspections), including but not limited to those listed under Mitigation Measure R-1a (Coordinate construction schedule and maintenance activities with managing officer(s) for affected recreation areas), the purpose of which is to accomplish the following: • Identify recreational areas (i.e., trails, parks, day-use areas) that would be closed during Project construction or maintenance activities; • To the extent feasible, identify alternative recreational areas for each resource that would be made unavailable to the public due to Project construction or maintenance	SCE shall coordinate with the authorized recreation officer(s) or the agencies of all recreational areas affected by Project ~~construction and maintenance~~ activities ~~(beyond periodic visual inspections), including but not limited to those listed~~ **described** under Mitigation Measure R-1a (Coordinate construction schedule and maintenance activities with managing officer(s) for affected recreation areas), the purpose of which is to accomplish the following: • Identify recreational areas (i.e., trails, parks, day-use areas) that would be closed during Project construction or maintenance activities; • To the extent feasible, identify alternative recreational areas for each resource that would be made unavailable to the public

Citation to FEIR	Previous Final EIR Text	Revisions to Final EIR
	activities; and • Post a public notice which identifies alternative recreational areas at FS Ranger Stations within the ANF and at all recreational areas to be closed due to Project construction or maintenance activities. SCE shall document these coordination efforts to identify and provide noticing of alternative recreational areas and submit this documentation to the CPUC and the FS no less than 30 days prior to construction and maintenance activities (beyond periodic visual inspections) that would occur within one-half mile of wilderness or recreation areas that would be affected by such activities.	due to Project construction or maintenance activities; and • Post a public notice which identifies alternative recreational areas at FS Ranger Stations within the ANF and at all recreational areas to be closed due to Project construction or maintenance activities. SCE shall document these coordination efforts to identify and provide noticing of alternative recreational areas and submit this documentation to the CPUC and the FS no less than 30 days prior to construction ~~and maintenance~~ activities ~~(beyond periodic visual inspections)~~ that would occur within one-half mile of wilderness or recreation areas that would be affected by such activities.
Page 3.15-80 (Mitigation Measure R-1c, *Notification of temporary closure of OHV routes*)	SCE shall document these coordination efforts related to OML 2 road / OHV route closures and submit this documentation to the CPUC and FS no less than 30 days prior to construction and/or maintenance activities that would affect OHV routes.	SCE shall document these coordination efforts related to OML 2 road / OHV route closures and submit this documentation to the CPUC and FS no less than 30 days prior to construction ~~and/or maintenance~~ activities that would affect OHV routes.
Page 3.15-81 (Mitigation Measure R-1d, *Notification of temporary closure and reroute of the Pacific Crest National Scenic Trail (PCT)*)	SCE shall document these coordination efforts, including the location of all posted notices, and submit this documentation to the CPUC and the FS for approval no less than 30 days prior to construction and maintenance activities that would occur within one-half mile of the PCT.	SCE shall document these coordination efforts, including the location of all posted notices, and submit this documentation to the CPUC and the FS for approval no less than 30 days prior to construction ~~and maintenance~~ activities that would occur within one-half mile of the PCT.
Section 3.16 – Wildfire Prevention and Suppression		
Page 3.16-26 (Mitigation Measure F-3b, *Cease work during Red Flag Warning events)*	During Red Flag Warning events, as issued daily by the National Weather Service in State Responsibility Areas (SRA) and Local Responsibility Areas (LRA), all non-emergency construction and maintenance activities shall cease in affected areas. An exception shall be made for transmission line maintenance and testing where a transmission line may be tested, one time only, if the loss of another transmission facility could lead to system instability or cascading outages.	During Red Flag Warning events, as issued daily by the National Weather Service in State Responsibility Areas (SRA) and Local Responsibility Areas (LRA), all non-emergency construction and maintenance activities shall cease in affected areas. An exception shall be made for transmission line **maintenance and** testing ~~where a transmission line may be tested, one time only, if the loss of another transmission facility could lead to system instability or cascading outages~~ **activities required to maintain accordance with NERC Reliability Standards. All**

Citation to FEIR	Previous Final EIR Text	Revisions to Final EIR
		maintenance and testing activities shall employ fire-safe practices as required by the Fire Management Plan (APM HAZ-4 as modified by Mitigation Measure F-3a).

Comment Set B.21: Californians for Renewable Energy (CARE)

BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

In the Matter of the Application of Southern California Edison Company (U338E) for a Certificate of Public Convenience and Necessity Concerning the Tehachapi Renewable Transmission Project (Segments 4 through 11).	Application 07-06-031 (Filed June 29, 2007)

COMMENTS ON TEHACHAPI RENEWABLE TRANSMISSION PROJECT EIR/EIS

CAlifornians for Renewable Energy ("CARE") submits these comments on the Draft Environmental Impact Report/Environmental Impact Statement ("EIR/EIS") pursuant to the direction[1] given in the scoping memo and ruling issued on March 17, 2009.

Respectfully submitted,

Martin Homec

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Dated: April 2, 2009

[1] Page 14, "The public comment period on the Draft EIR/EIS ends on April 6, 2009."

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Comment Set B.21: Californians for Renewable Energy (CARE), continued

Verification

I am an officer of the Intervening Corporation herein, and am authorized to make this verification on its behalf. The statements in the foregoing document are true of my own knowledge, except matters, which are therein stated on information and belief, and as to those matters I believe them to be true.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on this 3rd day of April 2009, at San Francisco, California.

Lynne Brown

Lynne Brown Vice-President
CAlifornians for Renewable Energy, Inc.
(CARE)

Certificate of copy sent electronically

To reduce the burden of service in this proceeding, the Commission will allow the use of electronic service, to the extent possible using the electronic service protocols provided in this proceeding. All individuals on the service list should provide electronic mail addresses. The Commission and other parties will assume a party consents to electronic service unless the party indicates otherwise.

I hereby certify that I have this day served the foregoing document "*Comments On Tehachapi Renewable Transmission Project EIR/EIS*" under CPUC Docket Application 07-06-031. Each person designated on the official service list, has been provided a copy via e-mail, to all persons on the attached service list on April 3, 2009, for the proceeding, Application 07-06-031.

Lynne Brown

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Comment Set B.21: Californians for Renewable Energy (CARE), continued

A.07-06-031 Service List

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CARE DEIR/EIS Comments

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Comment Set B.21: Californians for Renewable Energy (CARE), continued

K. Shawn Smallwood, PhD

3 April 2009

EXECUTIVE SUMMARY

On behalf of Californians for Renewable Energy (CARE), I reviewed the Draft Environmental Impact Report/Environmental Impact Statement (EIR/EIS) prepared for the Tehachapi Renewable Transmission Project (TRTP). I prepared what I intended to be constructive comments on the EIR/EIS. I must point out, however, that the comment period was much too brief for an EIR/EIS on a project of this size and complexity, and for a project that could have such potentially large impacts on the environment.

The project is massive in scope and potential impacts to the environment, the expanded wind farm alone spanning 90 to 425 square miles, depending on how one defines the space involved. The project will potentially affect 104 special-status species, and some species, due to avoidance of wind turbines, would likely be entirely displaced from the 425 square miles of the wind resource area (WRA). Grading will disrupt soils on >8,665 acres for the wind farm, 1,538 acres along the transmission line, and 438 acres of new access roads for the transmission line. However, the environmental review did not consider habitat loss due to due to turbine avoidance, and was overall insufficiently informative on the interactions between wildlife and wind turbines. It also inappropriately used lack of CNDDB records and CNPS Online Inventory records to downgrade occurrence likelihoods assigned to many of the special-status species.

The EIR/EIS made no mention of the bird and bat collision study that was conducted in the Tehachapi Pass WRA. It made no mention of the many other reports of bird and bat collisions that are available, and it never mentioned the California Guidelines for wind turbine siting. These omissions left the EIR/EIS much less informative that it needs to be. The discussion of collision mechanisms needs to be improved because it is currently misleading and nearly useless. Also, citing and discussing the wind industry-sponsored report alleging that

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Comment Set B.21: Californians for Renewable Energy (CARE), continued

house cats kill more birds than do wind turbines was misleading (e.g., house cats do not kill golden eagles) and was a blatant attempt to trivialize a very substantial problem.

Using data in a report of the only bird and bat collision study performed in the Tehachapi Pass WRA, I estimated the Tehachapi Pass WRA 10 years ago was killing 4,881 birds per year, including 642 raptors per year. The number of raptor deaths per MW per year was 38% of the rate estimated at the notorious Altamont Pass WRA, and the fatality rate of all native birds was higher than that of the Altamont Pass. Compared to other California WRA's, Tehachapi Pass is on record as killing raptors at the second highest rate. Also, I found that the western aspect of the WRA was the most lethal to raptors and other birds.

Using fatality rates from the collision study done in the Tehachapi Pass WRA, I estimated the Tehachapi Pass WRA expanded to 4,500 MW of capacity would kill >6,500 raptors per year as a result of wind turbine collisions, and it would destroy nearly 50,000 birds per year. Even if the WRA managed to kill only half these numbers, it would still exceed the Altamont Pass in fatality rates.

The EIR/EIS did not seriously consider the cumulative impacts of the WRA, or of the Governor's Executive Order to achieve a 33% Renewable Portfolio Standard by 2020. The 33% WRS created a renewable resource gap of 81,865 GWH. To fill this gap using only solar energy generation, 691 square miles of space would be needed, and all of this space could potentially be located on rooftops, blacktops, water conveyance systems, and other disturbed areas. The solar panels would probably not kill any raptors due to collisions.

On the other hand, the renewable resource gap filled by wind turbines would require 4,771 square miles of space, assuming this space would provide equal or better wind resource than the space already developed (unlikely). This space would alter habitat conditions, and would occur where birds are highly active. Relying solely on wind to achieve the 33% RPS could result in the development of enough wind turbines to annually kill, on average, >23,000 burrowing owls, >22,000 American kestrels, nearly 9,000 red-tailed hawks, >1,500 golden

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Comment Set B.21: Californians for Renewable Energy (CARE), continued

eagles, nearly 64,000 raptors of all kinds, >370,000 birds of all kinds, and nearly 24,000 bats of all kinds. These numbers are projections from averages among four wind resource areas in California, where fatality rates have not been lessened through time due to lack of action on the part of wind companies and lack of will among regulatory agencies to enforce environmental laws and operating permit conditions. I am not aware of any other human activity that kills raptors and other birds at rates anywhere near as high as these. In my opinion, annual fatalities potentially caused by wind power filling most of the renewable resource gap could threaten the continued existence of some raptor species in California and the western states, and could profoundly alter ecosystems.

The collision-caused mortality due to the transmission line alone was not estimated in the EIR/EIS, and was generally dismissed as likely to be low and inconsequential. No mitigation was required. However, fatality rates estimated for a northern California transmission line indicate that the Tehachapi Renewable Transmission Project could kill 14,748 birds per year. Even half or a quarter of this rate would be substantial, and should be addressed in the EIR/EIS.

I recommended mitigation measures for the project, including recommendations on how to avoid the environmental catastrophe that continues in the Altamont Pass WRA. I explain the need for enforcement of environmental laws and operating permits, and I suggest measures that could be taken to facilitate enforcement. Without enforcement, the Tehachapi Pass WRA is likely going to exceed the Altamont Pass WRA in causing bird fatalities, because the wind companies have shown little interest in minimizing, reducing, or compensating for the collision deaths, and the regulatory agencies have shown no will to enforce laws and permits.

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I. SUGGESTIONS FOR IMPROVING THE IMPACTS ASSESSMENT

The EIR/EIS should be revised to more realistically explain the ramifications of approving the Tehachapi Renewable Transmission Project (TRTP). According to the EIR/EIS, "Approval of the TRTP or an alternative would not result in approval of any specific wind generation project. Any and all future wind generation projects would be subject to separate environmental review…" (page 6-1). However, the wind power projects will not be developed without the new transmission addressed in this EIR/EIS. The purpose of the proposed TRTP is to serve up to 4,500 MW of new wind generation in the Tehachapi Pass Wind Resource Area (page 1-5). There was no other purpose stated in the EIR/EIS. The approval of the TRTP would likely be followed by the quick approvals of most if not all of the specific wind generation projects subsequently proposed.

According to the EIR/EIS, "The TRTP is a plan to provide the electrical facilities necessary to reliably interconnect and integrate up to 3,800 MW of new wind generation in the TWRA currently being planned or expected in the future" (page 6-2). However, the planned capacity of the TRTP appears to be undetermined. According to the EIR/EIS (page 6-7), "On July 25, 2008, the total wind energy proposed for Kern County was 5,973.1 MW. The total has since changed to 4,791.1 MW, as listed in the January 9, 2009 CAISO queue." If the total is again revised to a greater capacity next year, would the TRTP serve that increased capacity? Or, would an upgrade of the TRTP be likely?

Regardless of the exact size of the planned TRTP, this would be the largest wind farm in California. It would be more than twice the rated capacity of existing wind power in California. The very large scope of this project was further hinted at by the following statement, "In order to develop an additional 3,400 MW of wind capacity, approximately 17,000 to 57,800 acres of land would be required" (page 6-8). A wind farm of this size poses substantial environmental effects, including habitat loss and collision-caused fatalities of birds and bats.

I. A. Wind Turbine Impacts

The environmental baseline for the wind farm impacts assessment can be improved. According to the EIR/EIS (page 6-52), "Given the overall size of the northern portion of the TWRA and the occurrence of various vegetation communities, the area would be expected to support a vast assemblage of wildlife species." I could not agree more with this conclusion, but the next statement needs to be reworded, "Species that likely occur in this region include northern harrier (*Circus cyaneus*), golden eagle (*Aquila chrysaetos*), red-tailed hawk (*Buteo jamaicensis*), mountain quail (*Oreorytx pictus*), California quail (*Callipepla californica*), chukar (*Alectoris chukar*), scrub jay (*Aphelocoma californica*), black-throated sparrow, and sage sparrow." The fact is that all of these species except chukar were observed in the area, so the word "likely" needs to be deleted (see App. K of EIR/EIS).

Another improvement can be made to the occurrence likelihoods assigned to species in Table 6.7-2, which relied on CNDDB and CNPS Online Inventory records (page 6-53) to determine that many of the special-status species are unlikely to occur in the project area or have a low or moderate likelihood of occurrence. However, for very good reasons related to the way CNDDB

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records are collected, the CNDDB warns against making negative findings of special-status species occurrences due to not finding records of the species in CNDDB. To help get this message across, the California Department of Fish and Game posts a disclaimer on its CNDDB web site: "*We work very hard to keep the CNDDB and the Spotted Owl Database as current and up-to-date as possible given our capabilities and resources. However, we cannot and do not portray the CNDDB as an exhaustive and comprehensive inventory of all rare species and natural communities statewide. Field verification for the presence or absence of sensitive species will always be an important obligation of our customers.*" Similarly, the CNPS Inventory of Rare and Endangered Species states the following in orange highlight: "**A reminder:** Species not recorded for a given area may nonetheless be present, especially where favorable conditions occur." Therefore, the occurrence likelihoods in Table 6.7-2 need to be revised so that they are not influenced by negative findings in CNNDB and CNPS Inventory. I propose using a more appropriate occurrence likelihood in my Table 1, below.

Another improvement can be made in the listings of special-status species in the EIR/EIS's Table 6.7-2 (page 6-58), which presents outdated CSC designations. For updated special-status species designations, visit the California Department of Fish and Game's web site, or see Shuford and Gardalis (2008).[2]

In all, Table 6.7-2 lists 39 plant species with special status, which is a number that is much larger than any I can remember seeing listed for any other project in California. It includes 11 amphibian and reptile species with special status, 21 mammals, and 32 bird species, at least 18 of which have been documented as killed by wind turbines. In total, the Table lists 104 special-status species, which is a number that warrants a much more thorough analysis of the project's potential impacts.

[2] Shuford, W. D., and T. Gardalis, eds. 2008. California bird species of special concern: A ranked assessment of species, subspecies, and distinct populations of birds of immediate conservation concern in California. Studies of Western Birds 1. Western Field Ornithologists, Camarillo, California, and California Department of Fish and Game, Sacramento, California.

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Table 1. Suggested revisions to Tables 6.7-1 and 6.7-2 in the Tehachapi Renewable Transmission Project EIR/EIS. The Table identified species listed in the West Mojave Plan, which is an uncertified habitat conservation plan (HCP). Because the HCP has not been certified, I eliminated reference to it in this table.

Species	Scientific name	Status [a]	EIR rating [b]		Recommended occurrence likelihood	Documented fatalities at wind turbines?
			South	North		
Alkali Mariposa lily	*Calochortus striatus*	CNPS 1B.2, BLM	High	High	Certain	NA
Aromatic canyon gooseberry	*Ribes mensziesii* v. *ixoderme*	CNPS 1B.2	Mod	Mod	Probable	NA
Baja navarretia	*Navarretia peninsularis*	CNPS 1B.2	Mod	Low	Probable	NA
Big Bear Valley woollypod	*Astragalus leucolobus*	CNPS 1B.2	Mod	Mod	Probable	NA
Breedlove's buckwheat	*Eriogonum breedlovei* v. *breedlovei*	CNPS 1B.2	Low	Mod	Probable	NA
Calico monkeyflower	*Mimulus pictus*	CNPS 1B.2; BLM	Low	Low	Possible	NA
California androsace	*Androsace elongata* sp. *acuta*	CNPS 4.2	Low	Low	Possible	NA
California satintail	*Imperata brevifolia*	CNPS 2.1	Low	Low	Possible	NA
Charlotte's phacelia	*Phacelia nashiana*	CNPS 1B.2, BLM	Mod	High	Certain	NA
Coulter's goldfields	*Lasthenia glabrata* sp. *coulteri*	CNPS 1B.1, BLM	Low	Low	Possible	NA
Creamy blazing star	*Mentzelia tridentata*	CNPS 1B.3	Low	Low	Possible	NA
Golden violet	*Viola aurea*	CNPS 2.2	Mod	Mod	Probable	NA
Greenhorn fritillary	*Fritillaria brandegei*	CNPS 1B.3	Low	Mod	Probable	NA
Hoover's woollystar	*Eriastrum hooveri*	CNPS 4.2, BLM	Low	Low	Possible	NA
Horn's milkvetch	*Astragalus hornii v. hornii*	CNPS 1B.1	Low	Low	Possible	NA
Kelso Creek monkeyflower	*Mimulus shevockii*	CNPS 1B.2, BLM	Mod	High	Certain	NA
Kern buckwheat	*Eriogonum kennedyi* v. *pinicola*	CNPS 1B.1, BLM	Mod	Present	Certain	NA
Lemmon's syntrichopappus	*Syntrichopappus lemmonii*	CNPS 4.3	High	High	Certain	NA
Mojave Indian paintbrush	*Castilleja plagiotoma*	CNPS 4.3	High	High	Certain	NA
Mojave tarplant	*Deinandra mohavensis*	CE, CNPS 1B.3	Mod	High	Certain	NA
Pale-yellow layia	*Layia heterotricha*	CNPS 1B.1, BLM	Mod	High	Certain	NA
Palmer's mariposa lily	*Calochortus palmeri* v. *palmeri*	CNPS 1B.2	Mod	Present	Certain	NA

CARE DEIR/EIS Comments

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Comment Set B.21: Californians for Renewable Energy (CARE), continued

Parry's spineflower	*Chorizanthe parryi* v. *parryi*	CNPS 3.2	Low	Low	Possible	NA
Pierson's morning glory	*Calystegia peirsonii*	CNPS 4.2	Mod	Low	Probable	NA
Piute cypress	*Cupressus arizonica* sp. *nevadensis*	CNPS 1B.2, BLM	Mod	High	Certain	NA
Piute Mountains jewel-flower	*Streptanthus cordatus* v. *piutensis*	CNPS 1B.2, BLM	Low	High	Certain	NA
Piute Mountains navarretia	*Navarretia setiloba*	CNPS 1B.1, BLM	Low	Mod	Probable	NA
Pygmy poppy	*Canbya candida*	CNPS 4.2, BLM	Mod	Mod	Probable	NA
Red Rock poppy	*Eschscholzia minutiflora* sp. *twisselmannii*	CNPS 1B.2, BLM	Mod	High	Certain	NA
Red Rock tarplant	*Deinandra arida*	SR, CNPS 1B.2	Mod	Low	Probable	NA
Reveal's buckwheat	*Eriogonum contiguum*	CNPS 2.3	Mod	High	Certain	NA
Round-leaved filaree	*California macrophylla*	CNPS 1B.1	Mod	Low	Probable	NA
Sagebrush loeflingia	*Loeflingia squarrosa* v. *artemisiarum*	CNPS 2.2, BLM	High	Low	Certain	NA
Salt spring checkerbloom	*Sidalcea neomexicana*	CNPS 2.2	Low	Mod	Probable	NA
Short-joint beavertail	*Opuntia basilaris* v. *brachyclada*	CNPS 1B.2, BLM	Low	Low	Possible	NA
Slender mariposa lily	*Calochortus clavatus* v. *gracilis*	CNPS 1B.2	Low	Low	Possible	NA
Spanish needle onion	*Allium shevockii*	CNPS 1B.3, BLM	High	Present	Certain	NA
Spjut's bristlemoss	*Orthotrichum spjutii*	CNPS 1B.3	Low	High	Certain	NA
White-bracted spineflower	*Chorizanthe xanti* v. *leucotheca*	CNPS 1B.2	Low	Low	Possible	NA
Arroyo toad	Bufo californicus	FE, CSC	Low	Low	Possible	NA
California red-legged frog	*Rana aurora draytoni*	FT, CSC	Low	Low	Possible	NA
Tehachapi slender salamander	*Batrachoseps stebbinsi*	CT, BLM	High	Mod	Certain	NA
Yellow-blotched salamander	*Ensatina eschscholtzii croceator*	CSC, BLM	Present	Mod	Certain	NA
California horned lizard	*Phrynosoma coronatum frontale*	CSC, BLM	Mod	Mod	Probable	NA
Desert tortoise	*Gopherus agassizii*	FT, CT	Present	Present	Certain	NA
Northern sagebrush lizard	*Sceloporus graciosus graciosus*	BLM	Low	Low	Possible	NA
San Diego horned lizard	*Phrynosoma coronatum*	CSC	Low	Low	Possible	NA

CARE DEIR/EIS Comments

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Comment Set B.21: Californians for Renewable Energy (CARE), continued

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Silvery legless lizard	*Anniella pulchra pulchra*	CSC	High	High	Certain	NA
Southwestern pond turtle	*Clemmys marmorata pallida*	CSC, BLM	Low	Low	Possible	NA
Two-striped garter snake	*Thamnophis hammondii*	CSC, BLM	Low	Low	Possible	NA
American white pelican	*Pelecanus erythrorhynchos*	CSC	Present	Mod	Certain	
Bald eagle	*Haliaeetus leucocephalus*	FT, SE, FP, SP	Unlikely	Unlikely		
Bendire's thrasher	*Toxostoma bendirei*	CSC, BLM	Mod	Mod	Probable	
California condor	*Gymnogyps californianus*	FE, SE, SP	Present	High	Certain	
California gray-headed junco	*Junco hyemalis caniceps*	CSC	Unlikely	Low	Probable	Yes
California gull	*Larus californicus*	CSC	Low	Low	Possible	Yes
California horned lark	*Eremophila alpestris actia*	CSC	High	Mod	Certain	Yes
Cooper's hawk	*Accipiter cooperii*	CSC	High	Present	Certain	Yes
Ferruginous hawk	*Buteo regalis*	CSC, BLM	High	Mod	Certain	Yes
Golden eagle	*Aquila chrysaetos*	CFP, CSC, BLM	High	Present	Certain	Many
Least Bell's vireo	*Vireo bellii pusillus*	FE, CE	Low	Low	Possible	
LeConte's thrasher	*Toxostoma lecontei*	CSC, BLM	Present	Present	Certain	
Long-billed curlew	*Numenius americanus*	CSC	Low	Low	Possible	Yes
Long-eared owl	*Asio otus*	CSC	High	High	Certain	Yes
Loggerhead shrike	*Lanius ludovicianus*	CSC	Present	Present	Certain	Yes
Merlin	*Falco columbarius*	CSC	High	High	Certain	
Mountain plover	*Charadrius montanus*	CSC	High	Mod	Certain	
Northern harrier	*Circus cyaneus*	CSC	High	Present	Certain	Yes
Peregrine falcon	*Falco peregrinus*	CE, CFP	Low	Mod	Probable	Yes
Prairie falcon	*Falco mexicanus*	CSC	Present	High	Certain	Yes
Sharp-shinned hawk	*Accipiter striatus*	CSC	Mod	Mod	Probable	
Short-eared owl	*Asio flammeus*	CSC	Low	Low	Possible	Yes
Southwestern willow flycatcher	*Empidonax traillii extimus*	FE	Low	Low	Possible	
Summer tanager	*Piranga rubra*	CSC	Mod	Mod	Probable	
Swainson's hawk	*Buteo swainsoni*	CT	High	Low	Certain	Yes
Tricolored blackbird	*Agelaius tricolor*	CSC, BLM	Mod	Low	Probable	Yes

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Comment Set B.21: Californians for Renewable Energy (CARE), continued

Vaux's swift	*Chaetura vauxi*	CSC	High	High	Certain	Yes
Vermillion flycatcher	*Pyrocephalus rubinus*	CSC	Low	Low	Possible	
Western burrowing owl	*Athene cunicularia*	CSC, BLM	Present	High	Certain	Many
White-tailed kite	*Elanus leucurus*	CFP	Mod	Mod	Probable	Yes
Yellow-billed cuckoo	*Coccyzus americanus*	FC, CE	Low	Low	Possible	
Yellow-breasted chat	*Icteria virens*	CSC	Low	Low	Possible	
Fringed myotis	*Myotis thysanodes*	BLM	Low	Mod	Probable	
Long-eared myotis	*Myotis evotis*	BLM	Low	Low	Possible	Yes
Long-legged myotis	*Myotis volans*		Mod	High	Certain	
Townsend's big-eared bat	*Corynorhinus townsendii*	CSC, BLM	Present	High	Certain	
Big free-tailed bat	*Nyctinomops macrotis*	CSC	Low	Low	Possible	
Pale big-eared bat	*Corynorhinus townsendii pallescens*	CSC, BLM	Mod	Mod	Probable	
Pallid bat	*Antrozous pallidus*	CSC, BLM	High	Mod	Certain	
Small-footed Myotis	*Myotis ciliolabrum*	BLM	Mod	Mod	Probable	
Yuma myotis	*Myotis yumanensis*	BLM	Mod	Mod	Probable	
Spotted bat	*Euderma maculatum*	CSC, BLM	Low	Mod	Probable	
Western mastiff bat	*Eumops perotis*	CSC, BLM	High	Mod	Certain	
American badger	*Taxidea taxus*	CSC	High	High	Certain	NA
California bighorn sheep	*Ovis Canadensis californiana*	FE, SE	Unlikely	Low	Possible	NA
Mohave ground squirrel	*Spermophilus mohavensis*	CT	Present	High	Certain	NA
Pacific fisher	*Martes pennanti pacifica*	FC, CSC, BLM	Low	Mod	Probable	NA
Ringtail	*Basariscus astutas*	CFP	Mod	Mod	Probable	NA
San Joaquin pocket mouse	*Perognathus inornatus*	BLM	Low	Low	Possible	NA
Southern grasshopper mouse	*Onychomys torridus ramona*	CSC	Mod	Low	Probable	NA
Tehachapi pocket mouse	*Perognathus alticolus inexpectatus*	CSC	High	Mod	Certain	NA
Tulare grasshopper mouse	*Onychomys torridus tularensis*	CSC, BLM	High	Mod	Certain	NA
Yellow-eared pocket mouse	*Perognathus parvus xanthonotus*	BLM	Low	Mod	Probable	NA

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Comment Set B.21: Californians for Renewable Energy (CARE), continued

[a] BLM = BLM sensitive species; CNPS = California Native Plant Species List , 2, 3, or 4; FE = federal endangered; FT = threatened; FSC = federal species of conservation concern; CE = California endangered; CT = California threatened; CSC = California species of special concern; CFP = California Fully Protected.

[b] Mod = moderate.

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Comment Set B.21: Californians for Renewable Energy (CARE), continued

I. A. 1. Habitat loss

According to the EIR/EIS (page 6-87), "The loss of [California condor] foraging habitat from the TWRA is expected to be minimal and restoration of disturbed sites would be completed at the conclusion of construction." This statement reveals a weakness of the EIR/EIS that could be improved a great deal. The authors of the EIR/EIS may not understand the extent to which wind farm development will cause two types of habitat loss, both of which will contribute to habitat fragmentation, which had been recognized as the single greatest cause of species declines and extinctions.[3] Habitat will be lost to vegetation and soil removal caused by grading for wind turbine laydown areas, meteorological towers, electric distribution poles, transformer pads, switching stations, equipment yards, and access roads. Habitat will also be lost due to avoidance of the wind turbines by wildlife species that are sensitive to the size, movement, and noise of the wind turbines.

I. A. 1. a. Grading

According to the EIR/EIS (page 6-11), "The aboveground disturbance associated with installation of the turbine foundation, including a larger area around the foundation called the turbine pad, would be approximately 150 feet by 150 feet." It goes on to predict (6-13), "The length and resultant disturbance resulting from the improvement of existing access roads and construction of new access and spur roads would be dependent upon the final siting of turbine pads within the wind component sites." Also, "The total graded area for permanent [met] towers is estimated to be approximately 1/2 acre per tower, of which 0.25 acres would be permanent disturbance" (page 6-14). Finally, the EIR/EIS summarizes the grading impacts by stating (page 6-14), "On the basis of experience to date, the final footprint or permanent disturbance of the wind component (turbine towers, access roads, facility interconnections, switch yard, operation and maintenance facilities, and ancillary facilities) would be 5 to 10 percent of the total acreage of the wind component sites (BLM, 2005)."

However, on page 6-7 the EIR/EIS states, "The Sky River Ranch wind development, owned by Florida Power and Light … consists of 342 approximately 100- to 150-foot-tall turbines sited along an approximate 6-mile length of the Sweet Ridge ridgeline and occupies approximately 133 acres of land." This acreage on this length of ridge would mean the width of the project averages about 182 feet and the overall area is 33% larger than it would be if the wind turbine foundations were 150 x 150 feet, as stated in the preceding paragraph (page 6-13). Obviously, not all wind turbine arrangements are the same, and certain topographic features are likely to be affected much more than others by grading.

Assuming the final Tehachapi Pass WRA is 4,500 MW of rated capacity, and that the average turbine size is 660 kW, then the WRA would be composed of 6,818 wind turbines with tower foundations averaging 0.5165 acres each. The wind turbine foundations in this scenario would total about 3,522 acres. Assuming one met tower for every 20 turbines, the cleared areas would include another 176 acres. Access roads in the Buena Vista Wind Energy project in Contra

[3] Wilcox, B. A., and D. D. Murphy. 1985. Conservation Strategy: the Effects of Fragmentation on Extinction. American Naturalist 125:879-887

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Comment Set B.21: Californians for Renewable Energy (CARE), continued

Costa County required 27.8 acres of grading for 38 turbines, or 0.73 acres of roadway per turbine.[4] Assuming the Buena Vista rate of road construction will typify the rate in the Tehachapi Pass WRA, the total acreage of grading will sum to about 8,675 acres, not including the equipment yards, switchyards, and maintenance facilities. Adding the acreage for these other components of the WRA and the total graded area would be within the 5-10% range that was estimated, based on the 232,198 acres comprising the WRA (EIR/EIS page 6-14). What this grading will look like can be seen in Photo 1.

Grading to develop the wind farm will destroy individuals and habitat of most of the species in Table 1 that are sessile or that aestivate or live underground for long periods of time. This project would adversely affect up to 39 special-status plant species, most of the 11 amphibian and reptile species, burrowing owl, and at least 7 of the special-status mammal species.

Photo 1. Grading at various stages of a repowering project in the Altamont Pass WRA, installing wind turbines rated at 1 MW each. Notice all the topsoil of one hill was removed completely.

[4] Lamphier-Gregory, West Inc., Shawn Smallwood, Jones & Stokes Associates, Illingworth & Rodkin Inc. and Environmental Vision. 2005. Environmental Impact Report for the Buena Vista Wind Energy Project, LP# 022005. County of Contra Costa Community Development Department, Martinez, California.

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I. A. 1. b. Avoidance

The area to be graded is not the only habitat area that will be lost to the project. According to the EIR/EIS, the current capacity of 710 MW occupies 7,000 acres (page 6-6) and will build out to as large as 57,800 acres, or 90 square miles (page 6-8). However, I question how these acreage values were arrived at. Was an arbitrary distance from turbines used to calculate the area surrounding the existing turbines? Figure 2 in Anderson et al. (2004)[5] depicted the 440.5 MW of installed capacity in 1998 occupied about 26,624 acres. Extrapolating the acreage for capacity figures to 4,500 MW would require about 271,982 acres, or about 425 square miles. Some wildlife species may no longer be able to use any of this habitat space, and others will lose access to various portions of it depending on the degree to which they will avoid the wind turbines. The EIR/EIS does not address these impacts.

Habitat lost to avoidance of wind turbines by wildlife is often neglected in wind energy project impact assessments, probably because documentation of this impact has lagged behind documentation of fatality rates caused by collisions. However, evidence does exist, and the effects of avoidance can be considerable. It has emerged as a major environmental concern worldwide,[6] and was documented as a substantial impact in a study of the world's first large offshore wind farms.[7] For example, divers and gannets nearly completely abandoned the area where wind turbines were installed. Between 71% and 86% of bird flocks headed towards the Horns Rev and Nysted wind farms at 1.5 to 2 km distance ended up not entering the wind farm, indicating strong avoidance.

At the High Winds Wind Project area in Solano County, California, Kerlinger et al. (2006)[8] compared post-construction bird activity to pre-construction activity. They reported substantial reductions in bird use of the project site for numerous species. Compared to pre-construction activity levels, post-construction activity declined 75% for golden eagle and horned lark, 82% for American crow, 91% for cliff swallow, 81% for house finch, 33% for killdeer, 55% for northern mockingbird, and 100% for rough-legged hawk, Say's phoebe, long-billed curlew,

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[5] Anderson, R., N. Neumann, J. Tom, W. P. Erickson, M. D. Strickland, M. Bourassa, K. J. Bay, and K. J. Sernka. 2004. Avian monitoring and risk assessment at the Tehachapi Pass Wind Resource Area: Period of Performance: October 2, 1996–May 27, 1998. NREL/SR-500-36416, National Renewable Energy Laboratory, Golden, CO. 102 pp.

[6] Drewitt, A. L. and R. H. W. Langston. 2006. Assessing the impacts of wind farms on birds. Ibis 148:29-42.

[7] Petersen, I. K., T. K. Christensen, J. Kahlert, M. Desholm, and A. D. Fox. 2006. Final results of bird studies at the offshore wind farms at Nysted and Horns Rev, Denmark. National Environmental Research Institute, Ministry of the Environment, Denmark.

[8] Kerlinger, P., R. Curry, L. Culp, A. Jain, C. Wilkerson, B. Fischer, and A. Hasch. 2006. Post-construction avian and bat fatality monitoring study for the High Winds Wind Power Project, Solano County, California: Two year report. Unpubl. report to High Winds, LLC and FPL Energy. 136 pp.

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chipping sparrow, song sparrow, white-crowned sparrow, scrub jay, and tricolored blackbird, as well as for other species. These levels of apparent avoidance of the project site due to the installation of wind turbines represent habitat loss for these species.

In a related example, ground squirrels in the Altamont Pass relied more on visual detection of predators and were quicker to escape to their burrows when alarmed, because they could not rely on alarm calls from conspecifics due to the noise made by wind turbines.[9] The overall impact of this effect remains unknown. Ground squirrels near wind turbines may be more vulnerable to predation, which in turn could attract raptors nearer to turbines. These types of effects may lead to changes in the spatial distribution and foraging tactics of certain bird species occurring at the Tehachapi Pass WRA.

Similarly, researchers documented changes in habitat suitability to grassland songbirds due to the proximity of wind turbines, where habitat suitability was indicated by density of nesting pairs of grassland birds.[10] Densities of grassland nesting songbirds declined pre- to post-construction along transects oriented perpendicular to the wind turbine strings on the border between Oregon and Washington.[11] Declines were as high as 40% for some songbirds and were strongest within the first 50 m of transect. Horned lark abundance averaged 16 times greater in grasslands off the National Wind Technology Site compared to onsite, but raptor abundance was twice as great onsite.[12] A 90% reduction of raptors followed the installation of the Green Mountain Wind Power Project near Searsburg, Vermont, as well as a loss of half the raptor species and more than a fourth of the breeding songbird species.[13] A 60% abandonment of raptor nests followed the installation of the Klondike Wind Power Project in Sherman County, Oregon.[14]

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[9] Rabin, L. A. 2005. The effects of wind turbines on California ground squirrel (*Spermophilus beecheyi*) behavior: successfully integrating conservation and animal behavior research. Ph.D. Thesis, University of California, Davis. 159 pp.

[10] Leddy, K. L., K. F. Higgins, and D. E. Naugle. 1999. Effects of wind turbines on upland nesting birds in Conservation Reserve Program Grasslands. Wilson Bulletin 111:100-104.

[11] Erickson, W. P., J. Jeffrey, K. Kronner, and K. Bay. 2004. Stateline wind project wildlife monitoring final report, July 2001–December 2003. Technical Report submitted to FPL Energy, the Oregon Energy Facility Siting Council and the Stateline Technical Advisory Committee. 98 pp.

[12] Schmidt, E., A. J. Piaggio, C. E. Bock, and D. M. Armstrong. 2003. National Wind Technology Center site environmental assessment: Bird and bat use and fatalities – Final Report. NREL/SR-500-32981, National Renewable Energy Laboratory, Golden, CO. 29 pp.

[13] Kerlinger, P. 2002. An assessment of the impacts of Green Mountain Power Corporation's wind power facility on breeding and migrating birds in Searsburg, Vermont, July 1996 – July 1998. NREL/SR-500-28591, National Renewable Energy Laboratory, Golden, CO. 95 pp.

[14] Johnson, G. J., W. P. Erickson, J. White, and R. McKinney. 2003. Avian and bat mortality during the first year of operation at the Klondike Phase I Wind Project, Sherman County, Oregon. Unpubl. report to Northwestern Wind Power, Goldendale, Washington. 17 pp.

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Raptors foraging in the Altamont Pass WRA avoided wind turbines while the wind turbines operated.[15] When given a choice of foraging over hills and ridges with and without wind turbines, most raptors were observed foraging over the areas without wind turbines. Also, most raptors changed their flight heights and behaviors in the presence of wind turbines, usually flying higher than they normally flew over areas without wind turbines. There is ample evidence that the presence of wind turbines alters behavior patterns of raptors.

Some raptor species have demonstrated high turbine avoidance behaviors at wind farms, including an estimated 100% avoidance by northern harriers at 6 sites in the US, 99.8% at one site, and 93.2% at another site.[16] Golden eagles were said to avoid turbines 99.5% of the time.[17] These avoidance rates might lead some to believe that wind turbines could not therefore kill very many of these birds. However, it only takes repeated rare behaviors to tally up alarmingly high mortality estimates. In some cases golden eagles nearly completely vacated wind farms after the turbines were installed, but their reduced use of these wind farms also demonstrated little care about the wind turbines while contour flying around slopes and right through rows of wind turbines at the height of the rotor plane; they get killed by the wind turbines despite reduced utilization. The Tehachapi Renewable Transmission Project EIR/EIS should consider these impacts.

I. A. 2. Collisions

According to the EIR/EIR (App. B, page B-13), "The actual impact of collisions on species populations, even at a local level, cannot therefore be accurately assessed due to the difficulty in obtaining true measures of mortality rates. The large uncertainties associated with estimates of mortality from one or multiple sources, along with even larger uncertainties in bird populations (e.g., size, reproduction), makes it extremely difficult to understand the biological significance of collision-related mortality on birds at a population, regional, or even local level." I agree with

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[15] Smallwood, K. S., L. Rugge, and M. L. Morrison. 2009. Influence of Behavior on Bird Mortality in Wind Energy Developments: The Altamont Pass Wind Resource Area, California. Journal of Wildlife Management: In press.

Smallwood, K. S., L. Neher, D. Bell, J. DiDonato, B. Karas, S. Snyder, and S. Lopez. 2009. Range Management Practices to Reduce Wind Turbine Impacts on Burrowing Owls and Other Raptors in the Altamont Pass Wind Resource Area, California. Final Report to the California Energy Commission, Public Interest Energy Research – Environmental Area, Contract No. CEC-500-2008-080. Sacramento, California. In press.

[16] Whitfield, D. P., and M. Madders. 2006. A review of the impacts of wind farms on hen harriers *Circus cyaneus* and an estimation of collision avoidance rates. Natural Research Information Note 1 (revised). Natural Research Ltd., Banchory, United Kingdom.

[17] Chamberlain, D. E., M. R. Fehfisch, A. D. Fox, M. Desholm, and S. J. Anthony. 2006. The effects of avoidance rates on bird mortality predictions made by wind turbine collision risk models. Ibis 148:198-202.

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Comment Set B.21: Californians for Renewable Energy (CARE), continued

this statement, but I must add that the scientific and conservation standards would be to err on the side of caution when making impact assessments and planning mitigation.[18]

The EIR/EIS could be improved by more seriously assessing the potential impacts to birds and bats caused by collisions with wind turbines. It should discuss the fatality monitoring and bird utilization study that was done in the Tehachapi Pass WRA,[19] which surprisingly was not cited in the EIR/EIS. The review should also reference and discuss the many other reports that are now available, especially those that have been peer reviewed. Instead, the EIR/EIS discussed in one paragraph some factors hypothesized to influence fatality rates, and none of the factors discussed were founded by source material, i.e., the reader has no idea where these ideas came from or how reliable they were. In the following text I will provide some suggestions on whether and how to assess the factors that were hypothesized as causal to wind turbine collisions. All of these factors were presented on page 6-93 of the EIR/EIS.

According to the EIR/EIS, "Recent studies have shown that taller tower heights are likely to reduce raptor mortality due to an increase in ground-to-rotor clearance, especially for red-tailed hawks, golden eagles and American kestrels that utilize spaces closer to the ground for hunting prey." In fact, no study has shown this to be true, except for one of my latest papers which is in press and could not have been reviewed by those who prepared this EIR/EIS.[20] However, the role of tower height and the clearance height of the blades above ground will vary among species and locations. For example, whereas taller towers appeared to reduce American kestrel fatality rates in the Altamont Pass WRA, taller towers than any of those used in the Altamont Pass killed

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[18] National Research Council, 1986, Ecological knowledge and environmental problem-solving: concepts and case studies, National Academy Press, Washington, D.C.

Shrader-Frechette, K. S., and E. D. McCoy. 1992. Statistics, costs and rationality in ecological inference. Tree 7: 96-99.

Smallwood, K.S., J. Beyea and M. Morrison. 1999. Using the best scientific data for endangered species conservation. Environmental Management 24:421-435.

Smallwood, K.S., A. Gonzales, T. Smith, E. West, C. Hawkins, E. Stitt, C. Keckler, C. Bailey, and K. Brown. 2001. Suggested standards for science applied to conservation issues. Transactions of the Western Section of the Wildlife Society 36:40-49.

O'Brien, M. 2000. Making better environmental decisions: an alternative to risk management. The MIT Press, Cambridge, Massachusetts. 283 pp.

[19] Anderson, R., N. Neumann, J. Tom, W. P. Erickson, M. D. Strickland, M. Bourassa, K. J. Bay, and K. J. Sernka. 2004. Avian monitoring and risk assessment at the Tehachapi Pass Wind Resource Area: Period of Performance: October 2, 1996–May 27, 1998. NREL/SR-500-36416, National Renewable Energy Laboratory, Golden, CO. 102 pp.

[20] Smallwood, K. S. and B. Karas. 2009. Avian and Bat Fatality Rates at Old-Generation and Repowered Wind Turbines in California. Journal of Wildlife Management: In press.

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alarmingly high numbers of American kestrels in the High Winds project in the Solano WRA (see data below, in Table 5).

According to the EIR/EIS, "…raptor use has been shown in general to be higher on the prevailing upwind side of ridges, and turbines sited away from the rim edge may contribute to lower raptor fatality rates." This hypothesis probably comes from my research.[21] However, this hypothesis has not been tested in the field, to determine whether wind turbines on the leeward aspect of ridges relative to prevailing winds killed fewer raptors. Also, the EIR/EIS neglected to explain how this untested hypothesis would factor into wind turbine siting within the planned Tehachapi Pass WRA.

According to the EIR/EIS, "Ground disturbance around wind turbines (roads and work pads) increases the vertical/horizontal edge near turbines, which also may increase prey densities and raptor use." This hypothesis also comes from my research,[22] but its portrayal can be revised so that it is more accurate. My suggestion was actually that increased vertical and lateral edge created by wind turbine foundations and access roads encourages herbaceous plants in the annual grassland matrix of the Altamont Pass WRA, and these plants and the disturbed soils can attract fossorial mammals. I explained that certain raptor species collided with wind turbines more often where these fossorial mammals were more clustered (not more dense) near wind turbines operating in a landscape dominated by annual grassland. The ecological context of this hypothesis is critical, and so is consideration of follow-up research results. I have since found that raptors are much more responsive to the interaction of topography and wind conditions than they are to the spatial distributions of fossorial mammals.[23]

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[21] Smallwood, K. S., and L. Neher. 2004. Repowering the APWRA: Forecasting and minimizing avian mortality without significant loss of power generation. California Energy Commission, PIER Energy-Related Environmental Research. CEC-500-2005-005.

Smallwood, K. S., L. Neher, D. Bell, J. DiDonato, B. Karas, S. Snyder, and S. Lopez. 2009. Range Management Practices to Reduce Wind Turbine Impacts on Burrowing Owls and Other Raptors in the Altamont Pass Wind Resource Area, California. Final Report to the California Energy Commission, Public Interest Energy Research – Environmental Area, Contract No. CEC-500-2008-080. Sacramento, California.

[22] Smallwood, K. S. and C. Thelander. 2004. Developing methods to reduce bird mortality in the Altamont Pass Wind Resource Area. Final Report to the California Energy Commission, Public Interest Energy Research – Environmental Area, Contract No. 500-01-019. Sacramento, California. 531 pp.

Smallwood, K. S. and C. Thelander. 2005. Bird mortality in the Altamont Pass Wind Resource Area, March 1998 – September 2001 Final Report. National Renewable Energy Laboratory, NREL/SR-500-36973. Golden, Colorado. 410 pp.

[23] Smallwood, K. S., L. Neher, D. Bell, J. DiDonato, B. Karas, S. Snyder, and S. Lopez. 2009. Range Management Practices to Reduce Wind Turbine Impacts on Burrowing Owls and Other Raptors in the Altamont Pass Wind Resource Area, California. Final Report to the California Energy

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According to the EIR/EIS, "…ground disturbance that creates rock piles creates habitat for small mammals and reptiles which could then attract raptors to the turbine sites." This hypothesis comes from my work.[24] It applied, however, to a WRA dominated by annual grassland, where rock piles would be highly noticed by foraging raptors. Its role in raptor fatalities in taller or more complex vegetation communities remains unknown but likely inconsequential.

According to the EIR/EIS, "Small mammals and reptiles may also be likely to burrow near the turbine bases where soil has been disturbed." This hypothesis also comes from my work, but it could be revised to be a little more accurate. I reported that small mammals frequently burrowed under concrete tower pads in the Altamont Pass WRA. These mammals included desert cottontail, California ground squirrel, and pocket gophers. However, the tower pads of modern wind turbines are unlikely to present opportunities for these or other mammal species to under-burrow them.

According to the EIR/EIS, "Rodent control programs have been used in the past at wind project sites; however, recent studies suggest moderate levels (intermittent) of rodent control may increase raptor fatalities, and secondary impacts to terrestrial wildlife from rodent control are a concern." These conclusions came from my research reports,[25] but their representation in the EIR/EIS could be more accurate and more thorough. For example, it is not only past wind power projects that used rodent control, but current and proposed new projects.[26] Also, since my 2004

Commission, Public Interest Energy Research – Environmental Area, Contract No. CEC-500-2008-080. Sacramento, California.

[24] Smallwood, K. S. and C. Thelander. 2004. Developing methods to reduce bird mortality in the Altamont Pass Wind Resource Area. Final Report to the California Energy Commission, Public Interest Energy Research – Environmental Area, Contract No. 500-01-019. Sacramento, California. 531 pp.

Smallwood, K. S. and C. Thelander. 2005. Bird mortality in the Altamont Pass Wind Resource Area, March 1998 – September 2001 Final Report. National Renewable Energy Laboratory, NREL/SR-500-36973. Golden, Colorado. 410 pp.

[25] Smallwood and Thelander (2004, 2005)

Smallwood, K. S., C. G. Thelander, M. L. Morrison, and L. M. Rugge. 2007. Burrowing owl mortality in the Altamont Pass Wind Resource Area. Journal of Wildlife Management 71:1513-1524.

Smallwood, K. S. 2008. Wind power company compliance with mitigation plans in the Altamont Pass Wind Resource Area. Environmental & Energy Law Policy Journal 2(2):229-285.

[26] ESA (Environmental Science Associates). 2002. Solano County High Winds Power Project. Draft EIR. Prepared for Solano County Department of Environmental Management. Appendices C and D. Fairfield, California.

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report I have performed much more research in the Altamont Pass WRA that indicates raptors utilize the wind farm in species-specific manners and do not concentrate around prey resources in the simple manner that the practitioners of rodent control presumed.[27]

According to the EIR/EIS, "Associated facilities at wind projects include permanent meteorological towers. Studies have shown that guyed meteorological towers may kill more passerines per structure than wind turbines (Contra Costa, 2007)." However, the cited source does not appear in the references cited section of the EIR/EIS, and I cannot guess what study Contra Costa (2007) is referring to. I am unaware of any peer-reviewed research report that supports the conclusion that guyed meteorological towers kill more of any species than do wind turbines. I suggest this assertion be deleted from the EIR/EIS.

In another portion of the EIR/EIS (page 6-86), it was stated that "Bird collisions with power lines and turbines generally occur when a power line or other aerial structure transects a daily flight path used by a concentration of birds, and migrants are traveling at reduced altitudes and encounter tall structures in their path (Brown, 1993)." In regards to wind turbines, the stated assertion might be correct for some species, but not for all of them. Raptor species tend to be more susceptible to wind turbine collisions when they spend more of their flight time hovering, kiting, or fly-catching.[28] Furthermore, the reference cited was inappropriate for wind turbines, because by 1993 – the year of the report – research had not been adequately conducted to support such a conclusion. I suggest the above-quoted statement be deleted from the EIR/EIS and replaced with a more informative discussion of collision mechanisms.

I am curious why the potential impacts of wind turbine collisions were given such brief consideration in this EIR/EIS, because the impacts are well documented and the expansion of the Tehachapi Pass WRA is obviously vast. If the reason is because those who prepared the EIR/EIS believe the impacts will be trivial, then I suggest they reconsider. I suspect this may be the reason, as indicated by the following quoted passage in the EIR/EIS (page B-1 of Appendix B): "To assess the avian collision and electrocution risks of the proposed Project, it is helpful to understand how such risks compare with similar, human-related, bird mortality sources. Erickson et al. (2005) estimated that annual bird mortality from human-related causes may approach 1 billion birds per year in the United States (EIR/EIS Table B-1). Buildings, power lines, and domestic cats were estimated to comprise approximately 82 percent of the mortality, while vehicles, pesticides, communication towers, and wind turbines comprised approximately 16

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[27] Smallwood, K. S., L. Neher, D. Bell, J. DiDonato, B. Karas, S. Snyder, and S. Lopez. 2009. Range Management Practices to Reduce Wind Turbine Impacts on Burrowing Owls and Other Raptors in the Altamont Pass Wind Resource Area, California. Final Report to the California Energy Commission, Public Interest Energy Research – Environmental Area, Contract No. CEC-500-2008-080. Sacramento, California.

[28] Smallwood, K. S., L. Rugge, and M. L. Morrison. 2009. Influence of Behavior on Bird Mortality in Wind Energy Developments: The Altamont Pass Wind Resource Area, California. Journal of Wildlife Management: In press.

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percent." The Erickson et al. (2005) report was misleading in multiple, important ways. For example, domestic cats do not kill golden eagles.

Although advocates of wind power have relentlessly cited Erickson et al.'s (2001, 2005)[29] reports in an effort to trivialize wind turbine impacts on birds, the EIR/EIS's Table B-1 (App. B) and the discussion that relied on this report provided no scientific value to the EIR/EIS. There are several fundamental flaws with the Erickson et al. reports and the conclusions repeatedly being drawn from them regarding wind turbine impacts.

First, the majority of mortality estimates from wind farms have been generated since the publication of Erickson et al. (2001). At the time Erickson et al. (2001) prepared their report (the 2005 report is based on the 2001 report), few studies had been completed at wind farms. Since then there have been many estimates of wind turbine-caused fatality rates, and quite a few of these were generated by Erickson and his co-authors of the 2001 report. Estimates of fatality rates have totaled thousands of birds and bats per year since the Erickson et al. (2001) report. Thousands of killed birds were documented killed by wind turbines at the Altamont Pass WRA alone. It was misleading of the EIR/EIS to cite Erickson et al. (2001) while making no reference to any of the many reports of fatality rates released since 2001.

Some of the more recent estimates of mortality are considerably higher than those contributing to Erickson et al.'s (2001) reported national average. Also, much has been learned about the shortfalls in mortality estimates since Erickson et al. (2001). For example, I listed numerous potential biases and sources of error in these mortality estimates.[30] One of these biases was caused by swamping scavengers in scavenger removal trials by placing more bird carcasses than the local scavengers could process, resulting in larger proportions of carcasses remaining to the end of the trial period and a subsequently smaller adjustment to the mortality estimate. Erickson and his colleagues routinely placed 20, 30, 40 and more carcasses at a study site at once, which did not realistically simulate the deposition rate of dead birds from wind turbines nor the rate at which scavengers could process and remove the carcasses from under wind turbines. The effect of this bias was to produce low estimates of mortality, especially when applied to Erickson's mortality estimator. Exacerbating this bias was Erickson's consulting firm lengthening the duration of scavenger removal trials since the 1990s, because the longer this type of trial lasted, the greater the effect of the bias on mortality estimates. Their scavenger removal adjustments to

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[29] Erickson, W. P., G. D. Johnson, M. D. Strickland, D. P. Young, Jr., K. J. Sernka, and R. E. Good. 2001. Avian collisions with wind turbines: A summary of existing studies and comparisons to other sources of avian collision mortality in the United States. National Wind Coordinating Committee, c/o RESOLVE, Washington, D.C. 62 pp.

Erickson, W. P., G. D. Johnson, and D. P. Young Jr. 2005. A summary and comparison of bird mortality form anthropogenic causes with an emphasis on collisions. USDA Forest Service General Technical Report PSW-GTR-191.

[30] Smallwood, K. S. 2007. Estimating wind turbine-caused bird mortality. Journal of Wildlife Management 71:2781-2791.

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their mortality estimates have likely trended lower through time. Furthermore, in my 2007 paper I presented ample evidence to conclude that all the available estimates are low because they have not accounted for crippling bias and multiple other biases, including insufficient fatality search effort.[31]

Another problem with the Erickson et al. (2001) citations in the EIR/EIS is the absurdity of the impact comparisons made by Erickson et al. Erickson et al. (2001) did not rely on comparable metrics, such as on a per structure basis, a per unit energy basis, or on a per capita basis. The comparison made was in gross numbers across the USA, and all birds were treated the same, even house sparrows to golden eagles. Claiming that autos kill more birds per year than do wind turbines ignores the fact that songbirds tend to be susceptible to both auto collision and wind turbines while golden eagles and other raptors are more susceptible to wind turbine collision. These types of birds have different life history strategies, e.g., raptors have lower productivity and are longer-lived, and the law treats them differently. Also, alleging cats kill more birds than wind turbines ignores the fact that cats do not kill golden eagles. In the case of Tehachapi Pass WRA, golden eagles and California condors are not going to be killed by house cats, autos or buildings, so citing Erickson et al. (2001, 2005) as evidence of low impacts caused by wind turbines was misleading.

I. A. 2. a. Tehachapi Pass WRA fatality rates

Expanding wind energy production in Tehachapi Pass WRA would not come without substantial environmental impacts. Wind turbines are well documented as having killed large numbers of birds and bats, most notoriously at the Altamont Pass WRA.[32] Some believe that many fewer birds and bats have been killed by wind turbines in Tehachapi Pass,[33] even though the only evidence to back up this belief is a report by Anderson et al. (2004),[34] which concluded that the raptor fatality rates on the West Ridge of the Tehachapi Pass WRA killed about half as many raptors as were reportedly killed in the Altamont Pass. However, killing half the raptors that are killed by the Altamont Pass is still killing many more raptors than any other human cause within such a small area of which I am aware. These levels of fatalities likely qualify the Tehachapi

[31] Smallwood, K. S. 2007. Estimating wind turbine-caused bird mortality. Journal of Wildlife Management 71:2781-2791.

[32] Smallwood, K. S. and B. Karas. 2009. Avian and Bat Fatality Rates at Old-Generation and Repowered Wind Turbines in California. Journal of Wildlife Management: In press.

[33] e.g., GAO. 2005. Wind power impacts on wildlife and government responsibilities for regulating development and protecting wildlife. Report GAO-05-906, United States Government Accountability Office, Washington, D.C.

[34] Anderson, R., N. Neumann, J. Tom, W. P. Erickson, M. D. Strickland, M. Bourassa, K. J. Bay, and K. J. Sernka. 2004. Avian monitoring and risk assessment at the Tehachapi Pass Wind Resource Area: Period of Performance: October 2, 1996–May 27, 1998. NREL/SR-500-36416, National Renewable Energy Laboratory, Golden, CO. 102 pp.

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Pass WRA as an ecological sink to raptors, where the numbers killed exceed the numbers produced.[35]

Anderson et al.'s fatality rate comparison to Altamont Pass WRA was only a guess, because the study design generated data that were very difficult to analyze. The design and analysis of the fatality monitoring study at Tehachapi Pass WRA differed considerably from most other fatality monitoring studies at WRAs.[36] Either the individual wind turbine or the row of wind turbines is normally considered the study unit, around which a search radius is established to detect fatalities. The search radius is typically adjusted to accommodate turbine size, because larger turbines can throw birds and bats farther from the tower base. However, Anderson et al. considered circular plots to be the study unit, although the plot center corresponded with a turbine location. Rather than adjusting plot size (i.e., search radius) with turbine size, Anderson et al. simply included fewer large turbines and more small turbines within the fixed plot size, depending on which turbine field the plot happened to be located. Furthermore, Anderson et al. (2004) presented fatality rates as deaths/survey, whereas fatality rates are conventionally presented as deaths/turbine/year or deaths/MW/year. This fatality rate metric was not comparable to other fatality rates, which was a problem addressed herein.

My goal for this study was to use the information reported in Anderson et al. (2004) to estimate fatality rates that are comparable to those reported elsewhere. Therefore, one of my objectives was to prepare the data in Anderson et al. (2004) so that fatalities can be related to MW of rated capacity and adjusted for searcher detection error and scavenger removal rates. Another was to compare fatality rates between the West Ridge, Middle Ridge, and East Slope to assess the potential impacts posed by the Tehachapi Transmission project. The third objective was to compare the fatality rates in Tehachapi to those estimated at other California WRAs.

Methods

Because different fatality monitoring studies utilized different field methods, I used the searcher detection rates and scavenger removal rates in Smallwood (2007)[37] to generate comparable fatality rate estimates between studies. For each fatality monitoring study I adjusted the fatality rate estimate, F_A, for carcasses not found due to searcher detection error and scavenger removals as:

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[35] Smallwood, K. S., C. G. Thelander, M. L. Morrison, and L. M. Rugge. 2007. Burrowing owl mortality in the Altamont Pass Wind Resource Area. Journal of Wildlife Management 71:1513-1524.

[36] Anderson, R., N. Neumann, J. Tom, W. P. Erickson, M. D. Strickland, M. Bourassa, K. J. Bay, and K. J. Sernka. 2004. Avian monitoring and risk assessment at the Tehachapi Pass Wind Resource Area: Period of Performance: October 2, 1996–May 27, 1998. NREL/SR-500-36416, National Renewable Energy Laboratory, Golden, CO. 102 pp.

[37] Smallwood, K. S. 2007. Estimating wind turbine-caused bird mortality. Journal of Wildlife Management 71:2781-2791.

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$$F_A = \frac{F_U}{p \times R_C},$$

where F_U was unadjusted fatality rate, p was the proportion of fatalities found by searchers during searcher detection trials across the U.S. (Smallwood 2007), and R_C was the estimated cumulative proportion of carcasses remaining since the last fatality search, assuming wind turbines will deposit carcasses at a steady rate through the search interval. R_C was estimated by scavenger removal rates estimated from trials throughout the U.S. and averaged (Smallwood 2007):

$$R_C = \frac{\sum_{i=1}^{I} R_i}{I},$$

where R_i was the proportion of carcasses remaining by the ith day following the initiation of a scavenger removal trial (intended to correspond with the number of days since the last fatality search during monitoring), and I was the average search interval (days). I looked up R_C values in Smallwood (2007) under the App. column heading of the appropriate species group (i.e., small raptors, large raptors, small non-raptors, medium and large non-raptors, rock pigeons) and in the row corresponding with the average search interval (days). I calculated the standard error of the adjusted fatality rate, $SE[F_A]$, using the delta method (Goodman 1960):[38]

$$SE[F_A] = \sqrt{\left(\frac{1}{p \times R_C} \times SE[F_U]\right)^2 \times \left(\frac{F_U}{p} \times \frac{-1}{R_C^{\,2}} \times SE[R_C]\right)^2 \times \left(\frac{F_U}{R_C} \times \frac{-1}{p^2} \times SE[p]\right)^2}.$$

I did not adjust estimates for background mortality, crippling bias, or search radius bias. Background mortality is the fatality rate caused by factors other than wind turbines and supporting infrastructure. Crippling bias refers to the rate of mortally wounded animals dying undetected outside the search radius, or moving from unsearched turbines to searched turbines. Search radius bias refers to the rate of birds killed by wind turbines but thrown beyond the search radius and not found. On complex terrain birds can be thrown far from wind turbines because the turbines often occur on the tops of steep slopes, so a bird thrown 50 m laterally from the tower base can land farther down the hill than the 50 m measured from the searcher to the turbine base.

Altamont Pass WRA.—From spring 1998 to spring 2003 fatality searches were performed at 4,074 wind turbines over various time periods and various search intervals.[39] The search radius was 50 m. From fall 2005 through fall 2007 period fatality searches were performed out to 50 m

[38] Goodman, L. A. 1960. On the exact variance of products. Journal American Statistical Association 55:708-713.

[39] Smallwood, K. S. and B. Karas. 2009. Avian and Bat Fatality Rates at Old-Generation and Repowered Wind Turbines in California. Journal of Wildlife Management: In press.

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at 2,650 old-generation wind turbines that had been selected in random plots, and 31 new-generation wind turbines were also searched out to 75 m following a repowering project.[40]

Tehachapi Pass WRA.--Anderson et al. (2004) randomly selected 201 circular plots from the areas where 95% (n = 3,269) of the WRA's documented turbines occurred. The plots were 50 m in radius, and included from 1 to 11 turbines each, totaling 637 turbines. They covered 14% of each turbine field (i.e., West Ridge, Middle Ridge, and East Slope) because their random selection was stratified by turbine field, tower type (i.e., small lattice tower, small tubular tower, large lattice tower, large tubular tower, vertical axis turbine, and wind wall, which were composed of small lattice towers), and turbine position within a row (i.e., end of row, row interior, or scattered turbines outside of rows). Although Anderson et al. (2004) neglected to report the exact number of turbines or MW of rated capacity in each plot, they did identify the number of plots directed toward each turbine model within each turbine field, and the number of each turbine model comprising the turbine field. Multiplying the numbers of each turbine model by the rated capacity of each turbine model, I was able to calculate the MW of rated capacity that comprised the entirety of each turbine field and the portion that was monitored for fatalities. I was then able to estimate the rated capacity sampled by the average plot because Anderson et al. (2004) reported the percentage of the area that was sampled, so I assumed the sampled area corresponded with the sampled capacity in the wind turbines. I used 1.25 years in the fatality rate calculations because Anderson et al. (2004) reportedly surveyed each plot 4-5 times each at 90 day intervals, and because I assumed the first survey would have detected carcasses deposited over the preceding 90 days.

I selected fatality records that were detected during standard fatality searches and which I classified cause of death as possibly, probably, or certainly caused by wind turbine collision. Anderson et al. (2004) had attributed the nearest human-made structure as the likely cause of death, including buildings, transmission lines, distribution lines, meteorological towers, and roads. I classified fatalities as possibly caused by wind turbines if the fatality was located within 50 m of a wind turbine but the evidence suggested another cause of death was likely. They were classified as probable if within 50 m of a turbine and no other cause of death was suggested by the evidence, and they were certain if the body was sheared or other direct evidence indicated a collision occurred.

San Gorgonio WRA.-- In Phase I of the study, Anderson et al. (2005)[41] randomly selected 138 circular plots from the areas where 85% (n = 2,839) of the WRA's documented 3,340 turbines occurred. The plots were 50 m in radius, and included various numbers of turbines in each, totaling 423turbines. They covered 12% of each turbine field (i.e., high, medium, and low elevation areas, and water) because their random selection was stratified by turbine field, tower type (i.e., small lattice tower, small tubular tower, large tubular tower). Although Anderson et al. (2005) neglected to report the exact number of turbines or MW of rated capacity in each plot,

[40] Smallwood and Karas (2009)

[41] Anderson, R., J. Tom, N. Neumann, W. Erickson, D. Strickland, M. Bourassa, K. J. Bay, and K. J. Sernka. 2005. Avian monitoring and risk assessment at the San Gorgonio Wind Resource Area. NREL/SR-500-38054, National Renewable Energy Laboratory, Golden, CO. 138 pp.

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they did identify the number of plots directed toward each turbine model within each turbine field, and the number of each turbine model comprising the turbine field. Multiplying the numbers of each turbine model by the rated capacity of each turbine model, I was able to calculate the MW of rated capacity that comprised the entirety of each turbine field and the portion that was monitored for fatalities. I was then able to estimate the rated capacity sampled by the average plot because Anderson et al. (2005) reported the percentage of the area that was sampled, so I assumed the sampled area corresponded with the sampled capacity in the wind turbines. I used 1.5 years in the fatality rate calculations because Anderson et al. (2005) reportedly surveyed each plot at 90 day intervals over 1.25 years, and because I assumed the first survey would have detected carcasses deposited over the preceding 90 days.

I selected fatality records that were detected during standard fatality searches and which I classified cause of death as possibly, probably, or certainly caused by wind turbine collision. Anderson et al. (2005) had attributed the nearest human-made structure as the likely cause of death, including buildings, transmission lines, distribution lines, meteorological towers, and roads. I classified fatalities as possibly caused by wind turbines if the fatality was located within 50 m of a wind turbine but the evidence suggested another cause of death was likely. They were classified as probable if within 50 m of a turbine and no other cause of death was suggested by the evidence, and they were certain if the body was sheared or other direct evidence indicated a collision occurred.

Solano WRA (High Winds).—All of the 90 1.8-MW wind turbines were searched out to 75 m for fatalities twice per month from August 2003 to July 2005.[42] I did not rely on Kerlinger et al.'s (2006) searcher efficiency and scavenger removal trials because Kerlinger et al. placed carcasses of only 10 small-bodied birds, 23 medium birds, and 7 large birds, samples which were too small for estimating reliable detection rates. Furthermore, they placed these carcasses all at once during one year in December, and only monitored them for 7 days. For searcher efficiency trials, they placed carcasses of only 6 small-bodied birds, 9 medium birds, and 5 large birds, samples which were too small for estimating reliable detection rates. Instead of using these trials, I used estimators of searcher detection and scavenger removal rates developed by Smallwood (2007), who synthesized results from reported searcher detection and scavenger removal trials performed in wind farms throughout the United States.

Results

In the Tehachapi Pass WRA study, Anderson et al. (2004) reported finding 1 bat and 126 bird fatalities during the 1.25-year study. They reported finding 75 of these fatalities on search plots near wind turbines. My interpretation of the data in their Tables and Appendix B indicated 30 were found outside search plots, but I ended up excluding others from fatality rate estimation because they likely died of causes other than wind turbine collision or they were found

[42] Kerlinger, P., R. Curry, L. Culp, A. Jain, C. Wilkerson, B. Fischer, and A. Hasch. 2006. Post-construction avian and bat fatality monitoring study for the High Winds Wind Power Project, Solano County, California: Two year report. Unpubl. report to High Winds, LLC and FPL Energy. 136 pp.

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incidentally rather than during fatality searches. Anderson et al. (2004) apparently excluded some fatalities because they were closer to other structures than to wind turbines, such as to electric distribution lines, transmission line, meteorological towers, or access roads. I included these fatalities unless burn marks indicated electrocution (n = 2) or field personnel witnessed a bird struck by a car (n = 1) or hitting a meteorological tower guy wire (n = 1).

For fatality rate estimation, I relied on 97 fatalities found within plots and determined to at least possibly have been caused by wind turbine collision. During the study period, I estimated the Tehachapi Pass WRA was killing 4,881 birds per year, including 642 raptors per year (Table 2). Fatality rates were much higher on West Ridge than on Middle Ridge or East Slope (Table 3). Tehachapi Pass WRA killed 38% of the raptors per MW per year compared to the Altamont Pass WRA in 2005-07,[43] and it killed 69% of the birds as a group (Table 4). Omitting the exotic rock pigeon and European starling from consideration, the Tehachapi Pass WRA killed 1.2 times the number of native birds per MW per year compared to the Altamont Pass WRA (Table 4). Compared to other California WRAs, Tehachapi Pass WRA killed the second largest number of birds per year, exceeded only by the Altamont Pass WRA (Table 4).

Assuming the fatality rates estimated from Anderson et al.'s (2004) study were accurate, and assuming no change in fatality rates among the wind turbines that would be installed, the Tehachapi Pass WRA expanded to 4,500 MW of capacity would kill >6,500 raptors per year as a result of wind turbine collisions, and it would destroy nearly 50,000 birds per year (Table 5). No empirical basis exists to support a conclusion that new-generation wind turbines would kill fewer birds than the existing turbines in the Tehachapi Pass WRA, but lesser impacts might be possible than those projected herein. However, even if the attributes of modern wind turbines were to reduce fatalities by 50% within the Tehachapi Pass WRA, as found in the Altamont Pass WRA,[44] the expanded WRA would still be predicted to kill more than 3,000 raptors per year and nearly 25,000 birds per year. Even these impacts would far exceed the annual wind turbine-caused mortality in the Altamont Pass WRA.

Discussion

The Tehachapi Pass WRA killed a substantial number of birds in 1996-1998, and it is unlikely that fatality rates have changed much since Anderson et al.'s (2004) study. According to Anderson et al. (2004:23), "Fatality rates and the risk index are clearly higher for raptors than the other bird groups." This conclusion was erroneous, and went to demonstrate the importance of adjusting fatality rates for the effects of scavenger removal. I found the opposite result – that non-raptor birds were killed at higher rates than raptors. I found that the WRA killed 6.6 times more non-raptor birds than it killed raptors (Table 2).

According to Anderson et al. (2004:25), "The West Ridge, where the highest raptor fatality rates were observed at Tehachapi Pass WRA, was estimated to be approximately half the estimate

[43] Smallwood and Karas (2009).

[44] Smallwood and Karas (2009).

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from the Altamont Pass." However, I found the raptor fatality rate at West Ridge was 69% of the rate at Altamont Pass. The overall bird fatality rate at West Ridge was 96% of the rate at Altamont Pass, and omitting the exotic European starling and rock pigeon from consideration, the native bird fatality rate at West Ridge was 1.55 times the corresponding rate at Altamont Pass. The wind turbines on the West Ridge of Tehachapi Pass appear to be more lethal to native birds than recorded in the Altamont Pass, and may be one of the most dangerous wind turbine fields for birds worldwide.

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Table 2. Estimates of annual adjusted fatalities in the Tehachapi Pass WRA, California, 1996-1998 (Anderson et al. 2004). The estimates were also adjusted to account for the 5% of the WRA that remained undocumented.

		Estimated Tehachapi-wide annual fatalities		
Species	Scientific name	Mean	80% LCL	80% UCL
Red-tailed hawk	*Buteo jamaicensis*	41.0	19.6	62.4
Buteo spp.	*Buteo* sp.	6.8	-2.0	15.6
Prairie falcon	*Falco mexicanus*	6.8	-2.0	15.6
American kestrel	*Falco sparverius*	437.4	127.3	747.5
Barn owl	*Tyto alba*	8.7	-2.5	19.8
Great horned owl	*Bubo virginianus*	61.5	15.5	107.5
Long-eared owl	*Asio otus*	6.8	-2.0	15.6
Flammulated owl	*Otus flammeolus*	72.9	-27.3	173.1
Northern flicker	*Colaptes auratus*	294.8	-290.0	879.7
Greater roadrunner	*Geococcyx californianus*	128.5	-113.8	370.8
California quail	*Callipepla californica*	196.6	-220.4	613.5
Chukar	*Alectoris chukar*	64.3	-56.9	185.4
European starling	*Sturnus vulgaris*	196.6	-220.4	613.5
Horned lark	*Eremophila alpestris*	98.3	-110.2	306.7
Rock wren	*Salpinctes obsoletus*	98.3	-110.2	306.7
Scrub jay	*Aphelocoma californicus*	98.3	-110.2	306.7
Common raven	*Corvus corax*	57.1	-6.3	120.5
Mourning dove	*Zenaida macroura*	491.4	-469.6	1,452.5
Rock pigeon	*Columba livia*	58.2	11.2	105.2
Yellow-rumped warbler	*Dendroica coronata*	98.3	-110.2	306.7
Dark-eyed junco	*Junco hyemalis*	98.3	-110.2	306.8
Sparrow spp.		98.3	-110.2	306.7
Brewer's blackbird	*Euphagus cyanocephalus*	98.3	-110.2	306.7
Western meadowlark	*Sturnella neglecta*	393.2	-400.0	1,186.3
Passerine spp.		196.6	-220.4	613.6
Unknown bird spp.		1,474.1	-1,098.9	4,047.1
Long-eared myotis		98.3	-110.2	306.7
All raptors		642.0	126.6	1,157.3
All birds		4,881.2	-3,730.1	13,492.6

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Table 3. Comparison of fatality rates between West Ridge, Middle Ridge, and East Slope turbine fields in the Tehachapi Pass WRA, 1996-1998.

	Estimates of adjusted fatalities/MW/yr in Tehachapi Pass WRA					
	West Ridge		Middle Ridge		East Slope	
Species	Mean	SE	Mean	SE	Mean	SE
Red-tailed hawk	0.459	0.187	0.000	0.000	0.000	0.000
Buteo spp.	0.076	0.077	0.000	0.000	0.000	0.000
Prairie falcon	0.000	0.000	0.046	0.047	0.000	0.000
American kestrel	4.896	2.708	0.000	0.000	0.000	0.000
Barn owl	0.000	0.000	0.059	0.059	0.000	0.000
Great horned owl	0.459	0.216	0.046	0.047	0.060	0.043
Long-eared owl	0.000	0.000	0.000	0.000	0.030	0.030
Flammulated owl	0.816	0.875	0.000	0.000	0.000	0.000
Northern flicker	2.200	3.286	0.668	1.106	0.000	0.000
Greater roadrunner	0.719	1.057	0.000	0.000	0.283	0.416
California quail	1.100	1.820	0.668	1.106	0.000	0.000
Chukar	0.000	0.000	0.437	0.643	0.000	0.000
European starling	1.100	1.820	0.668	1.106	0.000	0.000
Horned lark	1.100	1.820	0.000	0.000	0.000	0.000
Rock wren	1.100	1.820	0.000	0.000	0.000	0.000
Scrub jay	1.100	1.820	0.000	0.000	0.000	0.000
Common raven	0.426	0.330	0.129	0.136	0.000	0.000
Mourning dove	2.200	3.286	0.668	1.106	0.865	1.291
Rock pigeon	0.651	0.410	0.000	0.000	0.000	0.000
Yellow-rumped warbler	1.100	1.820	0.000	0.000	0.000	0.000
Dark-eyed junco	0.000	0.000	0.668	1.106	0.000	0.000
Sparrow spp.	1.100	1.820	0.000	0.000	0.000	0.000
Brewer's blackbird	1.100	1.820	0.000	0.000	0.000	0.000
Western meadowlark	1.100	1.820	0.668	1.106	0.865	1.291
Passerine spp.	1.100	1.820	0.000	0.000	0.432	0.715
Unknown bird spp.	15.399	20.644	0.000	0.000	0.432	0.715
Long-eared myotis	1.100	1.820	0.000	0.000	0.000	0.000
All raptors	2.636	0.588	0.152	-0.044	0.230	-0.008
All birds	15.445	-10.389	4.729	-4.972	7.551	-7.131

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Table 4. Comparison of fatality rates between Tehachapi and other California WRAs.

	Estimates of adjusted fatalities/MW/yr											
	Altamont 1998-2003 580 MW		Altamont 2005-2007 580 MW		High Winds 162 MW		Tehachapi 440.5 MW		San Gorgonio Phase I 245.1 MW		San Gorgonio Phase II 82.1 MW	
Species	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE
Mallard	0.096	0.057	0.116	0.068	0.006	0.006	0.000		0.084	0.089	0.514	0.392
Cinnamon teal	0.000		0.000		0.000		0.000		0.000		0.257	0.270
Ring-necked duck	0.007	0.008	0.000	0.000	0.000		0.000		0.000		0.000	
Duck spp.	0.000		0.017	0.011	0.000		0.000		0.000		0.257	0.270
Chukar	0.000		0.000		0.000		0.146	0.214	0.000		0.000	
Ring-necked pheasant	0.000		0.000		0.018	0.011	0.000		0.000		0.000	
Wild turkey	0.003	0.003	0.002	0.002	0.000		0.000		0.000		0.000	
California quail	0.000		0.000		0.000		0.446	0.738	0.000		0.000	
Pied-billed grebe	0.000		0.009	0.010	0.000		0.000		0.000		0.000	
Grebe spp.	0.000		0.000		0.000		0.000		0.436	0.721	0.000	0.000
Double-crested cormorant	0.004	0.004	0.000	0.000	0.006	0.006	0.000		0.000		0.000	
Great blue heron	0.000		0.001	0.001	0.000		0.000		0.000		0.000	
Great egret	0.000		0.048	0.050	0.000		0.000		0.000		0.000	
Cattle egret	0.005	0.006	0.000	0.000	0.000		0.000		0.000		0.000	
Great blue heron	0.000		0.001	0.001	0.000		0.000		0.000		0.000	
Great egret	0.000		0.048	0.050	0.000		0.000		0.000		0.000	
Cattle egret	0.000		0.000	0.000	0.000		0.000		0.000		0.000	
Egret spp.	0.000		0.000		0.000		0.000		0.084	0.089	0.000	0.000
Black-crowned night heron	0.002	0.001	0.000				0.000		0.000		0.000	
Turkey vulture	0.004	0.003	0.018	0.013	0.014	0.007	0.000		0.000		0.000	
White-tailed kite	0.000		0.001	0.001	0.010	0.006	0.000		0.000		0.000	
Northern harrier	0.001	0.001	0.006	0.003			0.000		0.000		0.000	
Red-shouldered hawk	0.000		0.001	0.001			0.000		0.000		0.000	
Swainson's hawk	0.000		0.001	0.001	0.003	0.003	0.000		0.000		0.000	
Red-tailed hawk	0.306	0.084	0.675	0.120	0.056	0.013	0.093	0.038	0.030	0.030	0.000	0.000

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Ferruginous hawk	0.000		0.007	0.007	0.003	0.003	0.000		0.000		0.000	
Buteo spp.	0.000		0.029	0.014	0.000		0.016	0.016	0.000		0.000	
Hawk sp.	0.000		0.002	0.002	0.000		0.000		0.000		0.000	
Golden eagle	0.095	0.042	0.112	0.030	0.006	0.005	0.000		0.030	0.030	0.000	0.000
American kestrel	1.261	0.599	0.758	0.208	0.428	0.090	0.993	0.549	0.000		0.000	
Prairie falcon	0.002	0.001	0.002	0.001			0.016	0.016	0.000		0.000	
Virginia rail	0.000		0.000		0.041	0.027	0.000		0.000		0.000	
Sora	0.000		0.000		0.038	0.025	0.000		0.436	0.721	0.000	0.000
Common moorhen	0.000		0.000		0.013	0.013	0.000		0.000		0.000	
American coot	0.000		0.000		0.018	0.011	0.000		0.422	0.333	0.257	0.270
Sandhill crane	0.000		0.003	0.003	0.000		0.000		0.000		0.000	
Black-necked stilt	0.000		0.040	0.046	0.000		0.000		0.000		0.000	
American avocet	0.012	0.010	0.000		0.000		0.000		0.000		0.000	
Killdeer	0.000		0.011	0.010	0.000		0.000		0.000		0.000	
Lesser yellowlegs	0.003	0.004	0.000		0.000		0.000		0.000		0.000	
Ring-billed gull	0.015	0.010	0.000		0.000		0.000		0.000		0.000	
California gull	0.015	0.008	0.011	0.011	0.000		0.000		0.000		0.000	
Gull spp.	0.188	0.096	0.112	0.046	0.000		0.000		0.000		1.799	1.254
Rock pigeon	0.560	0.171	3.953	1.380	0.009	0.006	0.132	0.083	0.581	0.315	0.982	0.621
Mourning dove	0.807	0.780	0.540	0.341	0.025	0.020	1.116	1.702	0.436	0.721	0.000	
Dove sp.	0.000		0.061	0.046	0.000		0.000		0.000		0.000	
Cockatiel	0.005	0.006	0.021	0.024	0.000		0.000		0.000		0.000	
Greater roadrunner	0.000		0.000		0.000		0.292	0.429	0.000		0.000	
Barn owl	0.079	0.036	0.259	0.063	0.015	0.009	0.020	0.020	0.000		0.000	
Flammulated owl	0.000		0.000		0.000		0.165	0.177	0.000		0.000	
Great horned owl	0.013	0.005	0.055	0.018	0.000		0.140	0.081	0.000		0.092	0.093
Burrowing owl	1.480	0.830	1.918	0.505	0.000		0.000		0.323	0.347	0.000	
Long-eared owl	0.000		0.000		0.000		0.016	0.016	0.000		0.000	
Owl spp.	0.000		0.000		0.000		0.000		0.000		0.092	0.093
White-throated swift	0.000		0.071	0.069	0.025	0.020	0.000		0.436	0.721	0.000	
Northern flicker	0.254	0.355	0.026	0.031	0.025	0.020	0.669	1.036	0.000		0.000	
Western wood pee-wee	0.000				0.013	0.013	0.000		0.000		0.000	

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Hammond's flycatcher	0.000		0.008	0.009	0.000		0.000		0.000		0.000	
Pacific-slope flycatcher	0.011	0.014	0.000	0.000	0.000		0.000		0.000		0.000	
Say's phoebe	0.000		0.019	0.022	0.000		0.000		0.000		0.000	
Western kingbird	0.004	0.005	0.000	0.000	0.000		0.000		0.000		0.000	
Flycatcher sp.	0.000		0.000		0.013	0.013	0.000		0.000		0.000	
Loggerhead shrike	0.212	0.297	0.313	0.215	0.000		0.000		0.000		0.000	
Warbling vireo	0.000		0.000		0.025	0.020	0.000		0.000		0.000	
Western scrub jay	0.000		0.002	0.002	0.000		0.223	0.369	0.000		0.000	
American crow	0.027	0.018	0.053	0.025	0.000		0.000		0.000		0.000	
Common raven	0.070	0.054	0.153	0.066	0.000		0.130	0.112	0.084	0.089	0.514	0.540
Horned lark	0.197	0.187	0.504	0.347	0.224	0.089	0.223	0.369	0.000		0.000	
Tree swallow	0.000		0.004	0.005	0.013	0.013	0.000		0.000		0.000	
Violet-green swallow	0.004	0.005	0.000	0.000	0.000		0.000		0.000		0.000	
Cliff swallow	0.051	0.046	0.047	0.043	0.000		0.000		0.000		0.000	
Rock wren	0.000		0.015	0.018	0.000		0.223	0.369	0.000		0.000	
House wren	0.000		0.008	0.009	0.000		0.000		0.000		0.000	
Ruby-crowned kinglet	0.000		0.000		0.025	0.020	0.000		0.000		0.000	
Bluebird spp.	0.000		0.088	0.077	0.000		0.000		0.000		0.000	
Mountain bluebird	0.253	0.355	0.058	0.042	0.000		0.000		0.000		0.000	
Swainson's thrush	0.000		0.014	0.017	0.000		0.000		0.000		0.000	
Northern mockingbird	0.016	0.020	0.016	0.019	0.000		0.000		0.000		0.000	
European starling	2.274	2.732	3.246	1.966	0.076	0.039	0.446	0.738	0.436	0.721	0.000	
American pipit	0.000		0.006	0.006	0.025	0.020	0.000		0.000		0.000	
Orange-crowned warbler	0.000		0.000		0.013	0.013	0.000		0.000		0.000	
Yellow warbler	0.006	0.008	0.000		0.029	0.022	0.000		0.000		0.000	
Yellow-rumped warbler	0.000		0.000		0.000		0.223	0.369	0.000		0.000	
Townsend's warbler	0.000		0.000		0.038	0.025	0.000		0.000		0.000	
Common yellowthroat	0.000		0.000		0.025	0.020	0.000		0.000		0.000	
Wilson's warbler	0.000		0.000		0.013	0.013	0.000		0.000		0.000	
Warbler sp.	0.000		0.000		0.041	0.027	0.000		0.000		0.000	
Western tanager	0.000		0.004	0.004	0.000		0.000		0.000		0.000	
Savanna sparrow	0.057	0.086	0.000		0.000		0.000		0.000		0.000	

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Lincoln sparrow	0.000		0.005	0.006	0.013	0.013	0.000		0.000		0.000	
Sparrow spp.	0.000		0.013	0.016	0.000		0.223	0.369	0.000		0.000	
House sparrow	0.080	0.129										
Dark-eyed junco	0.000		0.000		0.000		0.223	0.369	0.000		0.000	
Red-winged blackbird	0.133	0.108	0.241	0.161	0.183	0.084	0.000		0.000		0.000	
Tricolored blackbird	0.007	0.008	0.000		0.000		0.000		0.000		0.000	
Western meadowlark	2.749	3.215	3.037	1.816	0.041	0.027	0.892	1.404	0.436	0.721	1.327	2.196
Brewer's blackbird	0.587	0.794	0.334	0.225	0.025	0.020	0.223	0.369	0.000		0.000	
Brown-headed cowbird	0.252	0.400	0.050	0.058	0.000		0.000		0.000		0.000	
Blackbird sp.	0.016	0.020	0.363	0.269	0.013	0.013	0.000		0.000		0.000	
House finch	0.172	0.143	0.003	0.003	0.000		0.000		0.000		0.000	
Passerine spp.	0.000		0.586	0.369	0.066	0.037	0.446	0.738	0.000		3.981	5.704
Small non-raptors	0.129	0.106	0.586	0.369	0.000		0.000		0.000		0.000	
Medium & large non-raptors	0.000		0.211	0.102	0.000		0.000		0.000		0.000	
Large raptor spp.	0.000		0.002	0.002	0.000		0.000		0.000		0.000	
Raptor spp.	0.000		0.004	0.003	0.000		0.000		0.000		0.000	
Unknown bird spp.	0.493	0.612	0.292	0.204	0.006	0.006	3.346	4.556	3.050	4.466	6.634	9.144
Silver-haired bat	0.000		0.000		0.076	0.034	0.000		0.000		0.000	
Hoary bat	0.025	0.024	0.000		0.808	0.192	0.000		0.000		0.000	
Mexican free-tailed bat	0.000		0.000		0.631	0.164	0.000		0.436	0.721	0.000	
All bats	0.025	0.024	0.118	0.099	1.514	0.389	0.223	0.369	0.436	0.721	0.000	
All raptors	3.241	1.601	3.848	0.990	0.536	0.136	1.457	0.912	0.384	0.408	0.185	0.186
All birds	13.017	12.483	16.029	8.176	1.678	0.849	11.080	15.247	7.304	10.114	16.706	20.847
All native birds	10.089	9.436	8.808	4.805	1.576	0.792	10.502	14.426	6.287	9.078	15.724	20.225

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Table 5. Estimated annual fatality rates of select species and groups of species after extrapolating existing Tehachapi Pass WRA fatality rates to 4,500 MW of rated capacity.

	Estimated annual fatalities in 4,500 MW Tehachapi Pass WRA		
Species or group	Mean	LCL	UCL
American kestrel	4,469	1,301	7,636
Red-tailed hawk	419	-118	955
Prairie falcon	72	-20	164
Mourning dove	5,022	-1,416	11,460
Northern flicker	3,011	-2,966	8,987
Western meadowlark	4,014	-4,086	12,114
All raptors	6,557	1,295	11,818
All birds	49,860	-38,100	137,820
Native birds	47,259	-35,965	130,483

I. A. 3. Cumulative impacts

There was no mention in the EIR/EIS of cumulative impacts that could potentially be caused by the proposed development of the Tehachapi Pass WRA. I recommend that a cumulative impacts analysis be conducted and added to the EIR/EIS. It should consider the potential cumulative impacts of all the wind and solar energy generation on wildlife and plants that that could be realized by achieving the Governor's 33% RPS goal. In earlier comment letters to the CPUC, I developed a preliminary analysis of how much renewable energy generation the 33% RPS goal will involve, as well as how much area.[45] Below, I summarize the relevant analysis from those comment letters.

The first step would be to estimate the renewable resource gap created by the Governor's 33% RPS. To estimate this gap, I adopted the CPUC's assumption in the 33% Implementation Analysis that energy demand will increase 1.2% per year through 2020, the date of the RPS goal. Thus, California's use of 302,072 GWH of electric energy in 2007 can be projected to be 352,742 GWH in 2020, which means the 33% goal would require 117,580 GWH from renewable sources (i.e., 352,742 x 0.33 = 117, 580). This amount of renewable energy generation would be 81,865 GWH more than what was generated in 2007, so this is the renewable resource gap.

To estimate the spatial areas needed for solar energy generation, I first assumed that each KW of installed PV capacity generates 1,500 KWH of electricity. I then assumed that PV panels on tracking stations (i.e., stations that can track the sun to maintain optimum angles at which the

[45] Smallwood, K. S. 2008. The Public Utility Commission's Implementation Analysis December 16 Workshop for the Governor's Executive Order S-14-08 to implement a 33% Renewable Portfolio Standard by 2020. Comment letter to California Public Utilities Commission. 9 pp.

Smallwood, K. S. 2008. The Public Utility Commission's Implementation Analysis Draft Work Plan for the Governor's Executive Order S-14-08 to implement a 33% Renewable Portfolio Standard by 2020. Comment letter to California Public Utilities Commission. 11 pp.

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panels face the sun) typically generate 25% more electricity, and that all future solar farms will include tracking stations. I next applied these assumptions to the average rated capacity and average acres between two proposed solar farms discussed in the CEC's Preliminary Staff Assessment for the Carizzo Energy Solar Farm.[46] I estimated that 5.4 acres of PV panels are required for each GWH per year of electricity generation.

To estimate the spatial area for wind energy generation, I related the sizes of wind farms to their 2006 wind energy generation in one approach, and the MW of capacity to the wind farm's capacity factor in the other approach (Table 6). The generation data were from the California Energy Commission. The area of the Solano Wind Resource Area was from the cumulative Impacts section of the Shilo II EIR.[47] The areas for the Tehachapi and San Gorgonio Wind Resource Areas were from Anderson et al. (2004, 2005).[48] These 4 WRAs averaged 37.3 acres per annual GWH, or 65.2 acres per MW.

In addition to the acres per unit of generation, which is useful for cumulative impacts analysis relevant to habitat loss, one can also calculate the MW of rated capacity that will be needed to achieve various wind and solar contributions to the 33% RPS. One can do this by applying the average capacity factor of 22.75% from California's six WRAs (Table 1) to whatever portion of the 81,865 GWH renewable resource gap (see above) that is projected to be covered by wind power generation.[49] For example, if wind power was to provide the entire renewable resource gap, then California would need another 41,078 MW of installed capacity, based on existing capacity factors. The value of the installed capacity projections is their use in predicting cumulative avian fatality rates due to wind turbine collisions.

In terms of the space required to achieve the 33% RPS goal, solar energy generation would destroy a much smaller habitat area than would wind energy generation, and has the capacity on rooftops, blacktops, and disturbed areas to potentially cause no harm to habitats (Table 7, Figure 1). If only solar energy was pursued, and if it was all solar farms instead of near and within load

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[46] California Energy Commission. 2008. Preliminary Staff Assessment for the Carizzo Energy Solar Farm. CEC-700-2008-011-PSA. Sacramento, California.

[47] Ecology and Environment, Inc. 2006. Draft Environmental Impact Report, Shiloh II wind Plant Project. Solano County Department of Resource Management, Fairfield, California.

[48] Anderson, R., N. Neumann, J. Tom, W. P. Erickson, M. D. Strickland, M. Bourassa, K. J. Bay, and K. J. Sernka. 2004. Avian monitoring and risk assessment at the Tehachapi Pass Wind Resource Area: Period of Performance: October 2, 1996–May 27, 1998. NREL/SR-500-36416, National Renewable Energy Laboratory, Golden, Colorado.

Anderson, R., J. Tom, N. Neumann, W. Erickson, D. Strickland, M. Bourassa, K. J. Bay, and K. J. Sernka. 2005. Avian monitoring and risk assessment at the San Gorgonio Wind Resource Area. NREL/SR-500-38054, National Renewable Energy Laboratory, Golden, Colorad.

[49] I ignored possible contributions to filling the renewable resource gap using other renewable energy sources, because they are scarce and limited, and will most likely very little.

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centers, then up to 691 square miles of habitat could be destroyed to achieve the 33% RPS goal (Table 7). On the other hand, relying more on wind energy generation to achieve the 33% RPS would require the development of up to 4,771 square miles, and this projection probably unrealistically assumes that the average capacity factor I relied upon will apply across all potential wind resource areas that would be developed. Furthermore, wind power kills volant animals. Relying solely on wind to achieve the 33% RPS could result in the development of enough wind turbines to annually kill, on average, >23,000 burrowing owls, >22,000 American kestrels, nearly 9,000 red-tailed hawks, >1,500 golden eagles, nearly 64,000 raptors of all kinds, >370,000 birds of all kinds, and nearly 24,000 bats of all kinds (Tables 8 and 9, Figure 1). Of course, these fatality rates would apply only so long as the species at issue occur in sufficient numbers to generate these rates.

Table 6. Capacity factors in the year 2006 calculated from wind power generation data managed by the California Energy Commission. From the Altamont Pass WRA, I separated out the capacity factor for the Diablo Winds Energy Project, which repowered 20 MW of previously defunct old-generation wind turbines. The capacity factor for this project was 37%, which was nearly 3 times the capacity factor of the other wind turbines in the Altamont Pass WRA (13.4%).

California Wind Resource Area	Nameplate capacity (MW)	Generation (GWh)	Capacity factor (%)	Area of WRA (acres)
Altamont Pass	593.0	730.092	14.05	55,000
Solano	413.3	948.846	26.21	20,000
San Gorgonio	464.9	1,061.519	26.07	18,848
Tehachapi	336.5	757.616	25.70	26,624
Tehachapi/Mojave	328.2	770.020	26.79	
Pacheco Pass	16.2	20.847	14.69	
Total	**2,152**	**4,288.940**	**22.75**	
Diablo Winds project	20.4	58.045	37.00	

Table 7. Scenarios of wind versus solar energy contributions to achieving the 33% Renewable Portfolio Standard, where each 10% increment of wind contribution corresponds with a 10% lesser contribution from solar.

Percent wind	MW of wind	GWH of Resource Gap		Square miles needed to achieve 33% RPS		
		PV	Wind	PV	Wind	Total
0	0	81865	0	691	0	691
10	4108	73679	8187	622	477	1099
20	8216	65492	16373	553	954	1507
30	12324	57306	24560	484	1431	1915
40	16431	49119	32746	414	1908	2323
50	20539	40933	40933	345	2386	2731
60	24647	32746	49119	276	2863	3139
70	28755	24560	57306	207	3340	3547
80	32863	16373	65492	138	3817	3955
90	36971	8187	73679	69	4294	4363
100	41078	0	81865	0	4771	4771

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Table 8. Projected annual fatality rates to meet various levels of the 33% RPS using wind power.

Percent wind	Projected average annual fatalities & 80% CI											
	Raptors			Birds			Native birds			Bats		
	Mean	LCL	UCL	Mean	LCL	UCL	Mean	LCL	UCL	Mean	LCL	UCL
0	0	0	0	0	0	0	0	0	0	0	0	0
10	6393	3173	9613	37064	-8207	82335	27906	-10408	66219	2353	275	4430
20	12786	6345	19226	74128	-16415	164670	55811	-20815	132438	4706	550	8861
30	19178	9518	28839	111192	-24622	247006	83717	-31223	198656	7058	826	13291
40	25571	12690	38452	148256	-32829	329341	111622	-41631	264875	9411	1101	17721
50	31964	15863	48066	185320	-41036	411676	139528	-52038	331094	11764	1376	22151
60	38357	19035	57679	222384	-49244	494011	167433	-62446	397313	14117	1651	26582
70	44750	22208	67292	259448	-57451	576346	195339	-72854	463531	16469	1927	31012
80	51143	25380	76905	296512	-65658	658682	223244	-83262	529750	18822	2202	35442
90	57535	28553	86518	333576	-73866	741017	251150	-93669	595969	21175	2477	39873
100	63928	31725	96131	370639	-82073	823352	279055	-104077	662188	23528	2752	44303

Table 9. Projected annual fatality rates to meet various levels of the 33% RPS using wind power.

Percent wind	Projected average annual fatalities & 80% CI											
	Golden eagles			Red-tailed hawks			American kestrels			Burrowing owls		
	Mean	LCL	UCL	Mean	LCL	UCL	Mean	LCL	UCL	Mean	LCL	UCL
0	0	0	0	0	0	0	0	0	0	0	0	0
10	152	66	238	877	612	1142	2238	1123	3353	2301	1180	3423
20	304	133	475	1754	1225	2283	4475	2245	6706	4603	2359	6846
30	456	199	713	2631	1837	3425	6713	3368	10059	6904	3539	10269
40	608	266	950	3508	2450	4567	8951	4490	13411	9206	4719	13692
50	760	332	1188	4385	3062	5708	11189	5613	16764	11507	5899	17116
60	912	398	1425	5262	3674	6850	13426	6736	20117	13808	7078	20539
70	1064	465	1663	6139	4287	7992	15664	7858	23470	16110	8258	23962
80	1216	531	1901	7016	4899	9133	17902	8981	26823	18411	9438	27385
90	1368	598	2138	7893	5512	10275	20140	10104	30176	20713	10617	30808
100	1520	664	2376	8770	6124	11417	22377	11226	33529	23014	11797	34231

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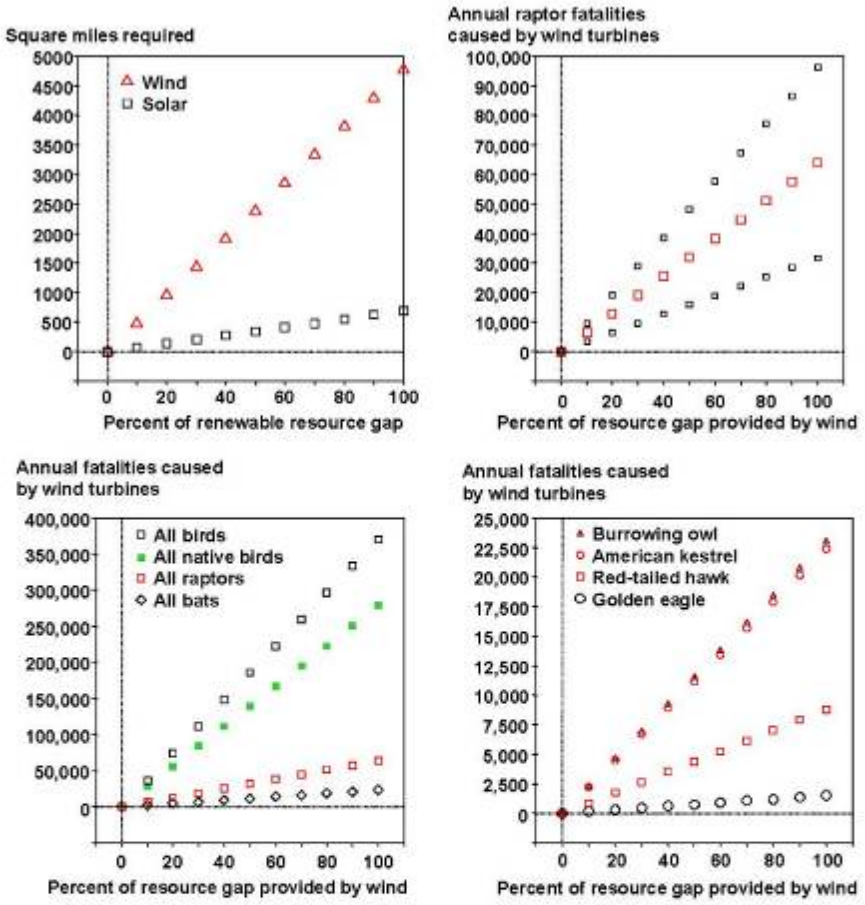

Figure 1. The areas needed to generate enough energy to meet the 33% RPS goal (top left), and projected annual fatality rates of volant animals in California under various scenarios of wind versus solar energy contributions to the 33% Renewable Portfolio Standard (top right and bottom graphs). The top right graph illustrates the increasing 80% confidence interval with increasing mean annual raptor fatalities as a function of the percentage of the RPS that is generated by wind power.

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I. B. Transmission Line Impacts

The EIR/EIS was very difficult to follow when it came to the impacts assessment directed to the transmission line itself. Separate impact assessments were directed toward 7 project alternatives and multiple transmission line segments per alternative. It was impossible in the time I had available during the public comment period to adequately address the impacts assessment specific to the transmission line. Also, according to the EIR/EIS (page 3.4-1), "While this section presents a summary of the findings of the *Biological Resources Specialist Report*, please refer to that report for more detailed information on Project effects on biological resources." However, I could find no such report, as it was not posted on the EIR/EIS web site.

1. Habitat loss

According to the EIR/EIS (Table 3.4-1), the preferred project alternative would adversely affect 1,538 acres of naturally vegetated areas, of which 277 acres would be permanently affected. The project would also require the development of 225.7 miles of new roads, and on page 3.4-139, the EIR/EIS states that a minimum road width of 16 feet will be required. Therefore, the area in new roads should be at least 437.7 acres, so the permanently disturbed area due to the transmission line alone will be 714.7 acres and the total area disturbed at least temporarily due to the transmission line alone will be 1,976 acres. These numbers should be more clearly presented in the EIR/EIS.

2. Collisions

Perhaps due to the huge number of issues the EIR/EIS had to address, the impacts assessment of the collision threat posed by the transmission lines to birds and bats did not appear serious. The text appeared to be canned, and used repeatedly for multiple species. For example, see below.

"Operational effects would include collision or electrocution with the transmission line (see Impacts B-20 and B-21)…" (page 3.4-175 regarding California condors).

"Operational impacts include collision with transmission lines (see Impact B-21 below) …" (page 3.4-177 regarding California condors).

"Operational impacts include collision with transmission lines (see Impact B-21 below) …" (page 3.4-181 regarding California gnatcatchers).

"Operational impacts include electrocution or collision with transmission lines (see Impacts B-20 and B-21 below) …" (page 3.4-184 regarding Swainson's hawk).

"Operational impacts include electrocution or collision with transmission lines (see Impacts B-20 and B-21) …" (page 3.4-208 regarding mountain plovers).

After seeing this statement over and over, there was the following statement repeated in the EIR/EIS.

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"Therefore, the number of collision events with overhead wires is still expected to be quite low and insufficient to substantially reduce the number of State and/or federally protected bird species" (page 3.4-266 regarding state or federally protected birds).

"Therefore, the total number of collision events with overhead wires is still expected to be quite low and, as with Alternative 2, insufficient to substantially reduce the number of State and/or federally protected bird species" (page 3.4-304 regarding state or federally protected birds).

"Therefore, the number of collision events with overhead wires is still expected to be quite low and, as with the proposed Project, insufficient to substantially reduce the number of special-status bat species" (page 3.4-309 regarding bats).

"Therefore, the overall number of collision events with overhead wires would still be quite low and insufficient to substantially reduce the number of State and/or federally protected bird species" (page 3.4-343 regarding state or federally protected birds).

I suggest a more useful approach to preparing the EIR/EIS would be to address each type of project impact, such as collisions with transmission lines, and then identify the species and groups of species at risk of collision. Additionally, the available documentation of collisions should have led to the conclusion that collision rates could be quite high. It would be premature to conclude whether this type of impact would result in substantial declines of special-status species, as the EIR/EIS did repeatedly. The potential exists for significant direct and cumulative effects due to transmission line collisions, so a mitigation measure should be required to minimize the impacts, though I would suggest that, given the high uncertainty of the impacts and of the efficacy of any possible mitigation measure, an experimental implementation would be warranted (see discussion under Suggestions for Improving Mitigation Measures). However, a fatality monitoring plan should be required and details of it provided in the EIR/EIS.

Hartman et al. (1992)[50] provided an empirical basis for estimating fatality rates of birds caused by collisions with transmission lines. Hartman et al. monitored bird collisions with a transmission line strung across Mare Island, California. Hartman et al. reported 85.3 bird fatalities per mile of transect per year along the portion of the circuit overlying hayfields. This estimate translates to 28.4 bird fatalities per mile of circuit line per year, because there were 3 phase lines on this transect. Bird mortality was eleven times greater along that portion of the circuit overlying salt ponds, so transmission lines crossing wetland areas posed a much greater hazard to birds than lines crossing upland areas on Mare Island.

The preferred TRTP alternative would add 172.9 miles of new transmission line. If this transmission line were to kill birds at the same rate as documented at Mare Island, then the project will kill 14,748 birds per year. Even if the TRTP killed birds at half the rate as observed at Mare Island, collisions with the transmission line would still cause 7,374 deaths per year. And

[50] Hartman, P. A., S. Byrne, and M. F. Dedon. 1992. Bird mortality in relation to the Mare Island 115-kV transmission line: Final report, 1988-1991. PG&E Report Number 443-91.3.

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at 25% of the rate of Mare Island, the collision-caused mortality would amount to 3,687 birds per year. The EIR/EIS should address this impact, and some effort ought to be directed toward estimating the magnitude of the impact.

II. SUGGESTIONS FOR IMPROVING MITIGATION MEASURES

II. A. Wind Turbine Impacts

According to mitigation measure Bio-1g (page 6-75), "In the construction, operation, maintenance, and decommissioning of the project, the applicant shall comply with all applicable environmental laws and regulations, including, without limitation, those regulating and protecting wildlife and its habitat." This measure poses an immediate problem because there is no doubt that the wind turbines will kill birds, thereby causing many violations of the Migratory Bird Treaty Act. Bird and bat deaths caused by wind turbines should no longer be regarded as *accidents*, as we know collisions will occur and we can predict the collision rates. Furthermore, it has already been well established that the wind companies operating wind turbines in the Altamont Pass WRA have repeatedly disregarded their operating permit requirements, and in the meantime the permitting agencies and regulatory agencies have not enforced the permits or the environmental laws.[51] I am unaware of any time in the 25 year history of the Altamont Pass WRA when any of the relevant environmental laws were enforced by California Department of Fish and Game or United States Fish and Wildlife Service, despite the accumulation (and periodic disposal) of thousands of dead raptors and other birds in agency freezers.

Even over the last few years, as more rigorous fatality monitoring confirmed previous estimates of high fatality rates caused by wind turbines in the Altamont Pass WRA, the wind companies inadequately implemented nearly every mitigation measure required by Alameda County in 2005 or recommended by the Scientific Review Committee (SRC) since then. In **Attachment A**, I summarized the permit requirements enacted by Alameda County Board of Supervisors' Resolution on 22 September 2005 and amended on 11 January 2007 after a settlement agreement following CEQA challenges by environmental groups. I also summarized whether and to what extent I am aware the terms of the permits were followed. In **Attachment B**, I summarized the recommendations of the SRC, including all the recommended management measures, and whether the recommendations were adopted. My attachments reveal a permit and enforcement system that has not worked for 25 years, and is unlikely to work in the Tehachapi Pass WRA.

Without enforcement, the promised terms in the EIR/EIS and the requirements of the operating permits will be meaningless. One step to improving enforcement of permit conditions would be to carefully write the permits so that the intent of each and every term is clear and free of potential loopholes. This clarity must start with the mitigation measures presented in the EIR/EIS. Enforcement can then be brought in the form of permit revocation or fines imposed on the project owner for violations of the MBTA or other environmental laws. To ensure that

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[51] Smallwood, K. S. 2008. Wind power company compliance with mitigation plans in the Altamont Pass Wind Resource Area. Environmental & Energy Law Policy Journal 2(2):229-285.

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enforcement remains a possibility, the wind company should be required to fund regulators from one or several resource agencies, such as the US Fish and Wildlife Service, to routinely monitor permit compliance.

Another means to ensure permit compliance is to require the up-front payment of a performance bond in an amount that will matter to the owner of the project. This performance bond would return to the project owner if threshold mortality levels are not exceeded, where the thresholds are decided prior to the certification of the EIR/EIS and tested by adequate monitoring. If these thresholds were exceeded, then the performance bond would be redirected to conservation efforts that are also specified before the certification of the EIR/EIS. Without enforcement provisions, it is highly unlikely that the inevitable project impacts will be adequately mitigated.

Given the failure to reduce bird fatalities in the Altamont Pass WRA, another approach worth considering is abandoning the permitting and enforcement approach used so far in California. Perhaps certain wind companies should not be allowed to expand their wind turbine operations in California, having demonstrated little interest in following existing permit conditions and environmental laws. Another approach would be to encourage the utility companies to develop future wind power facilities, and to acquire some of the existing facilities. If the wind turbines were utility-owned, then the public would have more recourse over measures to minimize and reduce adverse impacts to California's plants and wildlife. The CPUC could help enforce the permits. Pressure from a statewide or federal agency could help because the County governments are drawing revenues from the wind farms and in my experience have not shown much interest in enforcing the terms of the permits they issue to wind companies.

II. A. 1. Habitat loss

Mitigation measure Bio-1a (page 6-71) could be improved by defining the terms *disturbed areas* and *habitat quality* where it states, "Surface-disturbing components of the project shall be located in previously disturbed areas or where habitat quality is poor to the extent possible…" At what point is any piece of ground considered a disturbed area? And how are the practitioners going to measure habitat quality? Given that habitat is defined by the species use of the environment, habitat quality is a species-specific term.[52] Measures of habitat quality typically include productivity, average home range size (smaller home ranges are indicative of higher quality habitat), and animal density. Assuming the authors of the EIR/EIS had no intention of the project applicants measuring any of these three metrics for each species across the project area, I suggest other more appropriate terms be used to describe what the authors meant. Specific definitions are needed because there have been too many examples of project owners claiming a mitigation measure meant one thing whereas those who drafted the language intended a different meaning. For example, it is often claimed that areas grazed by livestock at one time or another are "disturbed," as are areas touched by fire (a natural ecological cycle). A more definitive mitigation measure would be to identify the exact locations where grading for turbine foundations, access roads, and other elements of the WRA development will be allowed and where not allowed.

[52] Hall, L. S., P. R. Krausman, and M. L. Morrison. 1997. The habitat concept and a plea for standard terminology. Wildlife Society Bulletin 25:173-182.

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Mitigation measure Bio-1a also specifies that "Restoration involves recontouring the land, replacing the topsoil, planting seed and/or container stock, and maintaining (i.e., weeding, replacement planting, supplemental watering, etc.) and monitoring the restored area for a period five years." Also, "The success of the restoration is usually based on how the habitat compares with similar, nearby, undisturbed habitat." This portion of the measure could be more effectively written by specifying that the target of the habitat restoration is the species of plant or wildlife that originally motivated the restoration. It is not enough to succeed in growing plants; effective habitat restoration has to support the species at issue.[53] Habitat restoration can be deemed successful when the special-status species at issue consistently use the site at levels considered typical.

According to the EIR/EIS (Bio-1a, page 6-71), "Any restoration efforts would be subject to a Habitat Restoration Plan approved by the Kern County, BLM (for development on BLM land), and Wildlife Agencies." However, this mitigation plan could be improved by providing details of it in the EIR/EIS, including a map showing where the restoration will be implemented, rather than deferring the formulation of the measure to an unspecified, later date. Deferring the formulation of the mitigation measure this way effectively excludes the public from providing meaningful participation with the CEQA review.

Mitigation measure Bio-1a goes on to stipulate (page 6-73), "All off-site mitigation parcels shall be approved by Kern County, BLM (if applicable), and the Wildlife Agencies and must be acquired prior to the initiation of vegetation disturbing activities." Again, this measure defers the formulation of the mitigation measure to a later date, excluding the public from meaningfully participating. After the federal court ruling that the Natomas Basin Habitat Conservation Plan was illegal because it had not identified where offsite compensatory mitigation was to be located, lead agencies might want to exercise greater caution. The area to be graded for wind farm development will exceed 8,675 acres, so willing sellers of fee title or conservation easements of at least an equal area of suitable habitat will need to be identified. Whether this acreage can be protected needs to be known now, before the certification of the EIR/EIS, in order to avoid the disaster that befell the City of Sacramento when it turned out it could not locate willing sellers of habitat needed as mitigation for the Natomas Basin HCP.

According to the California Native Plant Society (CNPS),[54] when off-site compensation is pursued, off-site populations should be protected permanently through conservation easement or mitigation banking. The area of a conservation easement must be sufficiently large to support a biologically secure, reproducing population within a buffer zone in perpetuity. The surrounding land uses must be considered, as well as expected future land uses. The design of the site boundary and management plan must be scientifically based, utilizing information from baseline

[53] Morrison, M. L., K. S. Smallwood, and L. S. Hall. 2002. Creating habitat through plant relocation: Lessons from Valley elderberry longhorn beetle mitigation. Ecological Restoration 21: 95-100.

[54] California Native Plant Society. 1998. Mitigation guidelines regarding impacts to rare, threatened, and endangered plants. http://www.cnps.org/archives/mitigation2.htm.

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studies and natural history data for each species. The contract should specify the rights of the grantee, the grantors rights and uses, and restrictions of undesirable activities, and it should include language that binds the terms and conditions of the contract in perpetuity, regardless of fee title transfers. The contract should protect the site from land use change, introduction of exotic species and public access, and it should protect the right of the grantee to enforce compliance with the terms of the easement.

Also, the mitigation exchange ratio should exceed 1:1 for most species, thereby accounting for an inevitable net loss of individuals and habitat area. Where needed, off-site compensation areas should be enhanced by reducing impacts caused by on-going activities such as over-grazing by livestock or dumping of hazardous materials or trash.

Regarding positive results in protocol level surveys under mitigation measure Bio-1c (page 6-74), the EIR/EIS states "If avoidance is not feasible, then relocation/restoration would be implemented." However, much more careful language needs to be added to the EIR/EIS on the matter of restoration/relocation. The CNPS regards habitat restoration and off-site introduction or translocation as unproven and usually unsuccessful.[55] CNPS also holds that genetic contamination of an otherwise unaffected population is intolerable. Furthermore, the evidence strongly supports the conclusion that translocated or displaced animals will perish and that residents in the receiving areas will be harmed and sometimes killed before the translocated or displaced animals die.[56] Super-saturation, or crowding, of remnant habitat after adjacent or nearby habitat is removed can cause alterations in competition and predation leading to the demise of the population at issue.[57] Translocations or displacements are ultimately harmful to the environment, unless the receiving area was restored from a disturbed condition to one that is suitable for the species at issue.

According to CNPS, translocations should be preceded by detailed inventories of species occurring at the receiving site, accompanied by a feasibility assessment regarding persistence and avoidance of genetic contamination. These should also occur at the appropriate time of year, following proper handling and propagation methods in consultation with the regulatory agencies.

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[55] California Native Plant Society (1998).

[56] e.g. Fahselt, D. 1988. The Dangers of Transplantation as a Conservation Technique. Natural Areas Journal 8:238-244.

Griffith, B., J. M. Scott, J. W. Carpenter, and C. Reed. 1989. Translocation as a Species Conservation Tool: Status and Strategy. Science 245:477-480.

Howald, A.M. 1993. Finding Effective Approaches to Endangered Plant Mitigation. Pages 211-221 in D. M. Bird, D. E. Varland, and J. J. Negro, eds., Raptors in Human Landscapes. Academic Press, London.

[57] Saunders, D. A., R. J. Hobbs, and C. Margules. 1991. Biological Consequences of Ecosystem Fragmentation: a Review. Conservation Biology 5:18-32.

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Furthermore, all translocations should be completed and shown to be successful prior to the initiation of project activities.

When restoration is pursued, the CNPS recommends that it be directed to mitigate impacts of projects approved prior to environmental regulations. It must be tailored to the project site based on the assembly of local species and habitats. The goals of the restoration project and the courses of action intended to achieve those goals need to precede implementation. Pre-impact site conditions should be determined, and the restoration plan should consider land contours, soil types, erosion patterns, and pre-impact hydrologic conditions. Study of the targeted species should be thorough so as to identify their total distribution, habitat descriptions of occupied site and symbiotic relationships with other species. The plan should consider propagation techniques, re-introduction strategy, invasive species controls, site protection, public access and other factors. Finally, a monitoring program should be sufficiently rigorous to assess restoration success, and to augment the knowledge base relevant to related restoration efforts.

To mitigate impacts to habitat in general, the CNPS and California Department of Fish and Game[58] insist that the mitigation design, implementation measures, and reporting methods be clearly documented, along with whom or which agencies are responsible for achieving clearly defined success criteria. Assurances must be provided in writing that certain performance criteria of the mitigation plan will be realized, and guaranteed by a negotiable performance security large enough to complete the mitigation and to pursue alternative mitigation measures should the implementation be incomplete or the objectives fail to be achieved. Five years of monitoring the success of the mitigation should be the minimum time period before returning the performance security.

II. A. 2. Collisions

The EIR/EIS could be greatly improved by considering impacts to birds and bats when planning where to place the wind turbines. The draft EIR/EIS neglected to consider this critical factor in minimizing collision-caused fatalities. On page 6-9 it stated, "Siting and spacing of wind turbines within the TWRA depends on site-specific conditions that are influenced by terrain and wind conditions. The ultimate location of turbines would need to be determined after a more detailed analysis of the terrain and wind in these areas. Turbines would likely be located on ridge-tops and in some areas with sufficient upwind space, multiple rows of turbines could be used. The wake of upwind turbines can substantially diminish the velocity and increase the turbulence at downwind turbines." This passage indicates a lack of awareness of the magnitude of wind farm impacts to birds and bats and what to do to minimize the impacts. Considering wind turbine locations to minimize bird and bat impacts should rank second only to siting of turbines to maximize wind power generation. Once the wind turbines are in place, there will be little that can be done to reduce bird and bat impacts caused by the wind turbines.

[58] California Department of Fish and Game. 1997. Guidelines for assessing the effects of proposed developments on rare, threatened, and endangered plants and plant communities. California Department of Fish and Game, Sacramento.

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II. A. 2. a. Proposed Measures to Minimize Collisions

Mitigation measure Bio-11a consists of a bulleted list of measures taken right out of the Buena Vista Wind Energy EIR.[59] However, for the most part these measures were not implemented as promised in the Buena Vista project, as most of the turbines were installed on towers 10 m shorter than promised, rocks cleared during grading were piled within 50 m of turbines, and the final site plan had the turbines on the windward aspects of ridge crests rather than on the leeward aspects.[60] The problem is that, like the wording in the Buena Vista Wind Energy EIR, the wording is too vague and inexact, leaving plenty of room for creative interpretation. The following are examples.

"Wherever feasible, turbines shall not be sited on or immediately adjacent to the upwind sides of ridge crests." Based on my experience in the Altamont Pass WRA, *wherever feasible* will be treated as *never feasible* due to wind profiles and other excuses, so this language will result in the wind turbines being sited on the windward aspects of ridge crests in nearly every case. I recommend deleting the phrase, "wherever feasible."

"Turbine construction shall minimize cutting into hill slopes in an attempt to achieve smooth rounded terrain, rather than sudden berms or cuts, to reduce prey abundance." What does *minimize* mean? Based on my experience in the Altamont Pass WRA, the wind companies will argue that they minimized the cutting into slopes in every case, regardless of whether they truly attempted to minimize this impact. This language is unenforceable. Standards are needed.

"Rocks unearthed during the excavation process shall be used during construction of foundations or hauled off site and disposed of properly, and not be left in piles near turbines." What does "near turbines" mean? The Buena Vista Wind Energy project EIR included a very similar measure, "Rocks created during the excavation process will be used during construction of foundations, and not left in piles near turbines." However, after the owner of the Buena Vista project left rocks piled near their wind turbines (Photo 2), Contra Costa County staff said it was alright because the EIR did not specify what *near* meant. A minimum distance needs to be specified.

"The wind component developer shall not participate in rodent control programs on leased lands and will discourage landowners from using poisoning for rodent control in the vicinity of the project." This language leaves open the possibility the developers will participate with rodent control off leased lands, which is only a short distance from the wind turbines because wind leases tend to be narrowly bounded around the turbines. Furthermore, how would the wind

[59] Lamphier-Gregory, West Inc., Shawn Smallwood, Jones & Stokes Associates, Illingworth & Rodkin Inc. and Environmental Vision. 2005. Environmental Impact Report for the Buena Vista Wind Energy Project, LP# 022005. County of Contra Costa Community Development Department, Martinez, California.

[60] Smallwood, K. S. 2008. Wind power company compliance with mitigation plans in the Altamont Pass Wind Resource Area. Environmental & Energy Law Policy Journal 2(2):229-285.

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companies "discourage" landowners from using poisons to control rodents? And what difference would it make if the wind companies wrote letters to the landowners requesting that they leave the rodents alone? The landowners themselves need to commit to not poisoning small mammals as an aid to the wind companies who are leasing their land.

Photo 2. Some locations of rock piles in the Buena Vista Wind Energy project after the EIR stipulated, "Rocks created during the excavation process will be used during construction of foundations, and not left in piles near turbines." The significance of the rock piles is that they could attract raptors to forage over or around them, because the raptors will expect prey items to use the rocks as cover.

The two measures related to working with the FAA to minimize the use of aircraft warning lights are meaningless because fatality monitoring leading to hypothesis tests on the effects of warning lights has revealed no relationship between warning lights on wind turbines and bird or bat fatalities. At the Stateline project in Oregon and Washington, end-of-row turbines and every fourth turbine within rows were equipped with Honeywell L-865 medium intensity red-white dual lighting emitting white strobe flashes during the day and red flashes at night.[61] Factoring in fatality search effort at each turbine, I did not find that mortality was lower at lit turbines for all raptors as a group ($\chi^2 = 2.37$, d.f. = 1, $P > 0.05$), all birds as a group ($\chi^2 = 0.54$, d.f. = 1, $P > 0.05$), or all bats as a group ($\chi^2 = 3.61$, d.f. = 1, $P > 0.05$). Similarly, no fewer birds or bats were found at lit turbines at the Mountaineer Wind Energy Center in West Virginia.[62]

[61] Erickson, W. P., J. Jeffrey, K. Kronner, and K. Bay. 2004. Stateline wind project wildlife monitoring final report, July 2001–December 2003. Technical Report submitted to FPL Energy, the Oregon Energy Facility Siting Council and the Stateline Technical Advisory Committee. 98 pp.

[62] Kerns, J, and P. Kerlinger. 2004. A study of bird and bat collision fatalities at the Mountaineer Wind Energy Center, Tucker County, West Virginia: Annual report for 2003. Unpubl. Report to FPL Energy and Mountaineer Wind Energy Center Technical Review Committee. 39 pp.

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In summary, the only two measures in Bio-11a that have any hope of minimizing wind turbine impacts to birds and bats include tower height and turbine siting off of windward-facing slopes, but these measures need to be written more explicitly and given much more consideration. For example, there is no evidence that a tower height of 55 m will reduce bird collisions in the Tehachapi Pass WRA. Much more care is needed than simply requiring the use of a minimum tower height which was proposed in the Altamont Pass WRA. The Altamont Pass is a different place with a different wind profile, a different vegetation cover, and a different suite of bird species.

II. A. 2. b. Recommended Measures to Minimize or Reduce Collisions

Measures that show at least some promise of minimizing bird and bat impacts in wind farms are the following:

1. Site turbines where birds and bats fly less often, based on pre-construction surveys;[63]
2. Design the turbine/towers to position the blades at a height domain that is less likely to kill birds and bats at a particular location, based on pre-construction surveys;[64]
3. Cease wind turbine operations during seasons, weather events or times of day that are more likely to kill birds or bats, based on pre-construction surveys, especially those times corresponding with generation of relatively less power;[65]
4. Design the turbine to lock blades in place while the turbine is not generating power, or during times corresponding with peak bird or bat activity;[66]
5. Synchronize the operations of the wind turbines to be on and off at the same times;[67]

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[63] Smallwood, K. S., and L. Neher. 2004. Repowering the APWRA: Forecasting and minimizing avian mortality without significant loss of power generation. California Energy Commission, PIER Energy-Related Environmental Research. CEC-500-2005-005. 21 pp.

[64] Smallwood and Thelander (2004, 2005); Smallwood and Neher (2004)

[65] Smallwood, K. S. and L. Spiegel. 2005a. Assessment To Support An Adaptive Management Plan For The APWRA. Unpublished CEC staff report, January 19. 19 pp.

Smallwood, K. S. and L. Spiegel. 2005b. Partial Re-assessment of An Adaptive Management Plan For The APWRA. Unpublished CEC staff report, March 25. 48 pp.

Smallwood, K. S. and L. Spiegel. 2005c. Combining biology-based and policy-based tiers of priority for determining wind turbine relocation/shutdown to reduce bird fatalities in the APWRA. Unpublished CEC staff report, June 1. 9 pp.

[66] Smallwood and Spiegel (2005a)

[67] Smallwood and Spiegel (2005a)

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6. Install a structure behind the rotor plane that will provide visual warning of the existence of a large structure in the airspace, in case motion smear is interfering with the ability of certain species to see the turbine blades;[68]

Minimization measures 1 and 2 are possible only with adequate pre-construction bird and bat flight data. Measure 3 also would benefit from pre-construction data, but timing of operations can also be adjusted after installation and after patterns of collision have been recognized. However, collecting appropriate data before operations begin would provide everyone involved with more reliable annual power generation projections. Measures 4 and 5 might save some birds, but I doubt the number saved would be anywhere close to the number that could be saved with measures 1-3. Measure 6 might help save birds that are susceptible to motion smear, but it has never been tried.

Possible measures to reduce wind turbine-caused impacts post-construction are the following:

1. Remove or relocate selected, hazardous wind turbines;[69]

2. Shut down turbines during seasons or time periods found to be killing surprisingly large numbers of birds or bats, or that present reasonable tradeoffs between power generation and bird and bat fatalities;[70]

3. Install flight diverters[71] or hazing devices;

4. Remove broken and non-operating wind turbines;[72] and,

5. Paint blades using Hodos scheme, effectively achieving one blade black and two white.[73]

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[68] Smallwood, K. S. 2007. Notes and recommendations on wildlife impacts caused by Japan's wind power development. Pages 242-245 in Yukihiro Kominami, Tatsuya Ura, Koshitawa, and Tsuchiya, Editors, Wildlife and Wind Turbine Report 5. Wild Bird Society of Japan, Tokyo.

[69] Smallwood and Thelander (2004, 2005)

[70] Smallwood and Spiegel (2005a,b,c);

Smallwood, K. S. February 7, 2008. Comparison of mortality estimates in the Altamont Pass Wind Resource Area. Alameda County SRC document P-76. 19 pp.

[71] Smallwood and Thelander (2004, 2005)

[72] Smallwood and Thelander (2004, 2005); Smallwood and Spiegel (2005a)

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Undoubtedly, some would argue that I neglected to consider removing or discouraging prey items of raptors from living within the wind farm, such as removing ground squirrels from the Altamont Pass WRA to reduce golden eagle mortality.[74] However, my most recent research showed that raptors foraged most intensely over areas where their prey resources were least abundant, foraging from the edges of prey clusters, and often far from high density prey areas.[75] Raptor foraging patterns were much more responsive to terrain and wind resources than to prey abundance. Past and ongoing research also established that raptors continue to utilize the WRA with or without their main prey resources.[76]

The Alameda County SRC recommended all the impact reducing measures listed above, but the wind companies in the Altamont Pass largely did not implement them. The wind companies relocated some hazardous turbines to other locations, but the SRC was unable to confirm that all the hazardous turbines were relocated or whether they were relocated to safer sites. The companies shut down turbines for two months of the winter, but refused to do so for the four months of the winter recommended by the SRC. A single flight diverter was installed amongst

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[73] Hodos, W. 2003. Minimization of motion smear: Reducing avian collisions with wind turbines. Period of Performance July 12, 1999 – August 31, 2002. NREL/SR-500-33249, National Renewable Energy Laboratory, Golden, CO. 43 pp.

[74] Hunt, W. G., R. E. Jackman, T. L. Hunt, D. E. Driscoll, and L. Culp. 1998. A population study of golden eagles in the Altamont Pass Wind Resource Area: population trend analysis 1997. Report to National Renewable Energy Laboratory, Subcontract XAT-6-16459-01. National Technical Information Service, U. S. Department of Commerce, Springfield, Virginia.

Hunt, W. G. 2002. Golden eagles in a perilous landscape: Predicting the effects of mitigation for wind turbine blade-strike mortality. Consultant Report to California Energy Commission, Sacramento, California.

Kerlinger, P., and R. Curry. 2003. The relationship of golden eagle (*Aquila chrysaetos*) and red-tailed hawk (*Buteo jamaicensis*) collision fatalities in the Altamont Pass Wind Resource Area of California to ground squirrel management practices: 1989–2002. Report to Altamont Infrastructure Company, Livermore, California. 23 pp.

Richard Curry Associates. 1997. Altamont Avian Plan: Status report to the U.S. Fish and Wildlife Service by the Consortium of Altamont Owners, December, 1997. 14 pp. + 1 Exhibit + 3 Appendices.

[75] Smallwood, K. S., L. Neher, D. Bell, J. DiDonato, B. Karas, S. Snyder, and S. Lopez. 2009. Range Management Practices to Reduce Wind Turbine Impacts on Burrowing Owls and Other Raptors in the Altamont Pass Wind Resource Area, California. Final Report to the California Energy Commission, Public Interest Energy Research – Environmental Area, Contract No. CEC-500-2008-080. Sacramento, California. In press.

[76] Smallwood and Thelander 2008; Smallwood and Karas 2009.

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5,000 wind turbines. Broken turbines and vacant towers were left in place during the entirety of the Avian Protection Program. One company implemented one aspect of the Hodos painting scheme on 42 turbines, but never submitted a study plan that could be approved by the SRC. I am also dubious that the Hodos painting scheme would be effective on large, modern wind turbines, because a bird close enough to the rotor plane for the hazard to be critical would also be unable to see enough of the rotor plane within its field of view for the Hodos scheme to have any effect on the bird. In other words, a bird within a hazardous distance of a modern wind turbine would likely be able to see only a portion of a blade, rather than all three blades together, and the latter view is the view for which the Hodos painting scheme would work. Impact reducing measure 5 will not work.

Given the measures that have been proposed and discussed so far, reducing impacts will be unlikely in the Tehachapi Pass WRA after new turbines begin to operate. The most effective mitigation will be avoidance and minimization measures. Turbine siting and turbine design need to be carefully planned before the turbines are installed, and should be a primary focus of the TRTP EIR/EIS.

Both the micro-siting of turbines and the tower height requirement need to be better informed. The only way to do this would be to perform adequate bird utilization surveys in the Tehachapi Pass WRA, and to relate the results of the surveys to a digital elevation model of the project area. Using this general approach, bird flight patterns in the Tehachapi Pass WRA can be better understood and used to site wind turbines on the safest parts of the landscape and at the safest heights. As an example of a simple analysis of raptor flight data relative to terrain, Figure 1 illustrates mapped raptor flight locations within a small area of the Altamont Pass WRA that was proposed for repowering. It only took small shifts in proposed turbine locations to put the turbines outside the most concentrated flight zones, hopefully reducing the collision hazard. However, this work needs to be performed by research scientists and not the consulting firms that typically perform utilization surveys at WRAs. Also, the turbine sitings should be based on predictive models developed from data within sampling areas.

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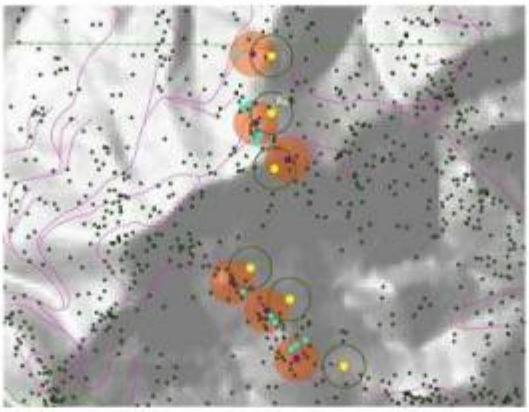

Figure 1. Of 81raptor flights (small green circles) within 50 m of proposed new turbine sites (orange zones), 12 (light blue circles) were 25 to 85 m above ground, the likely height domain of the blades. To exemplify how this information could improve turbine siting, I shifted the turbine sites (yellow circles with 50-m buffers) to where raptors flew less during our study.[77] The new sites overlapped only 17 raptor flights (80% reduction in use), and included no flights at blade height. Tower heights might need to be increased to capture declivity winds over ridge crests. Prevailing winds were from the southwest.

II. A. 2. c. Monitoring

Under mitigation measure Bio-11b (page 6-94), the EIR/EIS states "A scientifically defensible monitoring program shall be implemented to estimate the avian and bat fatality rates from the new turbines and important covariates such as prey base and avian use." I suggest that this is a critical measure that must be implemented. However, the subsequent statements in the EIR/EIS indicate that scientific expertise is needed for the formulation of this measure. The next statement reads, "The program shall be implemented in the first three years following the initial operation of the project to demonstrate to Kern County and BLM (if applicable) that migration is compatible with operation of wind turbines and that the level of incidental injury and mortality does not result in an unanticipated long-term decline in migratory raptor species in the vicinity of the project site." The way this statement reads to me is that the preparers of the EIR/EIS already concluded that the bird migration is compatible with wind turbine operations and that all that is needed now is to convince Kern County and BLM that this is the case. This is the wrong way to conduct science, and therefore negates the opening statement of the measure – that the program be "scientifically defensible."

[77] Smallwood, K. S., L. Neher, D. Bell, J. DiDonato, B. Karas, S. Snyder, and S. Lopez. 2009. Range Management Practices to Reduce Wind Turbine Impacts on Burrowing Owls and Other Raptors in the Altamont Pass Wind Resource Area, California. Final Report to the California Energy Commission, Public Interest Energy Research – Environmental Area, Contract No. CEC-500-2008-080. Sacramento, California. In press

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At least three years of pre-construction bird and bat utilization surveys are needed before there are at least three years of post-construction monitoring of both utilization and fatalities. A minimum of three years is needed in order to account for the high inter-annual variation in bird utilization of a site. Both pre- and post-construction utilization data are needed to understand whether and to what degree bird and bat species responded to the installation of the wind turbines, so that fatality rates can be properly interpreted.

According to the EIR/EIS (page 6-94), "A qualified wildlife biologist shall conduct mortality monitoring using a statistically significant sample size of operational turbine sites within the wind energy development project." This statement can be improved by explaining that a qualified biologist is one who has authored peer-reviewed papers or books on research using experimental designs, and who has experience with the issue of bird or bat collisions with wind turbines. The scientific methods directed toward this issue are complex and difficult, and probably will not be managed appropriately by a scientist with little experience on the issue. The above quoted statement can also be improved by explaining what qualifies as a *statistically significant sample size*. I suspect this term was not written as intended, because at face value it has no scientific meaning.

On page 6-94, the EIR/EIS states, "The Mortality Analysis shall note species, location, and distance from the turbine for each recovered bird and bat, availability of raptor and bat prey species, and apparent cause of avian or bat mortality." Much more detail is needed. For example, how is one going to record the availability of raptor and bat prey species? I have been doing raptor prey surveys for 10 years in the Altamont Pass WRA, and I can assure the CPUC that characterizing and interpreting the data on the availability of raptor prey species is very complicated. Doing so for bats has not yet been attempted. These characterizations certainly should be required in the Tehachapi Pass WRA, but they will need much more detail in the EIR/EIS as guidance.

On page 6-94, the EIR/EIS states, "The mortality monitoring shall follow standardized guidelines outlined by the National Wind Coordinating Committee, and shall include carcass scavenging and searcher efficiency trials." This requirement seems odd. Why the National Wind Coordinating Committee (NWCC) and not the California Guidelines?[78] Surely, Aspen Environmental Group – one of the consulting firms who helped prepare the EIR/EIS – was aware of the California Guidelines. Why are the California Guidelines never mentioned in the EIR/EIS?

The NWCC is supported by the wind companies, and its guidelines have been shown to be prone to substantial biases.[79] Even though I would expect the California Guidelines to be used over the

[78] California Energy Commission and California Department of Fish and Game (CEC & CDFG). 2007. California Guidelines for Reducing Impacts to Birds and Bats from Wind Energy Development. Draft Staff Report CEC-700-2007-008-SD, Sacramento, California.

[79] Smallwood, K. S. 2007. Estimating wind turbine-caused bird mortality. Journal of Wildlife Management 71:2781-2791.

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NWCC guidelines, I still recommend that modifications to the California guidelines be required. For example, the conventional scavenger removal trials should be replaced by the methods developed by me and my colleagues in the Altamont Pass WRA.[80]

On page 6-94, the EIR/EIS specifies that, "At a minimum, the Mortality Analysis shall consider three factors:

i. Number of annual avian and bat mortalities per turbine,
ii. Disproportionate representation of a particular species, and
iii. Comparison to existing data on wind farm mortality."

However, the standard mortality metric is now the number of fatalities per MW of rated capacity, and not the number per turbine (factor i, above). Wind turbines vary too much in size for use as the denominator in a fatality rate metric, so it was replaced since 2003. I suggest that the EIR/EIS be revised accordingly.

The EIR/EIS needs to be revised to explain how one will go about identifying disproportionate representation of particular species (factor ii, above). I assume that what is intended by this requirement is that the number of deaths per year will be related to relative abundance or to productivity data, but if this is the case, then it needs to be clarified. Also, the EIR/EIS needs to discuss the methodological and analytical challenges of relating these types of data.

As for the third factor, my Table 4 in this comment letter is the first defensible comparison of fatality rates among wind farms. Investigators of wind farm fatalities have used various field and analytical methods, which without considerable effort to adjust the fatality rate estimates, were not previously comparable. I realize that fatality rates have been compared previously, including by myself (before I knew better), but none of those comparisons were adequate. The situation is much worse for comparing utilization data among studies. The biases in utilization data are much more of a problem for comparability than have been the biases in fatality rate data.[81] To compare fatality rates and utilization rates to each other within the Tehachapi Pass WRA and to other WRAs, the EIR/EIS needs to require a methodology that will suffice. I will recommend such a methodology in the following section.

Before I recommend monitoring methods, however, I must point out that the post-construction breeding monitoring, Bio-11c (page 6-95), will not lead to a scientifically defensible

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[80] Smallwood, K. S., L. Neher, D. Bell, J. DiDonato, B. Karas, S. Snyder, and S. Lopez. 2009. Range Management Practices to Reduce Wind Turbine Impacts on Burrowing Owls and Other Raptors in the Altamont Pass Wind Resource Area, California. Final Report to the California Energy Commission, Public Interest Energy Research – Environmental Area, Contract No. CEC-500-2008-080. Sacramento, California.

[81] Smallwood, K. S., L. Rugge, and M. L. Morrison. 2009. Influence of Behavior on Bird Mortality in Wind Energy Developments: The Altamont Pass Wind Resource Area, California. Journal of Wildlife Management: In press.

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determination of whether the project adversely affected breeding birds. Several years of pre-construction surveys would be needed along with at least three years of post-construction monitoring to make such a determination. Requiring only two years of post-construction monitoring will prove inadequate.

Also, three years of post-construction winter surveys for raptors will prove inadequate because these surveys will not inform of how the project affected raptors. Three years of pre-construction surveys are needed. These pre-construction surveys are also needed to help site the wind turbines, as post-construction surveys can do nothing to help site the turbines.

Finally, the breeding bird and wintering raptor surveys will lead to compensatory mitigation, according to the EIR/EIS (page 6-96), if the surveys lead to a determination that the project is resulting in "unanticipated significant adverse impacts." "Supplemental measures to be considered could include:

- Provision of additional nesting structure or platforms.
- Contribution to research that addresses the sources of mortality and population impacts on the species of concern.
- Funding of regional conservation measures with the intention of enhancing and preserving existing breeding habitat."

These same measures were required in the Altamont Pass WRA, but no reductions in fatality rates have been achieved. In fact, as far as I am aware, the wind companies have not paid any amount toward offsite mitigation to enhance or protect breeding habitat, even though Alameda County required this measure on 22 September 2005.

II. A. 2. d. Recommended Monitoring Plan

The California Guidelines (2007)[82] provide a solid start for designing a scientifically sound monitoring plan for use in the Tehachapi Pass WRA. However, the California Guidelines can be improved in many ways, so what I present below includes those improvements. My recommended guidelines below were excerpted and sometimes modified from guidelines I prepared for Japan.[83]

Sampling unit.—Rows of turbines are the most effective study units in fatality monitoring for two reasons. First, searching the entire row is logistically more efficient. Second, it is often difficult to determine exactly which turbine in a row killed a bird. Very large, modern turbines

[82] California Energy Commission and California Department of Fish and Game. 2007. California Guidelines for Reducing Impacts to Birds and Bats from Wind Energy Development. Draft Staff Report CEC-700-2007-008-SD, Sacramento, California.

[83] Smallwood, K. S. 2009. Methods manual for assessing wind farm impacts to birds. Pages *Pending* in T. Ura, ed., Wild Bird Society of Japan, Tokyo. In press.

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are often far enough apart, however, that individual turbines would serve as the most efficient sampling unit.

Sample selection.—To prevent psuedoreplication,[84] selecting turbine rows randomly will be the superior approach to selecting the monitoring sample, but a systematic selection can also work well if it ensures the sample will include either all of the turbines or a fully interspersed subset of the turbines extending to the full north-south and east-west extents of the WRA. Also, the superior sample will be one that is selected prior to construction, based on planning maps, so that utilization surveys can be performed at these locations prior to wind turbine installations.

Sample size.—Power analysis [85] can be a useful tool for estimating an adequate sample of wind turbines to monitor. Power analysis requires some data that already exist, but some already do exist for Tehachapi Pass WRA.

Sampling period.—Fatality monitoring should extend for at least three years in order to obtain relatively precise estimates of fatality rates. The standard error of the mean fatality rate decreases the longer the sampling period.[86]

Planning for changes in the sample.—Wind turbines consist of relatively delicate blades and a lot of moving parts in the face of frequently strong winds, so one should anticipate malfunctions and breakage of wind turbines. Over time, it is likely that once-operational wind turbines will break and be left as derelict towers or will be non-operational for various time periods while the wind farm owner seeks replacement parts. Therefore, it is crucial for fatality monitors to also monitor the condition and operational status of the wind turbines composing the wind farm.

Another potential change to the wind farm could be the implementation of mitigation measures intended to reduce intolerable levels of bird or bat mortality. If changes to the wind turbines are anticipated as part of a mitigation plan, and if the monitoring program covers wind turbines that were either randomly or systematically selected, then it will be important to plan those changes to the wind turbines so that they are equitably implemented at both monitored and non-monitored wind turbines. This is important if the purpose of the fatality monitoring is to estimate mortality across the entire wind farm, because the extrapolation of the fatality rate from monitored to non-monitored turbines must be free of bias.

II. A. 2. d. *i.* Adjustment for undetected fatalities

[84] Hurlbert, S.H. 1984. Pseudoreplication and the design of ecological field experiments. Ecological Monographs 54:187-211.

[85] Gerrodette, T. 1987. A power analysis for detecting trends. Ecology 68:1364-1372.

[86] Smallwood, K. S. July 26, 2007. Effects of Monitoring Duration and Inter-Annual Variability on Precision of Wind-Turbine Caused Mortality Estimates in the Altamont Pass Wind Resource Area, California. SRC Document P44, 16 pp. http://www.altamontsrc.org/alt_doc/p44_smallwood_effects_of_monitoring_period_and_variability_7_26_07.pdf

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Scavengers remove carcasses, often without leaving a trace of the carcass. At least some scavengers learn that wind turbines are routinely depositing carcasses on the ground, and appear to patrol the turbine rows in search of carrion. For example, common ravens fly up and down turbine rows in the Altamont Pass, and were documented to remove bird carcasses within minutes of placement.[87] Therefore, scavenger removal rates may be lower at the initiation of a wind farm, and may increase after the wind farm has operated for a time.

Fatality rates also should be adjusted for carcasses not found due to searcher error and inadequacies in the search area, e.g., if the search radius is not far enough. And they should be adjusted for crippling bias (i.e., the birds that are mortally wounded but leave the search area before dying) and background mortality (i.e., natural causes). To date, investigators of wind farm fatalities have performed separate field trials to estimate rates of scavenger removal, searcher detection and more rarely background mortality. The standard equation for adjusting fatality rates is the following:

$$M_A = \frac{M_U}{R \times D} - M_B + M_C + M_S ,$$

where M_A and M_U are adjusted and unadjusted mortality estimates, respectively, D is the search detection rate expressed as the proportion of turbine-caused bird fatalities occurring during a search and that are found, R is the scavenger removal rate expressed as the proportion of carcasses remaining at the time of the search and after scavengers removed all the other animals killed by the wind turbines, M_B is background mortality, M_C is mortality not detected by searchers due to crippling bias, and M_S is mortality not detected by searchers due to insufficiency of the search radius. The form of this equation is nonlinear. When scavenger removal rates are relatively high or searchers miss a large proportion of the carcasses, M_A increases rapidly.

In conventional searcher detection trials, dead birds are placed on the ground before the fatality search crew performs a search, and then the number of carcasses found by the crew is divided by the number placed to derive a detection rate, D. The proportion of carcasses found needs to be established immediately following the trial search by having the person who placed the carcasses return to check whether the carcass is still present. Searchers should not be informed of the trial because their knowledge of the ongoing trial could bias their miss rates too low.

For searcher detection trials, I recommend (1) placing carcasses one at a time, to simulate the deposition rate of carcasses from wind turbines, (2) randomly placing the carcasses within the search area as well as beyond the search area to estimate how many of the placed carcasses are found by the searchers looking outside the search radius, (3) either recording the carcass's

[87] Smallwood, K. S., L. Neher, D. Bell, J. DiDonato, B. Karas, S. Snyder, and S. Lopez. 2009. Range Management Practices to Reduce Wind Turbine Impacts on Burrowing Owls and Other Raptors in the Altamont Pass Wind Resource Area, California. Final Report to the California Energy Commission, Public Interest Energy Research – Environmental Area, Contract No. CEC-500-2008-080. Sacramento, California.

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location using a GPS with sub-meter accuracy or using a cryptic marking to mark the carcass, (4) dismembering some carcasses or placing feather piles in order to simulate the conditions of carcasses normally found under wind turbines, and (5) placing carcasses only of species normally killed by the wind turbines at the site where the trial is performed.

In the conventional scavenger removal trial, dead birds or bats are volitionally placed on the ground and monitored through time to quantify: (1) the mean number of days to carcass removal; (2) the proportion of carcasses removed and the proportion that remain by a certain number of days (usually corresponding with the average search interval used in the fatality monitoring at the wind farm); or, (3), the proportion of carcasses remaining after each monitoring visit into the scavenger removal trial. However, approach (1) is especially vulnerable to bias due to vertebrate scavenger swamping and duration of the trial, because carcasses that the vertebrate scavengers cannot process in a timely fashion tend to transition into an unattractive condition that will last to the end of the trial period. These leftover carcasses will drive higher the mean number of days to carcass removal, and this effect will increase the longer the trial is held.[88]

For scavenger removal trials, I recommend: (1) placing birds one at a time at random locations within the fatality search areas, pacing bird placements to simulate the pace of carcass deposition by wind turbines; (2) using bird species that are the same species as those killed by the wind turbines; (3) using fresh carcasses that were not previously frozen, if possible; (4) avoiding using carcasses of birds that were euthanized using a chemical agent; (5) depositing carcasses in the condition they are deposited by wind turbines, including in pieces; (6) using disposable gloves when handling the carcasses so that human scent is not transferred to the carcass; (7) clipping the primary and tail feathers in relatively distinct patterns per bird so that carcass parts are not later confused with parts from other placed carcasses or with birds actually killed by wind turbines; (8) taking ample photos of carcass or carcass parts to aid identification of the carcass as the trial progresses; (9) mapping the locations of placed carcasses and carcass parts when the carcass is placed and during each subsequent monitoring visit; (10) monitoring the carcasses for at least 21 days, and longer if possible; (11) checking carcasses daily, if possible, so that the resulting rates can be fit mathematically and more readily used in mortality estimation; (12) if possible, using camera traps with placed carcasses (see below).

Smallwood et al. (2009)[89] placed bird carcasses in front of infra-red digital cameras located within the search areas of wind turbines. These cameras (Silent Image [Reconyx], Model RM30, Primos, www.silent-image.com) were triggered by animal intrusion into an infra-red field, and each image taken was stamped with time, date, temperature and moon phase. These camera

[88] Smallwood, K. S. 2007. Estimating wind turbine-caused bird mortality. Journal of Wildlife Management 71:2781-2791.

[89] Smallwood, K. S., L. Neher, D. Bell, J. DiDonato, B. Karas, S. Snyder, and S. Lopez. 2009. Range Management Practices to Reduce Wind Turbine Impacts on Burrowing Owls and Other Raptors in the Altamont Pass Wind Resource Area, California. Final Report to the California Energy Commission, Public Interest Energy Research – Environmental Area, Contract No. CEC-500-2008-080. Sacramento, California.

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traps enabled documentation of which species behaved as scavengers, and documented that some carcasses are removed without leaving a trace of evidence. The time between carcass placement and scavenger removal was also recorded with high resolution, and we were able to monitor the species of scavenger and the types of visits they made and how their visits related to the decomposition of the carcass.

There likely exist interactions between searcher detection and scavenger removal rates that are mediated by the average fatality search interval. These interactions have not been quantified. A way to account for both scavenger removal and searcher detection rates simultaneously would be to perform extra fatality searches by an independent monitoring team at a subset or all of the monitored turbines. The second, independent fatality search crew would visit the wind turbines, or subset of wind turbines, at various numbers of days prior to the regular fatality search crew, so the numbers of days between the sets of searches would vary. The independent fatality search crew would never pick up bird carcasses, whereas the regular crew would pick them up, unless picking up the carcasses is not a requirement of the fatality monitoring program. If left in the field, all carcasses and carcass parts must be carefully monitored. Anyhow, this approach would result in replacing the terms R and D with a single term in the fatality adjustment equation.

Background mortality searches should also be performed at reference sites, even if there were no pre-project searches. Multiple reference sites should be used, and the reference sites should be located on the same terrain and environmental conditions as the wind turbines, but far enough away from wind turbines to avoid inclusion of wind turbine-caused fatalities as background mortality. In all other respects, the fatality searches at reference sites should be performed in the same manner as performed at wind turbines, and data management should not differ.

II. A. 2. d. *ii.* Fatality searches

A first step in performing fatality searches is deciding what the searchers are searching for, because evidence of fatalities can vary in amount and condition. Probably all parts of birds or bats should be recorded by the searchers, but thresholds should also be established in advance of the searches on what qualifies as a dead bird or bat. Professional judgment will serve as the most consistent, comparable means of determining whether detected remains were those of a bird or bat mortally wounded by a wind turbine.

Search interval.—Daily searches will not be feasible in most cases due to cost, and we know now that quarterly searches are much too infrequent for estimating precise fatality rates. The California Guidelines (2007) recommend searches twice per month, but most monitoring programs involve monthly searches. A common self-monitoring system has been the Wildlife Response and Reporting System (WRRS), which is based on reports of fatalities discovered incidentally by maintenance personnel. However, lacking standardization and periodic searches, WRRS is scientific unsound and of very limited usefulness. Smallwood and Thelander (2004) found WRRS to under-report golden eagle mortality by a factor of 2.4 to 3.7 and red-tailed hawk

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mortality by a factor of 3.8 to 5.5, but smaller-bodied raptors were highly underreported, as were most species other than raptors.[90]

Search radius.—A small subset of turbines should be randomly selected from the monitoring pool, and this subset should be searched to a much farther distance from the turbine than the rest of the turbines in the monitoring pool. The point of these large search areas is to quantify the rate of carcasses missed due to insufficient search radius at the majority of the monitored turbines.

Foot searches.—The standard practice for carcass searching is to walk parallel transects within the search area. Typically, these transects are 6-8 m apart. It is important to not shortcut this practice by meandering around the search area or walking widely spaced transects.

Carcass processing.—When carcasses are found, data should be recorded onto a standard data sheet, including GPS position with sub-meter accuracy, and the identification number of the nearest turbine. Take two or more photos of every carcass or carcass part, changing the angle between photos to help the viewer interpret the evidence while viewing the photos at a later date. I also suggest using an engineers' survey card in every carcass photo, for scale. Photo numbers should be recorded onto the data sheet.

The fatality searchers should make a preliminary determination of cause of death while still in the field, but sufficient notes should be recorded so that colleagues or senior investigators can assess the evidence as well. If the evidence suggests the fatality was caused by something other than wind turbines, then the data should be collected but clearly noted that the cause of death was other than wind turbine collision. Wind turbine deaths are typically determined as certain when the collision was witnessed (rare) or the carcass was severed, dismembered, or showed signs of blunt force trauma. They are typically regarded as probable if there is no clear sign of injury, often due to decomposition or missing body parts, but the remains are within the deposition range of wind turbines. They are typically regarded as possible if the remains were within the range of wind turbine deposition but also associated with another possible fatality factor, such as on a roadway or under an electric distribution or transmission line (possible auto or line collision).

The fatality searchers should attempt to identify the species, but sometimes the evidence will need to be compared to museum specimens, to field guides, and to expert ornithologists who are more capable of identifying the remains to species. When the species cannot be determined, then the fatality should be identified to the narrowest taxonomic group possible, such as genus or family, or to a functional group (i.e., raptor or nonraptor) and size class. Measurements of remains can also help investigators to later group the fatality for analysis.

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[90] Smallwood, K. S. and C. Thelander. 2004. Developing methods to reduce bird mortality in the Altamont Pass Wind Resource Area. Final Report to the California Energy Commission, Public Interest Energy Research – Environmental Area, Contract No. 500-01-019. Sacramento, California. 531 pp.

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Data management.—Data from the field should be entered into a spreadsheet in a timely manner, in order to resolve problems quickly and to capitalize on fresh memory. A professional data management software program should be used, so that sorting errors can be avoided and data are directed to the appropriate fields. The data base should be planned out in advance of data collection.

Fatality searchers should maintain records of search dates for each turbine or turbine row, as well as the attributes of wind turbines and operational status of wind turbines, fatalities found, including photos, position, condition, and date. Fatality searchers completing data forms should try to record more information about fatalities than likely will ever be used, because fatality finds are rare relative to search effort. Also, fatalities in the field cannot be recreated.

II. A. 2. d. *iii.* Utilization surveys

Indexing or measuring relative abundance is crucial for completely estimating mortality, behavior surveys are crucial for siting turbines most safely and for taking effective steps to reduce fatalities post-construction. Visual scans directed toward multiple or all species of birds have been the most common survey method used in US wind farms. Visual scans usually are made from vantage points overlooking proposed or existing wind turbine sites. Observing birds from afar reduces the investigators' influence on bird flights near proposed or existing wind turbines, but it also creates the problem of quickly declining detections with increasing distances between the birds and the observers for most species. Visual scans typically last 10 to 30 minutes per site, and sometimes 60 minutes, allowing observers time to record specific behaviors hypothesized to contribute to collision risk, such as the frequency of flights made at the heights of the wind turbines' rotor plane. However, the long scan distances and long duration of visual scans, in addition to the often mixed objectives of the scans, also introduce substantial biases that have yet to be addressed in comparisons of bird utilization at multiple wind farms and at the same wind farms through time.

Target Species and Objectives.—Performing utilization surveys without first establishing clear objectives can yield data of little value to mortality monitoring. Wind farm reports often report utilization data as species richness or percentage occurrence of each species, neither of which is a variable useful for hypothesis-testing or turbine siting. Also, the species that cannot be observed adequately using the proposed methods need to be identified and acknowledged in the subsequent report that they were not represented. For example, nocturnal species will not be observed often during diurnal surveys, and fewer small birds than large birds will be observed out to 800 m. Utilization survey methods need to fit the species, and not the other way around, so flushing surveys may be appropriate for a suite of songbirds and nocturnal surveys may be appropriate for owls.

Utilization Metric.—The most common metric in wind farms is the number of birds seen per minute or per hour during visual scans. All seasons need to be represented, as well as several years due to high seasonal and inter-annual variation in bird abundance. Also, due to the variation in visible areas from observer station to station and from wind farm to wind farm, and due to the variation in visible areas at the same observer station due to weather conditions, the

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proportion of the theoretical viewshed within the scan area should be estimated and factored into the utilization metric, where the theoretical viewshed is the surface area or usable air volume over the surface area that is defined by πr^2, and r is the maximum survey distance allowed. This proportion should be multiplied by the area of the theoretical viewshed to obtain the hectares of ground over which birds could be seen. The resulting visible area should be regarded as an indicator, because it is often possible to observe birds over ground that cannot be seen.

I recommend the following utilization metric:

Birds observed / hour / ha,

or, if a DEM is available of the visual scan areas, then I recommend the following:

Birds observed / hour / m^3 of visible air volume.

After both utilization and fatality rates have been obtained post-construction, then the collision risk metric can be calculated:

$$\text{Risk index} = \frac{\text{Fatality rate}}{\text{Utilization rate}}.$$

Once the utilization metric is appropriately calculated, the two metrics below would be my recommendations as mortality metrics:

Deaths / MW / year / birds observed / hour / m^3 of visible air volume,

Deaths / KWh / birds observed / hour / m^3 of visible air volume.

The latter metric would require power output data from the wind companies. These data would be superior to MW of rated capacity because two turbines of equal capacity can vary substantially due to differences in site conditions or turbine functionality.

Some may argue that fatality rates should be compared to more real estimates of population size, rather than to indicators of utilization. However, wind farms are located in windy areas, such as in passes, where many species are transient in their occurrence, and often migratory. For example, the golden eagles in the Altamont Pass are mostly juveniles and subadults, or floaters using the Altamont Pass as a foraging area and perhaps for social interactions before seeking breeding territories. In the Altamont Pass, how could one estimate population size of golden eagles? Also, the methods required to estimate population size are very time consuming and costly, so enumerating bird species within wind farms will not be done often enough to produce a meaningful sample of population estimates for comparison to fatality rates.

Establish Observation Points and Survey Boundaries.—Stations, or observation points (OPs), should be established throughout the proposed or existing wind farm to adequately represent utilization in the wind farm. Additionally, OPs should be located outside the wind farm, because

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most species of raptor generally avoid wind turbines.[91] In the Altamont Pass, raptors more intensively used ridge crests where wind turbines were not installed, so a more representative expression of relative abundance might need to include areas just outside the wind farm or areas within the wind farm that lack wind turbines.

Once the observation stations and maximum survey distances are established, then survey boundaries can be delineated on maps or aerial photos of the survey area. These maps can be very helpful to the observers to maintain discipline over which observations to record. I also recommend depicting wind turbines, trees and rock formations in the maps, so that the observers can keep track of the locations of birds under observation and decide which observations to record.

Recording Observations.—I prefer to use a digital voice recorder (DVR) for recording bird observations because I do not have to remove my eyes from the field while recording the data. DVRs work great so long as the data are transcribed to an electronic spreadsheet in a timely fashion. Observers tend to forget details about observation sessions, so it is important to correct mistakes within a day or two of recording observations on the DVR.

Data to record at the beginning of the session include observer's name, OP or station number, date, time, temperature, wind speed, wind direction, visibility, and weather. Data to record per observation include time, species, number of individuals, social context (single, pair, or flock), behavior (perching or type of flight), distance from observer, direction (degrees) from observer, distance from turbine and turbine number (if applicable), and height above ground at first sighting.

II. B. Transmission Line Impacts

Parallel to my comment under section I. B. Transmission Line Impacts, the EIR/EIS was very difficult to follow when it came to the mitigation measures directed to the transmission line itself. Separate mitigation measures were directed toward 7 project alternatives, involving many types of environment and many special-status species. It was impossible in the time I had available during the public comment period to adequately address the mitigation measures specific to the transmission line impacts.

II. B. 1. Habitat loss

My comments on the mitigation measures directed toward the Tehachapi Pass wind turbines also apply here. I suggest the EIR/EIS could be improved by adding more restrictions and much more care regarding translocations and habitat restoration. It might seem attractive to policy-makers that habitat will be restored and plants and animals moved around to minimize or offset

[91] Smallwood, K. S., L. Neher, D. Bell, J. DiDonato, B. Karas, S. Snyder, and S. Lopez. 2009. Range Management Practices to Reduce Wind Turbine Impacts on Burrowing Owls and Other Raptors in the Altamont Pass Wind Resource Area, California. Final Report to the California Energy Commission, Public Interest Energy Research – Environmental Area, Contract No. CEC-500-2008-080. Sacramento, California.

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project impacts, but these measures can cause more environmental harm than benefits. Also, habitat restoration should not be mere gardening exercises, but rather should be focused on restoring the performance or condition of the special-status species at issue.

II. B. 2. Collisions

I was surprised to see that even though the EIR/EIS identified transmission line collisions as likely to occur for special-status birds, no mitigation measure was described or recommended (page 3.5-354). Aerial markers should be installed as treatments in an experimental design and then monitored to establish which marker types and arrangements perform most effectively at minimizing bird collisions. Monitoring should be of both bird fatalities and behaviors around the transmission lines, relying on a very similar methodology I recommended for use around wind turbines. The behavior monitoring would be directed toward bird behaviors indicating reactions to the transmission lines or markers, informing the investigators of the ability of birds to see the hazard and avoid collisions. The fatality monitoring should be directed toward estimating fatality rates and to testing the effectiveness of aerial marker types and arrangements. The results of the experimental monitoring period would be used to guide marker installation across the entirety of the new transmission line. Also, fatality rates should be used to decide on appropriate compensatory mitigation for the levels of transmission line-caused mortality that cannot be eliminated.

III. SUGGESTIONS FOR IMPROVING OTHER ASPECTS OF EIR/EIS

One of the project is to "…reliably interconnect new wind generation resources in the TWRA, and enable SCE and other California utilities to comply with California's Renewables Portfolio Standard (RPS) in an expedited manner" (page 1-5). I recommend that this objective be deleted or revised because this objective runs contrary to CEQA's purpose, as I understand it. Of all the projects where care is needed in assessing and mitigating for the project's impacts, it is this one. The potential impacts are so large that they threaten the ecological integrity of the entire state of California and the western U.S. Expediting the RPS could bring California so many wind turbines that top predator species such as golden eagle are cleared from our skies. The cumulative impacts of the RPS need to be more carefully considered in this and other related EIR's and EIS's.

According to the EIR/EIS (page 6-8), "Wind farms typically require 5 to 17 acres per MW generated." I believe this spatial requirement is too optimistic. The average number of acres per MW at Altamont, San Goronio, Solano, and Tehachapi WRAs is 65.2 acres (Table 6). The best any WRA has managed was 40 acres per MW at San Gorgonio. I suggest the EIR/EIS be revised accordingly.

On page 6-15 the EIR/EIS states, "…it is assumed that most projects would have an expected 25- to 40-year life." What is the basis of this assumption? Some of the wind turbines in the Altamont Pass WRA have lasted about 20 years, but many have not lasted that long. Wind force exerts a lot of pressure on the wind turbines, so the turbines in the Altamont appear to be broken often. Is there any precedent for modern wind turbines lasting 25 to 40 years?

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According to the EIR/EIS (page 6-15), "At the end of the project's useful life, decommissioning would involve removing the turbines and support towers, transformers, and substation, and removing the upper portion of foundations so that they would not be exposed at the surface." However, many derelict turbines were left in place in the Altamont for long time periods, and many are still there. I also do not know of any foundations that were removed in the Altamont Pass. I suggest the EIR/EIS be revised by adding the requirement of a performance bond large enough to provide the incentive for the wind companies to actually follow through with promises to decommission the WRA.

On page 6-70, the EIR/EIS states "…the impacts to special-status plant species and their habitats must be considered significant and not mitigable." It may be true that impacts cannot be prevented, but isn't it still possible to compensate for the impacts? Also, I noticed there is no compensatory mitigation required for the bird and bat fatalities caused by wind turbines and which cannot be avoided. I suggest the EIR/EIS be revised by adding measures to compensate for birds and bats killed by wind turbines.

According to the EIR/EIS (App. B, page B-14), "Electrocution of birds may take place when a bird touches two conductors or one conductor and a grounded device simultaneously, especially when the feathers are wet. Hence, body size and behavior, such as perching and roosting on poles and wires, are the keys to understanding why and how birds become electrocuted. Birds smaller than an American crow (*Corvus brachyrhynchos*) have a reduced chance of becoming electrocuted because the conductors and grounded wire and devices are generally too far apart." Actually, many small birds are electrocuted because it is not just the spacing between phase conductors that matters. Pole equipment probably kills more birds than do phase conductors, such as lightning arrestors, switches, jumper wires, and capacitors (Smallwood unpubl. data). This said, I agree that electrocution risk is low on modern transmission lines in the USA; most of the threat of electrocution remains on electric distribution lines.

IV. MITIGATION MONITORING

I did not see a mitigation monitoring plan in the EIR/EIS. Given the complexity of this EIR/EIS and the magnitudes of the impacts, I do not believe more than a small portion of the proposed mitigation measures will be implemented in the absence of a serious mitigation monitoring plan. A schedule is needed for monitoring compliance, and funding is needed for the personnel who will be responsible for checking on compliance.

V. IMPACTS NOT ANALYZED

Due to insufficient time during the public comment period allocated for this EIR/EIS, I was unable to address all the potential impacts of the proposed project. Some I have already mentioned, such as species-specific habitat impacts of the transmission line. Another impact I could not address was the greenhouse gas emissions and water usage of fossil fuel combustion

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turbines that will need to be developed to follow peak energy demand when wind is unavailable. Wind is an intermittent resource, so backup energy generation is needed.

VI. CONCLUSIONS

The EIR/DEIS should be revised and re-circulated for public comments because the current draft does not adequately address the potential impacts nor does it require sufficient mitigation. The project as planned would contribute cumulative impacts that could harm the ecological integrity of natural communities throughout California and the western US. If wind power is relied upon to fill most of the renewable resource gap created by the 33% RPS, then most if not all of the top predators of the sky would likely be extirpated by the excessive fatality rates caused by wind turbines. Specifically, relying solely on wind to achieve the 33% RPS could result in the development of wind turbines across nearly 5,000 square miles of wildlife habitat, and based on documented fatality rates at existing WRAs, these turbines would annually kill, on average, >23,000 burrowing owls, >22,000 American kestrels, nearly 9,000 red-tailed hawks, >1,500 golden eagles, nearly 64,000 raptors of all kinds, >370,000 birds of all kinds, and nearly 24,000 bats of all kinds. I have not performed an analysis to determine whether these numbers are sustainable, but in my professional judgment, I feel confident in concluding that they likely are not. Much more attention needs to be directed to the bird and bat collision issue before a wind project the size of the proposed project goes forward. In the meantime, solar energy could fill the renewable resource gap by covering 691 square miles of suitable space, which could consist of environmentally benign settings (i.e., rooftops, blacktops, roadways, water conveyance systems) close to load centers, and which would not threaten birds and bats with direct mortality.

VII. EXPERT CREDENTIALS

My qualifications for providing expert comments are summarized in my CV (attached) and some highlights presented here. I earned a Ph.D. degree in ecology from the University of California at Davis in 1990. Then I worked as a post-graduate researcher for four years in the Department of Agronomy and Range Science at UCD. Since then I have worked as a consulting ecologist. Much of my work has been directed toward special-status species and CEQA issues. I have authored numerous papers on special-status species issues, including "Using the best scientific data for endangered species conservation," published in Environmental Management, and "Suggested standards for science applied to conservation issues" published in the Transactions of the Western Section of The Wildlife Society. I served as Chair of the Conservation Affairs Committee for The Wildlife Society – Western Section, I am a member of The Wildlife Society and the Raptor Research Foundation, and I've been a part-time lecturer at California State University, Sacramento. I was also Associate Editor of wildlife biology's premier scientific journal, The Journal of Wildlife Management, as well as of Biological Conservation.

I performed primary research in the Altamont Pass Wind Resource Area from 1999 through 2003 and 2006 through 2007, assuming the leadership role in data collection, data analysis and report preparation. From this research I have authored five papers in Journal of Wildlife Management, one in a law journal, and multiple others in proceedings of professional meetings throughout the

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U.S. and in Germany and Japan. I authored five reports to the California Energy Commission (CEC) and two to National Renewable Energy Lab, and I prepared a methods manual for Japan. I also prepared CEC staff responses to public comments on the 2005 Integrated Energy Policy Report, three reports to the Altamont Working Group, and 29 reports to or with the Alameda County Scientific Review Committee, of which I have served as a member since August 2006. I also co-authored the EIR for the Buena Vista Wind Energy Project.

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Attachment A

Progress of Avian Wildlife Protection Program & Schedule

Shawn Smallwood

23 March 2009

The following table lists the mitigation plan adopted by the Alameda County Board of Supervisors on 22 September 2005, and amended following the settlement agreement approved on 11 January 2007. It also lists deadlines for implementation of particular measures, and it lists the status of implementation as far as I know or recall it. What follows is entirely my own assessment of the progress of the Avian Wildlife Protection Program, and does not represent the collective opinions of the Scientific Review Committee (SRC).

Over the first four months the SRC spent most of its efforts on developing a fatality monitoring plan, which was the direction given the SRC by the facilitator. In its sixth month the SRC began addressing mitigation measures. Also, the SRC repeatedly requested a status report on the implementation of the measures identified in the Avian Wildlife Protection Program, and started getting compliance reports from County staff in its sixth month. The SRC's last meeting (a conference call) was on 4 September 2008. The County staff told the SRC to stop work until SRC members signed contracts with the County. Contracts were sent to SRC members in December 2008, but at least some members would not sign the contract until wording was negotiated. The contracts were signed by about mid-February 2009, but no meeting date has been requested by Alameda County staff.

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Attachment A

In the left-most column labeled 'Source,' 1 = Board Resolution; 2 = Exhibit G-2 for non-settling companies; and 3 = Exhibit G-1 for settling companies. Sometimes the required measures were essentially the same between source documents, so the CUP term corresponding with the source document is presented to the right of the code for the source document. For example in the fourth row down, Term 2 of source document 2 (Exhibit G-2) and Term 1 of source document 3 (Exhibit G-1) share the same deadline of 11/30/05 and the same measure of providing a schedule for implementing on-site strategies to reduce avian mortality as identified by CEC-funded research.

Source	Term	Deadline	Mitigation measure	Status of mitigation measure
1		10/31/05	Convene SRC	SRC was assembled in August 2006 and met for first time on 11-13 September 2006, nearly one year after the deadline. The County told the SRC to stop work on 4 Sep 2008, and has called no meeting since.
1	10		To maintain communication between the SRC and the major stakeholders, the Planning Director shall convene the previously established Wind Power Working Group at least twice per year to receive reports on progress on compliance with the conditions herein. The current members of the Working Group are provided in **Exhibit E**.	The SRC participated in a public workshop in December 2006 and another in February 2008. It is unclear whether these meetings were with the Wind Power Working Group, because most members stopped participating with the Avian Protection Plan after the 2005 BOS Resolution, and some stopped after the 2007 settlement agreement. No workshop was held during the winter of 2008-09. Thus, only 2 of the minimum 7 workshops have been held.
2	1	10/31/05	Tier 1 turbines to be shutdown and confirmed by SRC	Most of the Tier 1 turbines remained operational on 3-5 April 2007, and some were still operating in September 2007 (SRC P54). The SRC has not confirmed any turbine shutdowns.
3	4.a	2/9/07	Companies shall shut down Tier 1 & 2 turbines	This deadline was missed. FPLE requested credit for turbines they said they shut down in 2004, and on 20 July 2007 the SRC recommended on a 4-1 vote that credits be granted. The SRC has not confirmed the Tier 1 & 2 turbines were shut down.
1	17		If the Permittee requests to relocate any Tier 1 or 2	The companies have said at various times that some Tier

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Attachment A

Source	Term	Deadline	Mitigation measure	Status of mitigation measure
			turbines, the siting proposal shall be submitted to both the SRC and Planning Director for review and approval, subject to affirmative findings that the new siting would not result in increased risk of avian mortality and injury.	1 and 2 turbines were relocated, but the SRC has yet to receive any siting proposals related to the relocation of Tier 1 or 2 turbines.
2 3	2 1	11/30/05	Permittee shall provide a schedule for implementing on-site strategies to reduce avian mortality as identified by CEC sponsored research	No schedule has been provided.
2 3	2.a 1.a	3/20/06	Retrofit all electric distribution poles to APLIC standards	In fall 2006, SRC was told the retrofits were completed, but in April 2007 the SRC was told the retrofits were not completed. The SRC has not verified the retrofits.
2 3	2.b 1.b	3/22/06	Remove 50% of derelict and non-operating turbines, allowing towers to remain at ends of rows if deemed beneficial as flight diverters by the SRC, and replacing turbines only with SRC approval. (Note: Leaving derelict towers at ends of rows was not a recommendation stemming from the CEC funded research, as implied by Exhibits G-1 and G-2)	As of 5 Apr 2007, there was no evidence that any derelict turbines or towers were removed (SRC P54). In the meetings of 4-6 Dec 2006, 5-7 Feb 2007, and 27 Feb 2007, the SRC recommended immediate removal of derelict towers from ends of rows, but Alameda County did not transmit the SRC's recommendation to the Permittees as of 5-7 Feb 2007. Since then, the SRC repeatedly recommended removal of these towers, which were still in place during the SRC's 4-day field tour in 29 Nov to 1 Dec and 10 Dec 2007. On 23-24 Apr 2008 County staff told the SRC the derelict turbines were not removed due to confusion over the term "derelict," but this confusion would soon be overcome through mediation over disagreements regarding the settlement agreement implementation. Many derelict turbines and vacant towers still stood during my last visits to the APWRA on other business throughout Nov 2008.
2 3	2.b 1.b	9/22/06	Remove 100% of derelict and non-operating turbines, allowing towers to remain at ends of rows	See above. As of Nov 2008, many derelict towers and non-operating turbines remain in the APWRA, including

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Attachment A

Source	Term	Deadline	Mitigation measure	Status of mitigation measure
			if deemed beneficial as flight diverters by the SRC, and replacing turbines only with SRC approval.	the end-of-row derelict towers the SRC recommended be removed immediately.
3	2	11/9/09	Wind Companies shall reduce raptor mortality 50%	There was no reduction in raptor mortality as of Oct 2007 (SRC P76), and no evidence of a reduction since.
3	2.a	11/9/09	The baseline shall be 1300 raptors; the species used to determine the reduction shall be golden eagle, red-tailed hawk, American kestrel, and burrowing owl; and the scaling factor [i.e., mortality adjustment factor for scavenger removal rate, searcher detection error, and presumably any other factor] shall not exceed 2.5.	The SRC explained to the settling parties that the baseline value of 1300 was for all raptors and not just the 4 identified in the CUP, and the mortality estimates from both the baseline and the current program needs to be comparable and based on the same assumptions and methods. The baseline will need to be adjusted using factors the SRC deems scientifically appropriate (SRC Replies to Parties' Answers_040307). On 14 Feb 2008 the County told the SRC and monitoring team the new mortality estimates must be compared to the baseline figure of 1300 raptors, and that any adjustment factor >2.5 will need to go before the Parties for their approval.
3	2.b	1/11/08	The settling parties shall meet and confer with the SRC at least annually to determine if mutually acceptable mid-course corrections in measures to reduce raptor mortality are appropriate after the SRC evaluates the prior year's monitoring data.	A question and answer meeting occurred on 10 Oct 2007, when the SRC recommended mid-course corrections. The SRC has sent written recommendations to the County, but the County has not required the companies implement the recommended measures.
2	2.c	3/20/06	Subject to approval by USFWS, remove all artificially created rock piles away from turbines.	The rock piles were not moved. On 4-6 Dec 2006, the SRC asked the County to consult with the USFWS to determine whether the rock piles could be moved, but the County did not contact the USFWS until spring 2007. On 16 Oct 2007, the County reported that the USFWS concluded the rock pile relocation required a formal consultation and take permit for California tiger salamander. The SRC deferred further discussion on this measure.

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Attachment A

Source	Term	Deadline	Mitigation measure	Status of mitigation measure
2	2.d	3/20/06	Implement other on-site management measures identified in the CEC sponsored research and recommended by SRC and approved by Planning Director	See list that follows, from 2.d.1 to 2.d.9
2	2.d.1	3/20/06	Retrofit tower platforms to prevent under-burrowing by small mammals	Tower platforms were not retrofitted, and the SRC did not regard this measure worth consideration in 2007.
2	2.d.2	3/20/06	Cease rodent control activities on all sites	The SRC was told on 11-13 Sep 2006 that rodent control had stopped, but there was no verification. The SRC recommended a monitoring program be developed and implemented to track practices such as rodent control in the APWRA (SRC meeting notes of 23 Oct 2006), but no such program was initiated.
2	2.d.3	3/20/06	Paint turbine blades using Hodos scheme on a trial or larger basis.	Without consulting the SRC, AWI painted the blades of 42 wind turbines. AWI presented its trial results to the SRC in Feb 2007. AWI accurately applied the Hodos painting scheme, but not the correct paint. Also, the SRC could not approve the small sample size and flawed experimental design. The SRC requested a scientifically defensible design, but none was provided.
2	2.d.4	3/20/06	Use turbine designs and concentrated siting to discourage raptor use	This measure was not implemented. In Dec 2007, the SRC provided draft guidelines to relocate turbines from hazardous locations.
2	2.d.5	3/20/06	Reduce or eliminate vertical and lateral edges	This measure was not implemented, and the SRC did not recommend it.
2	2.d.6	3/20/06	Replace guyed turbines and meteorological towers	The Flowind vertical axis turbines, which were guyed, were removed as part of the Diablo Winds repowering project in 2004. None of the other functional turbines in the APWRA are guyed, but guyed meteorological towers still stand in the APWRA.

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Attachment A

Source	Term	Deadline	Mitigation measure	Status of mitigation measure
2	2.d.7	3/20/06	Restrict cattle from grazing near turbines on a seasonal or more extended basis	No grazing restrictions were implemented, and the SRC has not recommended any.
2	2.d.8	3/20/06	Install accelerometers	Accelerometers were not installed, and the SRC has not recommended installation.
2	2.d.9	3/20/06	Install improved turbine monitoring equipment	Turbine monitoring equipment was not installed, and the SRC has not recommended installation.
2 3	3 3.a	2/28/06	Winter-time shutdown experiment for 2 months, cumulatively	The proposed winter shutdowns were completed, but poor research design and execution prevented a reliable test of the results. No mortality reduction was measured.
2	4	5/31/06	Permittee shall provide a report to the SRC on the results of its first year of the winter-time shutdown experiment	No satisfactory report was given to the SRC, which relied on various hypothesis tests and weight of the evidence to assess the merits of a winter-time shutdown.
2	5	3/31/06	Permittee shall provide a first annual letter report to the Planning Director regarding first steps and progress toward repowering 10% of the Permittee's total number of turbines on all sites by the end of the fourth year	On 5-7 Feb 2007, the SRC was informed no such letter was sent to the Planning Director. AWI told the SRC that repowering was not feasible for them at this time.
2 1	6 9	9/22/06	SRC shall have reported to the Planning Director with recommendations for potential on- or off-site strategies for conservation of critical wildlife habitat. According to the Board Resolution, "Beginning in the first year, the Planning Director, with input from the SRC and the County consultant, shall develop a program that the Permittee(s) shall fund and otherwise participate in, to provide for protection and enhancement of the habitat of raptors and other wildlife through conservation easements or other means on suitable properties to compensate for avian mortality and injury effects	The SRC was not convened until September 2006, and then was told to defer discussion of this topic until after it developed the monitoring plan. The SRC addressed this measure on 20-22 Aug 2007, but deferred further discussion of it after County staff told the SRC this measure would not be needed until toward the end of the current Program and the beginning of the adaptive management program. At this time, there have been no recommendations from the SRC on habitat mitigation on or off site.

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Comment Set B.21: Californians for Renewable Energy (CARE), continued

Attachment A

Source	Term	Deadline	Mitigation measure	Status of mitigation measure
			that remain unaffected by the Avian Wildlife Protection Program and Schedule (AWPPS)."	
2			**Years 2 & 3: October 2006 – September 2008**	
2 3	1 3.b		Experimental winter shutdown in crossover design to last 2 months cumulatively over the winter of 2006-2007.	The shutdown proceeded as planned, but the evidence indicates it had no effect on annual mortality, perhaps due to flawed study design and implementation.
2	2		Experimental winter shutdown in crossover design to be extended from 2 months last year to 2.5 months cumulatively over the winter of 2007-2008.	Without explanation, the County waived the permit requirement for an increase to the duration o the shutdown, and required only 2 months of shutdown (SRC conference call of 4 Jan 2008).
3	3.c	2/28/08	Experimental winter shutdown in crossover design to last 2 months cumulatively over the winter of 2007-2008.	This measure was replaced by universal 2-month shutdown, but the SRC recommended a 4 month shutdown.
2	3	3/31/07	Permittee shall provide a second annual letter report to the Planning Director regarding first steps and progress toward repowering 10% of the Permittee's total number of turbines on all sites by the end of the fourth year	Bill Damon of AWI told the SRC on 20-22 Aug 2007 that repowering remains economically infeasible for AWI. He informed the SRC there is no letter to the Planning Director because there is no plan to repower.
2	4	3/31/07	The County shall have obtained detailed repowering proposals from the Permittee(s), and with input from the SRC shall have completed a draft scope of work for the preparation of an Environmental Impact Report (EIR), initiated a request for proposals from qualified consultants, and have selected an EIR consultant.	The SRC has not been shown any plans for repowering by the permittee(s) or the County. On 14 Feb 2008 the County told the SRC the EIR Scope of Work will be presented to the SRC for review in May 2008, and in subsequent meetings the SRC was informed that County staff would write the Scope of Work, and as of the last conference call on 4 Sep 2008, staff said work might begin on it during the winter of 2008-09. In early Feb 2009 County staff informed the Law Office of Steve Volker (Joshua Harris pers. comm.) that it replaced the EIR requirement with plans to prepare a Natural

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Comment Set B.21: Californians for Renewable Energy (CARE), continued

Attachment A

Source	Term	Deadline	Mitigation measure	Status of mitigation measure
				Communities Conservation Program (NCCP), and that AWI had been added to the settlement agreement as a Party via an Memorandum of Understanding.
2	5	9/30/07	Subject to confirmed determination by the SRC, the Permittee shall shutdown or relocate approximately one-quarter of all the turbines identified as the second most hazardous turbines (Tier 2 turbines, approximately 0.5 percent of all turbines).	The shutdowns may have occurred, but the SRC was not asked to provide confirmed determination.
2	5	9/30/08	Subject to SRC review, shutdown or relocate an additional one-quarter of Tier 2 turbines.	Without consulting the SRC, County staff replaced this requirement with the hazardous turbine relocations that were recommended by the SRC. The SRC was never given a report on the progress of the relocations.
		3/31/08	Draft EIR shall have been circulated for the minimum period of time for public comment. The EIR is to address the environmental impacts of the repowering program (including both specific proposals and the overall repowering program), the continued operation of existing turbine facilities, and the effectiveness of the various strategies to reduce and minimize avian mortality and other adverse impacts on wildlife (such as new wind turbine technology, site-specific measures, grazing management, etc.). The EIR shall also study siting in the Altamont as a whole, and review on- or off-site mitigation and its best use to reduce avian mortality and enhance raptor and other wildlife habitat in appropriate locations within Alameda County. The EIR may also address how to provide incentives for an increased rate of repowering, including expanding areas where wind power	The SRC has not been shown any progress toward an EIR. The County said on 14 Feb 2008 that a scope of work will be produced in May 2008, and in later meetings the SRC was told the County staff would do the work and might begin during the winter of 2008-09. In early Feb 2009 County staff informed the Law Office of Steve Volker (Joshua Harris pers. comm.) that it replaced the EIR requirement with plans to prepare a Natural Communities Conservation Program (NCCP), and that AWI had been added to the settlement agreement as a Party via an Memorandum of Understanding.

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Comment Set B.21: Californians for Renewable Energy (CARE), continued

Attachment A

Source	Term	Deadline	Mitigation measure	Status of mitigation measure
			facilities may be permitted.	
3	4.b	10/31/08	Tier 3 turbines shall be removed, unless by 1 July 2007 the Companies request an alternative list of turbines for shutdown consideration by the SRC	The companies missed the 1 July 2007 deadline, and so cannot propose an alternative list. In Dec 2007 the SRC visited the wind farm and recommended a group of hazardous turbines for removal. The County let the companies replace the Tier 3 removal requirement with turbines the SRC rated 9.5 and 10 during its December 2007 field visit. The SRC did not recommend this replacement, and the County said its decision was not connected to the 1 Jul 2007 deadline for identifying an alternative list of turbines for shutdown consideration, as specified in the settlement agreement.
3	4.c		All applicable turbines under term 4 shall be removed, unless the SRC approves of their continued existence or relocation, and all relocations shall be to turbine addresses in Tiers >3.	The SRC has not been shown details of turbine relocations, or what Tier categories any relocated turbines were moved to.
3	5	12/31/07	Companies may participate in an SRC approved blade paining study to determine whether blade painting can reduce mortality, including up to 450 painted turbines and 450 turbines in a control group. Turbines in the painted and control treatments shall be exempted from all permanent and/or seasonal shutdown requirements for the period of the study.	On 5-7 Feb 2007, AWI informed the SRC they had purchased the patent on the Hodos painting scheme, and had not yet granted permission to the settling companies to paint the blades of their turbines with any color other than white. The settling companies never submitted a blade painting proposal to the SRC.
3	6	?	The parties intend to begin developing a Natural Communities Conservation Program (NCCP) in years 2 through 4 of the program.	No NCCP planning details have been presented to the SRC. At various times in 2007 and 2008 the County said it was making progress with the California Department of Fish and Game toward the development of the NCCP.

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Comment Set B.21: Californians for Renewable Energy (CARE), continued

Attachment B

SUMMARY OF ALAMEDA COUNTY SRC RECOMMENDATIONS AND CONCERNS AND SUBSEQUENT ACTIONS

K. Shawn Smallwood

24 March 2009

For 24 months the Alameda County Scientific Review Committee (SRC) issued recommendations regarding the operation of wind turbines in the Altamont Pass Wind Resource Area (APWRA) and the associated fatality monitoring program. These recommendations were in response to the Alameda County Board of Supervisors Resolution Number R-2005-453 September 22, 2005, "The SRC shall be responsible for developing scientifically-supported strategies to reduce injury and mortality to avian wildlife associated with wind turbine operations in the Alameda County portion of the APWRA, including existing and future repowering projects, through the implementation of those strategies, especially those set forth under Condition 7 below (the Avian Wildlife Protection Program & Schedule, or AWPPS)." Also, "The SRC should utilize an approach under which there is a continual cycle of assessment, design, implementation, monitoring, evaluation, adjustment and re-assessment of strategies, except where experimentation on this basis is deemed by the SRC to be in conflict with the overall program of strategies and schedule set forth under Condition 7 below. The SRC shall provide its recommendations to the Planning Director for the implementation of specific strategies to reduce avian mortality, and the conduct of research and monitoring activities." Also, the Settlement Agreement of 11 January 2007 appeared to reinforce the SRC's role of making recommendations.

Since convening, the SRC had to hastily address a series of complex issues, often issuing recommendations without having time to later return to them to assess their effectiveness. Therefore, I prepared the following summary of the SRC's recommendations in order to catalogue and organize them and to facilitate a subsequent assessment of the effectiveness of the recommendations. Table 1 presents a brief summary of the most important recommendations, in my opinion, of which more detail is presented in Table 2. Table 2 also includes most of the recommendations the SRC has made, though I suspect others were made but were not recorded in writing. This summary is entirely my own and was prepared on my own volition. Alameda County staff has not made use of my summary, which was never given an SRC document number and not posted on the SRC website.

I organized the recommendations/concerns in the following order: The Program goal, permit compliance issues, mitigation measures, measuring mortality reduction, and general meeting and process issues. In Table 2, I often changed the wording for conciseness, but took care to maintain the meaning of the recommendation or concern. In all cases where I state that certain actions have not been taken, it is by the date of this report to which my statement applies. Following Table 2 is a summary of the degree to which recommendations have been followed, in my opinion and to the best of my knowledge. I will be more than happy to correct any mistakes that are pointed out to me.

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Table 1. Summary of most important recommendations and statements of concern from the SRC, and a brief summary of the response(s).

RECOMMENDATIONS AND CONCERNS FROM SRC	ACTIONS
The goal should be 50% reduction in mortality of 4 target raptor species pooled together, but failing to reduce mortality of one of these species can thwart the goal. Mortality reductions should also be measured for each species separately, but the monitoring program will likely produce estimates too imprecise to detect 50% reductions.	The budget supports only a pooled-species approach.
To achieve a 50% reduction in raptor mortality during the program period, and to be able to detect such a reduction, the permit conditions need to be met and substantial mitigation measures implemented.	Insufficient.
Companies should better inform SRC about turbine removals and relocations.	Insufficient.
Compliance monitoring is needed from trusted third party or by the SRC. The monitoring team should be kept informed of land use decisions and changes to the arrangement and functionality of the wind turbines.	Insufficient.
Derelict towers used as end-of-row flight diverters should be removed immediately.	Insufficient.
All derelict towers should be removed or put back into service with functional turbines. Companies should consult with SRC regarding derelict tower removals and functional turbine relocations.	Insufficient.
All applicable Tier 1 and 2 turbines should be removed.	Likely done, but too late.
Terms in the settlement agreement are vague, contradictory, and confound the monitoring data. Some terms appear to give the settling parties authority over scientific comparisons of mortality estimates. The measures appear insufficient for achieving the stated mortality reduction goal.	No changes were made to the permits.
County should grant FPLE credits for 96 turbines moved in 2004 to reduce bird mortality. SRC assumed (1) FPLE will remove an additional string of high risk Tier 1 turbines (4286 to 4294) within 15 days of issuing this credit as stipulated in the settlement agreement, and (2) FPLE will continue to remove Tier 1&2 turbines through attrition.	Credits were granted, but FPLE missed turbine removal deadline.
Repowering should be considered as another means of potentially achieving mortality reductions in the long term, though it should not be thought of as mitigation.	None.
SRC should visit the APWRA and use existing tier classification and expert judgment to select hazardous turbines for removal. SRC provided written guidelines to relocate turbines from hazardous to safer sites.	Visit was made, but turbines not removed by April 2008, and status

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	unknown since then.
AWI should move forward with a blade painting study once it produces a study proposal the SRC can approve. Also, the County should not grant AWI's requested exemption against the winter shutdown of all its turbines in exchange for performing the blade painting study.	An acceptable plan has not been presented.
The companies should shut down all the wind turbines for four months during the winter of 2007-2008.	The companies refused.
All future seasonal shutdowns should be synchronized with the fatality searches to prevent the confusion associated with the winter shutdowns with a cross-over design during the two previous years.	Synchronization was achieved.
The companies should provide power output data for individual turbines or the smallest unit of turbines possible, so that the SRC can test hypotheses related to causal mechanisms of collisions and so that recommended turbine removals can better balance mortality reduction with minimizing loss of power generation in the APWRA.	County received some data, but delayed giving them to monitoring team until fall 2008, and would not give them to SRC.
The SRC recommended continued discussion about pursuing a focused burrowing owl behavior study in order to learn why burrowing owls are being killed at such high rates near wind turbines.	County twice canceled SRC meetings to prepare study proposal, and did not respond to submittal.
Need intensive fatality searches in a short-term study to improve estimates of scavenger removal rates of American kestrels and burrowing owls. The monitoring team was asked to do the study in fall 2007 and spring 2008.	Study was completed, but no report was produced.
Concerned about monitoring team not being able to establish relation between spatial analysis and mortality, due to insufficient budget.	Unresolved, and no date given for resolution.
The SRC is concerned that if funding is curtailed (one year instead of 3, as decided by the Board), a gap in monitoring could occur or no one will be available to analyze the data. The potential implications for stopping the monitoring are significant.	Funding was extended, but too late to prevent losing monitoring team's lead organization and institutional memory of SRC recommendations.
Fatality monitoring at Diablo Winds should continue uninterrupted.	FPLE agreed.

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Table 2. Detailed summary of SRC recommendations and concerns. The dates in parentheses refer to the written meeting notes for the date that the SRC met. In some cases, SRC documents or portions of documents are cited in parentheses. Maroon font represents recommendations or concerns that have not been addressed to the degree that I think would be deemed satisfactory by the SRC. References to 'settling Parties' or to 'Parties' represent the parties to the settlement agreement that was approved by the Alameda County Board of Supervisors (often referred to as the Board or BOS) on 11 January 2007. 'Settling companies' refers to the wind power companies that settled with plaintiffs in the agreement approved by the Board on 11 January 2007. "CUPs' represents conditional use permits, which were issued by the Board on 22 September 2005, and most of which were modified by the Board on 11 January 2007 to incorporate terms of the settlement agreement.

RECOMMENDATIONS AND CONCERNS FROM SRC	ACTIONS ON SRC RECOMMENDATIONS & CONCERNS
Measuring mortality reduction – the goal	
Target 45% reduction in mortality of 4 target raptor species pooled together (4-6 Dec 2006). This goal was reaffirmed in memo to Board of Supervisors (5-7 Feb 2007), though the settlement agreement of 11 Jan 2007 set the goal at 50%. (Background: The BOS Resolution directed the SRC to oversee the fatality monitoring to ensure the measurement of change in mortality is scientifically sound, and to recommend measures that will substantially reduce mortality. Because the 2005 CUPs did not identify the percentage reduction considered as "substantial," the SRC addressed the reduction goal during its first few meetings.)	After agreeing the reduction goal will be 45%, the settling parties set the goal at 50%. As of the end of 2007, or two years into the Program, the number of fatalities per MW per year had not declined significantly, and the 50%reduction goal was far from being reached.
Examine percent reduction of individual species, but understand that the precision of the estimated reduction will be lower than for pooled species (4-6 Dec 2006). The SRC and monitoring team warn that while it may be possible to reduce pooled species mortality by 50%, doing so for red-tailed hawk alone is unlikely. Also, the monitoring results might detect a mortality reduction for another species but with lower confidence due to small sample size (27 Feb 2007).	No change was made to the CUPs or to the funding and monitoring program reflecting the SRC's warning about the ongoing program's limitation in detecting a 50% reduction in mortality of individual species, as well as the limitations that pooling species may pose to the detection of a 50% reduction among pooled species.
Compliance with permit conditions	
Meeting the conditions of the permit is dependent upon the companies implementing the conditions (21 Dec 2006).	Deadlines in the CUP schedule were consistently missed, and the County relaxed permit requirements. E.g., AWI's 2.5-month shutdown was reduced to 2 months in 2007-08, and the Tier 3 removals will be replaced by turbines the SRC rated 9.5 and 10.
According to recent information from the Settling Parties, the Companies will not	Little was done to further reduce raptor mortality. Most Tier 1 & 2

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RECOMMENDATIONS AND CONCERNS FROM SRC	ACTIONS ON SRC RECOMMENDATIONS & CONCERNS
remove artificial rock piles or derelict turbines or derelict towers. It does not appear that additional mortality reduction measures will be implemented until 2010. Assuming the half-winter turbine shutdown is continued beyond the winter of 2007/2008, and assuming all Tier 1 & 2 turbines are actually shutdown permanently, then the measures might achieve a 27% reduction in mortality of the 4 pooled raptor species. It remains unlikely the 50% mortality reduction target will be achieved using these measures. It is unlikely it will be achieved by performing experiments on turbines peripheral to the monitoring sample (Attachment 2 in SRC S20).	turbines were shut down 2 years after the BOS deadline and 8 months after the settlement agreement deadline (SRC P54). The SRC recommended that some Tier 1 and 2 turbines be allowed to continue operating as credits to FPLE for turbines FPL said they shut down or relocated in 2004 (20 Jul 2007). The overall result has been no reduction in mortality through fall 2007 (SRC M21). The SRC was not working after summer 2008, so was unable to determine whether raptor mortality changed through fall 2008.
The SRC discussed a concern related to the Settling Parties being able to meet the 50% reduction requirement without substantial measures being implemented to reduce mortality (20 July 2007) by the settlement deadline of November 2009 (20-22 Aug 2007). The SRC will submit a memo this fall once the SRC has reviewed the final report of the most recent monitoring period.	The monitoring report was released on 31 Jul 2008, reporting mortality increases rather than reductions. The SRC was then told to stop work, so was unable to issue a memo stating its concern the program is not on track to reaching the 50% reduction goal. However, the SRC had earlier made its concern known at a meeting with the settling parties on 10 Oct 2007.
The SRC warned that the later the wind companies implement mitigation measures, the less likely sufficiently precise estimates of mortality will be obtained to assess effectiveness, and the less likely the goal will be reached (10-12 Dec 2007).	Nothing changed in the APWRA that would have dampened the SRC's warning.
Compliance with permit conditions – EIR preparation	
AWI was asked what progress had been made toward repowering 10% of turbines. AWI said they hadn't started the first annual letter because there is no EIR establishing conditions for repowering. This action was supposed to occur before the EIR (5-7 Feb 2007).	The County will discuss the issue with AWI (5-7 Feb 2007). The County has been "distracted," so the EIR process should begin in May 2008 (12-14 Feb 2008). Then the County said the monitoring team was not budgeted to prepare the EIR Scoping document, so County Staff will do it (23-24 Apr 2008). County staff thought preparation may begin in July 2008 (23-24 Apr 2008), but revised its startup date to the end of the year (2 Jul 2008). The SRC was stopped on 4 Sep 2008.
Compliance with permit conditions – turbine removals	
Companies should provide more information regarding Tier 1 turbine removals to date, preferably in map form (11 Sep 2006).	Maps were provided to the SRC on 29 Nov 2007, and these maps depicted turbines that were removed.

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RECOMMENDATIONS AND CONCERNS FROM SRC	ACTIONS ON SRC RECOMMENDATIONS & CONCERNS
Companies should provide map and turbine number in response to Exhibit G, Item 1 -- removal of Tier 1 turbines (4-6 Dec 2006).	See above. Maps were produced a year later. However, the SRC has not reviewed the Tier 1 and Tier 2 turbine removals in any directed manner.
In the mitigation compliance report (p.2), the SRC noticed that 42 FPLE tower structures remained as "pylons." The SRC again recommended that these towers be removed (5-7 Feb 2007).	The County informed the SRC that its recommendation was not forwarded to the Companies (5-7 Feb 2007). Whether these towers were ever removed remains unknown.
Companies should clarify whether blade and motors are being moved to other towers when Tier 1 and 2 turbines are "removed." In the language of the settling parties, it appears that the companies can move turbines to existing pads that do not have towers (13 Mar 2007).	The SRC has not verified that blades and motors were moved from Tier 1 and 2 locations to vacant turbine addresses, and there has been no third party verification.
Relocated turbines should be moved to lower risk sites designated Tiers 4, 5 or 6, otherwise companies should consult on new locations with the SRC. The SRC supports flexibility in the companies' approach and the use of professional judgment. When a company decides to move a turbine to a site other than Tier 4, 5 or 6, or to one not classified, or if the company has special considerations, the company should consult with the SRC (9-11 Apr 2007).	It remains unknown which, if any, turbines were relocated. Various company reports were provided to the SRC, but the SRC has not checked on or evaluated the reported relocations. There has been no third party verification.
It is incumbent on FPLE to put together a proposal to ensure that the SRC is in compliance with the settlement agreement in issuing its credit for turbines said to have been shut down in 2004 (12 Jun 2007).	FPLE submitted a proposal. Four of the SRC members found it technically adequate, and one did not.
County should grant FPLE credits for 96 turbines they say they moved in 2004 to reduce bird mortality. The SRC assumed (1) FPLE will remove an additional string of high risk Tier 1 turbines (4286 to 4294) within 15 days of issuing this credit as stipulated in the settlement agreement, and (2) FPLE will continue to remove Tier 1&2 turbines through attrition (20 Jul 2007, also see SRC P40).	In Oct 2007, the County said it granted the credit for removing high risk turbines in exchange for Tier 1 and 2 turbine removals. FPLE completely removed the additional string recommended by the SRC (16 Oct 2007), but about 2 months after the deadline.
Reiterated previous recommendation that all Tier 1 & 2 turbines be removed or relocated (20-22 Aug 2007).	Sandra Rivera said no Tier 1 or 2 turbines remain among settling companies, except those covered by a credit issued to FPLE in 2007 as part of the settlement agreement (10-12 Dec 2007).
The Monitoring Team should track a sample of turbines that are supposed to be	During winter 2008-2009, I asked a member of the monitoring

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RECOMMENDATIONS AND CONCERNS FROM SRC	ACTIONS ON SRC RECOMMENDATIONS & CONCERNS
removed. Alameda County will provide a list of the turbines slated for removal to the Monitoring Team so that the team can track a random sample from the list (12-13 Sep 2007).	team whether the team was given a list of turbines to track, and the answer was negative.
The SRC reiterated that the settlement agreement required Tier 1 and 2 turbine removals based on a model not necessarily designed for this purpose, and without considering the possible consequences. The SRC noted that there should be an element of 'common sense' to turbine removal and discourages any removal without assessing the mortality-related effects of the removal (12-13 Sep 2007).	On 29 Nov – 1 Dec and 10 Dec 2007, the SRC visited the wind farm and observed gaps in turbine rows left by removals of Tier 3 turbines by enXco, thus demonstrating that the SRC's recommendation was misunderstood or misapplied. It is unknown whether the other companies followed the recommendation.
The SRC remains concerned over full compliance with the Tier 1 and 2 removal requirement and its potential contribution to mortality reduction (12-13 Sep 2007).	Only company reporting of permit compliance was provided to the SRC. The SRC visited the wind farm in November and December 2007, but did not inspect it for Tier 1 and 2 turbine removals.
Compliance with permit conditions – partial winter shutdown	
Finish the existing seasonal shutdown study, scheduled to be completed in February 2007 (11 Sep 2006).	Completed.
AIC should report on seasonal shutdown actions (4-6 Dec 2006).	Unsure whether this recommendation was followed.
Compliance with permit conditions – verification	
County should clarify what is meant by "confirmed determination is required by the SRC" for permit conditions in Exhibit G. One SRC member preferred first-hand or trusted third-party verification (5-7 Feb 2007).	See recommendation below, made on 9-11 Apr 2007. The SRC voted to change the language of the CUPs. However, it is doubtful that the SRC had authority to change the CUPs, and I doubt the CUPs were changed.
County should consider the ideal method of "confirmed determination" to be third party verification. If that is not possible, a report from the monitoring team from sampled sites would be the next best alternative. The SRC will continue to welcome company reports at its meetings and to visit the wind farm annually to see mitigation measures firsthand (9-11 Apr 2007).	No third party verification occurred. The monitoring team has not summarized mitigation compliance. The SRC visited the wind farm on 29 Nov – 1 Dec and 10 Dec 2007, but not to verify compliance. However, the SRC did notice numerous derelict turbines and vacant towers.
In response to questions that arose about previous recommendations, the SRC urged the permittees to e-mail the County and/or SRC when they have a question or	I do not recall any email or phone queries from the companies being relayed by County staff on SRC recor[illegible]

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Attachment B

RECOMMENDATIONS AND CONCERNS FROM SRC	ACTIONS ON SRC RECOMMENDATIONS & CONCERNS
implementation concern about SRC recommendations. The SRC can then respond to the issue at its next conference call or regular meeting. Company representatives said they preferred dealing with one contact, so they can e-mail the County, which will forward the concern onto SRC members (9-11 Apr 2007).	
County should revise the language of Exhibit G from "confirmed determination by the SRC" to "on recommendation of the SRC" so that the SRC is no longer in the role of verifying company compliance (9-11 Apr 2007).	Unsure whether the recommendation was followed, or whether approval to change Exhibit G was needed from settling parties or the Board.
Compliance with settlement agreement	
Some of the settlement agreement provisions, such as the blade painting study, may require additional studies peripheral to the monitoring program to prevent confounding monitoring results. If the monitoring program includes too many mortality reduction schemes, it may fail to provide conclusive data on each scheme's effectiveness. For example, excluding the painted turbines from the winter shutdown would decrease the sample size of the turbines committed to the winter shutdown experiment and thus reduce the ability to detect a change in mortality. Additionally, it would add confounding factors to the analysis (5-7 Feb 2007).	No additional mortality reduction methods were implemented, except for unverified removal of some turbines the SRC rated 9.5 and 10, and except for AWI having painted one blade black on 42 turbines. AWI requested approval for a larger blade painting study, but also requested all of its ~920 turbines be exempt from the winter shutdown requirement. In response, the SRC warned that this exemption could confound the results of the APWRA-wide monitoring program.
The County should clarify which terms under Exhibit G-2 are required under Exhibit G-1 (13 Mar 2007).	The settling parties said the companies were no longer obligated to move rock piles or derelict turbines, due to language in the agreement (SRC S13). The County has not yet reconfirmed requirements for removing derelict turbines under G1 (20-22 Aug 2007). The derelict turbines are still in place.
The SRC is concerned about the parties' ability to achieve the 50% reduction. The SRC recognizes its charge to recommend management strategies to assist in achieving the 50% reduction, but questioned limitations on its role in light of the recent settlement (13 March 2007).	Nothing happened in the APWRA that would dampen the SRC's concern. The SRC was told, however, that some SRC recommendations will indeed be decided upon by the Settling Parties, such as the mortality adjustment factor (24-25 Apr 2008).
The criteria in settlement agreement Exhibit A do not guarantee that turbines will be relocated to "less risky locations" for birds. These criteria disallow relocations within specified distances from slopes with certain features and percentage rates of change in elevation. However, the slope conditions are vague, and subject to a wide	The SRC has not been provided sufficient documentation to determine whether wind turbines have been relocated, or to evaluate the criteria used in the relocations. The SRC has yet to schedule a review of turbine relocations. Also, neither the

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RECOMMENDATIONS AND CONCERNS FROM SRC	ACTIONS ON SRC RECOMMENDATIONS & CONCERNS
range of interpretations. For example, Exhibit A does not specify where on a slope its rate of elevation change should be measured. What constitutes a dip, notch, draw or canyon to one person will not necessarily be considered so by another. The SRC also notes Exhibit A gives the Companies sole discretion over determining whether relocation criteria are met. This is of concern to the SRC because the Companies may not be using the most appropriate selection criteria that provide the least possible risk to birds. Additionally, the way they are written, neither the settlement agreement nor Exhibit A disallows replacement of turbines at other sites (besides certain percentage slopes and slope features) that were considered relatively more dangerous by Smallwood and Thelander (2004). Such sites include the ends of rows in relatively low terrain, relatively isolated sites, or sites next to artificial rock piles, as examples. There is no requirement in section 5(c) of the settlement agreement or Exhibit A for the Companies to consult with the SRC, except for cases when the Companies decide that the slope criteria in Exhibit A are not met. But again, this decision over whether slope criteria are met is the Companies' alone (SRC S20).	settlement agreement nor the permit conditions were modified to address the SRC's concerns over relocation criteria.
If settling Parties are correct that their agreement eliminated the requirement for the companies to remove the rock piles and the derelict turbines/towers, then the Parties need to understand the collective mitigation measures they have thus far committed to using will be less likely to achieve a 50% reduction in mortality (see Attachments 2 and 3). At this time the only mitigation measures directed toward the 2,500 wind turbines in the SRC's monitoring program are half-winter shutdown and unverified permanent shutdown and relocation of some of the Tier 1 and Tier 2 turbines. FPLE is requesting credit toward shutdown of Tier 1 and Tier 2 turbines, and the blade painting experiment remains uncertain and no experimental design has been submitted to the SRC. Even a full winter shutdown, let alone a half-winter shutdown, standing alone is not expected to achieve a 50% mortality reduction (SRC S20).	The companies did not remove rock piles or derelict turbines or vacant towers, nor did they submit a blade painting proposal. The companies would not shut down turbines for 4 months over winter as recommended by the SRC. Also, there was no confirmed determination of Tier 1 and 2 turbine removals. However, FPLE continues to operate some Tier 1 and 2 turbines due to the credit that was granted by the County for prior removals. The actions to date would not change the SRC's conclusion that it is unlikely the 50% mortality reduction goal will be met. The recent mortality estimates from the monitoring team indicate there have been no reductions in raptor mortality since the 1998-2003 period used as the baseline (SRC M21, SRC P76).
It is extremely important to use comparable methodologies when comparing the percent reduction between post-mitigation mortality and baseline mortality. Since mortality estimates are proportionally related to the adjustment factors for searcher efficiency and scavenger removal, the comparability of two mortality estimates is	The County instructed the monitoring team to compare their new estimates to the baseline values appearing in the settlement agreement (12-14 Feb 2008). The County told the monitoring team and the SRC that adjusted baseline estimates could be

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based on the comparability of the methods used to derive the corresponding adjustment factors. Comparability can also be affected by the selection of turbine sites where fatalities are searched. The Settlement has introduced the possibility of actions by the Parties that can potentially compromise the comparability between baseline and post-mitigation comparisons (SRC S20).	developed for comparison, but that these adjustments and any adjustment coefficients used will need to go to the settling parties for their approval. Note that this requirement by County refutes Audubon's response no. 8 to my concern that the baseline was determined by non-scientists outside the SRC (SRC S6).
The Parties state that the 50% mortality reduction target applies APWRA-wide.[92] The SRC understands fatality monitoring at Buena Vista has yet to begin, nearly three months after power generation began [at the time of the concern]. Neither the SRC nor the monitoring team has any influence over the fatality monitoring at Buena Vista. Likewise, the SRC has no influence over the fatality and relative bird abundance monitoring at Diablo Winds. Consequently, it is premature to conclude that the Alameda County monitoring team/SRC can incorporate the results from these projects into the "APWRA-wide" mortality reduction estimate, as the results may not be comparable due to disparate methodologies (SRC S20).	After no fatality monitoring during the entire first year of Buena Vista operations, consultants began monitoring in late Jan 2008. The SRC's concern about being able to generate APWRA-wide mortality estimates was likely lessened by FPLE's agreement to allow fatality monitoring to continue at Diablo Winds. Still, there are significant challenges to comparing mortality estimates between the baseline and the current program. Representatives from the companies expressed their concern that the mortality estimates are being extrapolated APWRA-wide when not all turbine ownerships were sampled, and all small turbines were included in sample, and all large turbines were included in the sample (12-14 Feb 2008).
If the SRC concludes the results from these studies (see above) cannot be incorporated into its larger effort, then the baseline mortality estimate used in the settlement will need to be revised because Smallwood and Thelander's (2004) estimates included fatality data from the wind turbines at Buena Vista and Diablo Winds projects prior to repowering (SRC S20).	It appears the baseline mortality estimate will indeed need to be adjusted. I made some but not all of these adjustments in my estimates (SRC M76).
The utility of an NCCP as a tool to help achieve the 50% reduction through repowering or other means remains unclear. While potentially contributing to mortality reduction, the decision to repower is based primarily on economic considerations of the wind energy companies, which would be beyond the scope of an NCCP. Also, the process to develop and approve an NCCP is likely beyond the required timeframe for mortality reduction as specified in the Settlement Agreement. The SRC has no control over whether an NCCP developed at a future date will	This concern would remain, though dampened by permission granted to the monitoring team to continue monitoring at Diablo Winds.

[92] Parties' Response to SRC Query 4.

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consider whether Buena Vista and Diablo Winds repowering projects can or should be measured as part of the 50% mortality reduction (SRC S20).	
Mitigation measures – strategies	
After reviewing strategies, the SRC agreed the greatest potential for reducing raptor mortality is, in order: 1. Repowering turbines; 2. Winter shutdown of turbines; and, 3. Relocating hazardous turbines to less dangerous areas. Other strategies that may warrant additional studies include blade painting, erecting non-perchable flight diverters at the ends of turbine rows, and moving artificial rock piles farther away from turbines (9-11 Apr 2007).	Repowering has not been pursued. The winter shutdown was not extended from two months to four months, as recommended. It remains unknown whether hazardous turbines were relocated to less dangerous areas, and no hazardous turbine removals were verified. The companies and the County agreed to move only a fraction of the turbines recommended by the SRC (12-14 Feb 2008). A blade painting study plan has not been approved. No artificial rock piles were moved. Only one non-perchable flight diverter was placed at the end of a turbine row.
Repowering should be considered as another means of potentially achieving mortality reductions in the long term. The SRC agreed it should not be regarded as mitigation, but still could reduce mortality when initiated (20-22 Aug 2007).	No plans for repowering have been submitted to the SRC. No consulting firm had been hired to prepare the EIR for repowering by 12-14 Feb 2008, and the County assumed the EIR preparation job but extended the startup date to the end of 2008 (2 Jul 2008).
Should no longer consider the following mitigation measures: • Installing alternative perches; • Using sound as a deterrent; • Using radar as a deterrent; • Using lighting as a deterrent; and • Study of non-perching pylons at ends of turbine rows, because they would probably be infeasible once taller repowered turbines replace older turbines, and because the experiment would be costly (20-22 Aug 2007).	None of these measures have been pursued, though one company created one end-of-row flight diverter, which has not been studied despite the SRC's request to establish special observation points around it to record raptor flight patterns in response to the diverter.
Mitigation measures – hazardous turbine removal	
The Tier Classification should be further examined (11 Sep 2006).	The SRC followed through in November and December 2007, but the companies said they believe the underlying science was

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	unsound (12-14 Feb 2008).
Companies should use the June 2005 classification [Smallwood and Spiegel 005] and professional judgment based on field experience and on-the-ground knowledge. If a company has reason to believe different turbines might be considered or certain turbines could create other problems, such as additional end points and the like, the company should approach the SRC with an explanation (4-6 Dec 2006).	The companies appear to have relied on the June 2005 assessment. None approached the SRC with any alternative lists of turbines to be removed.
Unclassified turbines should be classified into risk tiers with the intention to remove or relocate Tiers 1 & 2 of the newly classified turbines (20-22 Aug 2007).	The SRC later reversed this recommendation.
The approach of using expert judgment along with the tier classification is superior to relying solely on the tier classification [for selecting hazardous turbines to remove] because (1) the tier classification alone does not consider the turbine arrangement remaining after top-tier turbines are removed, and (2) a quantitative approach alone can easily miss many of the patterns detected by direct on-site observation and with maps in hand (10-12 Dec 2007). The SRC recommended (1) removal of turbines it rated 8 to 10 on a 10-point scale, (2) removal of turbines rated 7 and 7.5 if the winter shutdown is shorter than 3 months, and (3) the SRC returns to the APWRA to rate turbines not previously rated (4 Jan 2008).	The approach was implemented by the SRC and a list of turbines was recommended for removal (4 Jan 2008), but the companies concluded the underlying science was unsound, and so declined to remove the turbines as recommended (12-14 Feb 2008). However, the County required removal of turbines rated 9.5 and 10 as a replacement for the Tier 3 turbine removal requirement (12-14 Feb 2008). The SRC reiterated that its recommendations of 4 Jan 2008 are in effect, but decided to reverse its recommendation no. 3 because the companies would not implement the SRC's other recommendations on winter shutdown and hazardous turbine removal. Therefore, the SRC decided to forego revisiting the APWRA to rate more turbines until the companies let the SRC know that they are interested in this mitigation approach (12-14 Feb 2008).
Mitigation measures – removing derelict towers	
Remove end-of-row lattice towers to reduce perching by functional turbines. Place non-perching flight diverters at ends of rows, or remove the towers entirely (4-6 Dec 2006).	End-of-row derelict towers were not removed. On 10 Dec 2007, AWI showed the SRC they had converted one derelict tower into a non-perchable flight diverter.
All derelict towers should be removed as soon as possible (5-7 Feb 2007). End-row towers should be removed (27 Feb 2007).	On 12-13 Sep 2007, Alameda County summarized enXco's and FPLE's compliance with removal of vacant towers (SRC P54). EnXco said all its vacant or derelict towers will be gone by the

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Regardless of whether a tower is "vacant" or "derelict," the SRC is concerned that these towers may be hindering the goal of a 50% reduction in raptor mortality (SRC P67).[93]	end of 2007. On 29 Nov to 1 Dec and 10 Dec 2007, the SRC saw many derelict towers and non-functional turbines in the APWRA, including at ends of rows. The companies said they are developing a definition of "derelict" towers (12-14 Feb 2008), and this was confirmed by the County (SRC P75). The County's compliance report (SRC P75) was vague regarding whether derelict towers have been removed. The County says it is still working on the definition of "derelict" (2 Jul 2008).
SRC should be provided information on vacant and derelict turbines as part of compliance because the information is important for determining hazardous conditions for raptors. SRC asked for status updates when turbines become vacant, and whether or not they become derelict (10-12 Dec 2007).	The SRC was not provided status updates.
The SRC would also like a definition of when a vacant turbine becomes a derelict turbine. Alameda County could work with the companies to develop a definition (10-12 Dec 2007).	No definition has since been produced, except for the one produced by the SRC (P70). Instead, FPLE said the SRC should define what it means by *derelict tower* (4 Jan 2008). Later, FPLE said they are developing a definition of derelict tower (12-14 Feb 2008), and the County said they are working with the companies on this definition (SRC P75; 2 Jul 2008)
Mitigation measures – rock piles	
By September 1, 2007, the rock piles should be moved down the slope at least 100 m from the turbines. When moving piles is infeasible or doesn't "make sense," turbine owners should discuss it with the SRC, preferably using photos (4-6 Dec 2006).	In April 2007, AIC reported to the SRC that WRRS fatality data did not correlate with rock piles (SRC R37). However, WRRS data were unsuitable for such a test and no actual test results were provided. R37 presented photos of rocks that were not rock piles, apparently mocking Smallwood and Thelander's definition of rock piles, and it falsely claimed that Smallwood declined to provide data on the locations of rock piles (I provided the data twice, to WEST, Inc, and to the County.) R37 asked the SRC to have me provide spatial data on rock piles, which I'd already provided.

[93] According to the Companies, vacant towers are those which the companies have yet to decide when or whether another turbine will be mounted.

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	On 20-22 Aug 2007, the County reported it had been working to gain information from the USFWS about permitting requirements for moving rock piles near turbines, but had not yet been able to secure the information (20-22 Aug 2007).
Rock piles should be removed in the summer of 2007, subject to a consultation with California Department of Fish & Game and US Fish & Wildlife Service regarding the appropriate timing of the removal (5-7 Feb 2007).	On 16 Oct 2007, the County told the SRC that the U.S. Fish and Wildlife Service required formal consultation before the rock piles could be moved, and that it would need to authorize the taking of federally listed species due to this action.
The SRC considered moving rock piles less feasible as a management tool because the Service required consultation and because there are uncertainties regarding the value of rock pile removal to reduce avian mortality. This measure is not recommended for immediate implementation (16 Oct 2007).	The decision by the US Fish and Wildlife Service reverses statements it made to participants of the Altamont Working Group during 2004 and 2005. Also, only last year Contra Costa County was allowed to move rock piles away from the turbines in the Buena Vista Wind Energy project (though the rock piles remain).
Mitigation measures – blade painting	
AWI should report on its experimental design for Hodos painting scheme, and is invited to discuss with SRC at February meeting (4-6 Dec 2006).	AWI did report on its trial blade painting effort.
AWI should present study plan for a blade painting study to the SRC for approval, and plan should replicate and intersperse treatments among turbines (5-7 Feb 2007).	Plans have been submitted, but were not approved due to problems with the study design.
In response to settlement agreement, SRC advised the companies to transfer the shutdown exemptions applied to the turbines used in the blade painting experiment to other turbines the monitoring team and SRC will not be monitoring (SRC S20).	Company representatives said they would confer with their colleagues and answer the SRC, but no answer was given. However, in hindsight, this recommendation would have complicated the extrapolation of the mortality estimates from monitored turbines to non-monitored turbines.
AWI should work with Lee Neher to develop a stratified random sample to ensure the blade painting experiment is sound (20-22 Aug 2007).	AWI employed Mr. Neher, but he was instructed to select a random sample from a pool of turbines the SRC later found ill-suited for the study.

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AWI's blade painting experiment should include a sample size of 135 control and 170 painted turbines, but more power analysis is needed to account for the 4-month winter shutdown and pooling of 4 target species (18 Sep 2007).	The power analysis was completed, and the SRC maintained its recommended sample size (24 Sep 2007).
AWI's painted turbines need to be in rows or strings and randomly stratified. Currently painted turbines that were not within rows or strings selected during this process could not be used in the study, unless they are relocated to randomly selected rows (24 Sep 2007).	A revised plan was not submitted to the SRC.
The monitoring team will monitor the painted turbines and collect the data for the turbines in the AWI study because the independence of the monitoring and analysis is critical. The monitoring team will make the data available to AWI and the SRC for analytical purposes (24 Sep 2007). In November, 2007, the SRC reiterated its recommendation that control and management of the data needs to be with the monitoring team, and independent analysis is absolutely necessary (7 Nov 2007).	A revised plan was not submitted to the SRC.
The SRC advised the County to recognize that granting AWI's 3-year exemption from the winter shutdown in exchange for the blade painting study will make it less likely to reach the 50% reduction (24 Sep 2007). The SRC clarified that it did not vote in support of an exemption (16 Oct 2007), and later agreed that the County should not grant an exemption to the 4-month winter shutdown for the AWI blade painting study (13 Nov 2007).	A revised plan was not submitted to the SRC, so presumably no action was taken by the County. Note, however, that the decision on whether to exempt 920 turbines from the winter shutdown was the County's and not the SRC's, contrary to Audubon's understanding stated in response number 12 to my concerns about the settlement agreement (SRC S6).
After learning AWI's selected turbines for the blade painting experiment are within wind walls, the SRC felt this was a fundamental flaw to the study and suggested that AWI revisit the sample and report back to the SRC (13 Nov 2007).	A revised plan was not submitted to the SRC.
SRC approved the AWI study design with 136 and 170 turbines in the sample size, contingent on AWI modifying the study plan to (1) create an option to expand the study period by 12 months if needed to confirm the effect of blade painting, and (2) an independent analyst will gather data, conduct the analysis and prepare a report for SRC review (13 Nov 2007).	A revised plan was not submitted to the SRC.
The health effect justification claimed in AWI's study design is not supported by the SRC, and should be removed from the proposal (13 Nov 2007).	A revised plan was not submitted to the SRC.

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The SRC is dubious about the long-term applicability of the blade painting management strategy (13 Nov 2007).	This concern was of no consequence.
Mitigation measures – flight diverters	
SRC proposed a compromise position that FPLE would receive credits for turbines removed in 2004 after removing one string of Tier-1 turbines (4286 to 4294) and agreeing to participate with an end-of-row flight diverter study (9-11 Apr 2007).	The recommendation was rejected by FPLE the next day, because they said flight diverters would be too expensive.
The SRC thought AWI's end-of-row flight diverter design might prove effective, and recommended raptor behavior observations be directed to it (10-12 Dec 2007).	There was no update on whether the flight diverter design is being used at other turbine rows or whether behavior observations have been directed to the new flight diverter. Only one SRC-approved flight diverter was installed in the entire APWRA.
Mitigation measures – winter shutdown	
The SRC asked the settling Parties about the scientific value in shortening the previously required duration of the winter shutdown. Why did the Parties feel the SRC needed consistency in the inter-annual duration of the winter-time shutdown? The SRC may have been given an answer during the February 5th meeting, but remains unclear about the answer. The SRC will consider the duration of future winter shutdowns as potential mitigation measures, and will make recommendations shortly (SRC S20).	A clear answer to the question was not provided. However, Audubon, in its responses (SRC S6) to my concerns about the settlement agreement, stated they compromised on the winter shutdown requirement in exchange for expedited removal of Tier 3 turbines (see response no. 11 in S6). Since then, the County exchanged the Tier 3 removal requirement for the removals of turbines the SRC rated 9.5 and 10 (12-14 Feb 2008), despite the SRC recommending that prior to this exchange the SRC visit the APWRA and rate all Tier 3 turbines using its new approach, to ensure the exchange is equitable (4 Jan 2008). The basis for Audubon's compromise proved to be unreliable.
Referring to the experimental cross-over design and results presented by WEST, Inc., SRC members were concerned about the high number of fatalities recorded during shutdowns (9-11 Apr 2007).	After reviewing data and analysis at its 20-22 Aug and 12-13 Sep 2007 meetings, the SRC recommended replacing the cross-over shutdown with a universal shutdown that is synchronized with fatality searches.
A four-month winter shutdown should be implemented over the 2007-08 winter season to strive to achieve a 50% reduction in mortality during the period January	The companies synchronized their turbine shutdowns with the monitoring team's fatality searches, but FPLE reactivated non-

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2007 through November 2009. A more substantial shutdown period (four months) is the only currently available means of achieving a marked reduction in mortality (12-13 Sep 2007). The Monitoring Team and wind companies should work together to sequence shutdown timing so monitors can search turbines shortly after they are shut down to improve data validity. Each turbine would be shut down for four months: the shutdown would begin mid-October for some turbines and run through early March for other turbines to achieve a November 1, 2007, to February 28, 2008, shutdown (12-13 Sep 2007). In the absence of other measures that would provide a reasonable level of confidence that the 50% reduction would be achieved, the SRC decided to stay with its recommendation for a 4-month winter shutdown and to not recommend a 2-month universal shutdown (16 Oct 2007).	monitored turbines on 2 Jan 2008, without consulting the SRC (4 Jan 2008). These turbines were turned off again shortly after the January 4th conference call with the SRC, but they were turned on again a week later. All turbines were activated after the second fatality search of the winter. The companies rejected the four month shutdown recommendation.
Mitigation measures – locking down non-operating turbines	
There is insufficient justification to consider the issue of turbine feathering versus locking down as a potential management strategy for turbines that are in non-operating status (10-12 Dec 2007).	No action was needed or expected.
Measuring mortality reduction – the metric	
Companies should provide power output data (11 Sep 2006).[94] Power output data from individual turbines are critical to understanding mortality, so the companies should provide weekly data from Oct 2005 into the future, and SRC will later revisit the need for data from 1998-2003. County should change permits to require companies to provide power output data for analysis, and should develop a confidentiality agreement between wind farm companies and analytical team (4-6 Dec 2006).	FPLE asked the County and SRC the following questions: 1. "Please explain the intended purpose and specific uses of this data. 2. For what specific analyses will this data be used? 3. How will providing this information contribute to reducing avian fatalities?" (SRC P38) The SRC answered the questions on 10 Jul 2007. The County said

[94] Based on Smallwood's hand-written note on Woodfin Hotel Stationary and on memory.

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Companies should provide power output data: • In kWh per turbine per day; • In operating time per turbine per day (number of 10-minute intervals >0); • As average RPM per turbine per day with frequency distribution; • From Oct. 2005 forward; and, • If not available per day, at the smallest time interval available. County should follow up with a letter to the companies regarding power output data, and the facilitator should check on Brown Act issues related to data confidentiality. Data deemed confidential will not be shared outside SRC/monitoring team, will not be e-mailed, and will be labeled by Companies as "Confidential" (5-7 Feb 2007). The companies should provide power output data for individual turbines or the smallest unit of turbines possible (10 Jul 2007). The SRC reiterated that having the power output data would help the SRC make decisions that minimize power output loss. The SRC asked Alameda County for the status of the response to the SRC request for power output data (10-12 Dec 2007).	it would continue discussions with the companies about this recommendation. (10 Jul 2007) In August 2007, the County expected to communicate with enXco and AWI on power output data in the next couple weeks. The companies are developing a confidentiality agreement. (20-22 Aug 2007) FPLE said they would shortly provide monthly operating hours for their turbines (12-14 Feb 2008). AIC provided operating hours to the County in March 2008, but County is holding the data until it develops a confidentiality agreement for the monitoring team and SRC (23-24 Apr 2008). Sandra Rivera said the County is working through issues with company lawyers (10-12 Dec 2007) and County attorneys (23-24 Apr 2008). FPLE told the SRC they will not turn over power output data until the monitoring team publicly releases the fatality monitoring data. (8-9 Jul 2008). The County soon after released the data without consulting the SRC. Data on operating hours were apparently delivered to the monitoring team, but have not been summarized in any reports yet. Also, the SRC is not allowed to see the data.
Measuring mortality reduction – precision	
Data precision should be 15% (23 Oct 2006).	The SRC changed its precision to 10% (7 Feb 2007).
Measuring mortality reduction – the baseline	
Tentatively consider using Smallwood & Thelander (2004) and Orloff & Flannery (1992) as baseline mortality estimates, possibly recalculated based on new assumptions (11 Sep 2006).	The settling Parties set the baseline mortality estimate as the upper end of the range for all raptors in Smallwood and Thelander (2004), or 1,300 per year.

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Baseline is from 1998-2003 in Smallwood and Thelander (2004) study (4-6 Dec 2006).	Rivera said the baseline values in the settlement agreement have to be used (12-14 Feb 2008).
Neither the settlement nor the amended permits mention the number 1130.2 as a baseline mortality estimate [for the four target species]. They use the number 1300 for all raptors. …the letter of a legal agreement controls, not subsequent verbal interpretations of and representations regarding the intent of the agreement (SRC S16, referenced in SRC S20).	The SRC's concern about this wording in the agreement has yet to be tested, perhaps because the new estimates far exceeded the baseline values, which is the opposite of the trend the SRC felt would prompt the companies to hold fast to the number in the agreement (SRC M21).
If the SRC cannot incorporate the fatality data from the new (repowered) turbines composing the Buena Vista and Diablo Winds projects, then it will have to recalculate baseline mortality used in the settlement to exclude Buena Vista and Diablo Winds. This would be done by excluding the fatalities from the original turbines in these repowered project areas in order to accurately compare mortality estimates before and after implementation of Alameda County avian protection measures. In other words, the APWRA-wide mortality comparison would not be accurate if the SRC compared the existing baseline estimate used in the settlement, which includes these original turbines, to a 2007-09 estimate which excludes these turbines. Also, the SRC will have to address the absence of the Northwind turbines from the current monitoring program because Northwind Energy has refused to participate. Smallwood and Thelander made 268 fatality searches at those turbines during 2002-2003. These searches produced 35% more raptor fatalities per search than did the searches throughout the rest of the APWRA. Again, to make an accurate comparison, the baseline mortality used in the settlement will need to be recalculated without the Northwind turbines and the resulting comparison of mortality estimates will not be APWRA-wide (SRC S20).	The SRC's concern about this wording in the agreement was restated by the companies as if the SRC and the monitoring team were negligent in extrapolating the mortality rates to the rated capacity of the APWRA (12-14 Feb 2008). Furthermore, the County reiterated that the monitoring team has to compare the new mortality estimates to the baseline values used in the settlement agreement (12-14 Feb 2008).
Measuring mortality reduction – the current program	
If SRC has no idea how the program is performing until year 3, there will be no room for correction. If point estimate doesn't show a reduction, the SRC will be concerned (28 Nov 2006).	The SRC has some idea of how the program is performing (SRC M21; SRC P76). The average annual number of fatalities in the APWRA has not lessened.

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Year 0 will be Oct 2005-Dec 2006, including a 2-month winter shutdown. Year 1 will be 2006-2007, including 2-month winter shutdown. Years 2 and 3 will be 2007-2009, including measures yet to be recommended (4-6 Dec 2006).	Years 0 and 1 were completed, and mortality estimates were produced on 31 Jul 2008 (SRC M21). However, the SRC found M21 to be flawed, and requested that it be revised. The monitoring team and the County declined to revise M21 (4 Sep 2008), so the SRC requested that its written comments be posted along with M21 (4 Sep 2008). SRC P107 consists of the SRC's comments, but is disconnected from M21 on the SRC website.
In response to settlement agreement, SRC agreed to apply its best scientific methods in estimating mortality adjustment factors and to ensure the baseline and 2007-09 mortality estimates are compared using the same methodologies and assumptions (19 Mar 2007). The SRC intends to report the most accurate estimates of percent reduction based on comparable methodologies (SRC S20). The AG's Office presented the SRC with a quantitative assessment of the consequences of comparing mortality estimates based on different adjustment factors (SRC S14). Whereas the Parties may have intended to prevent gaming of the system by setting parameters within which the SRC must compare mortality estimates, the settlement agreement appears to give the Parties the power to override the SRC and to force a comparison of mortality estimates based on different adjustment factors. The Parties need to understand that this sort of comparison would be unscientific and misleading, despite good intentions (SRC S20).	These scientific methods are currently being applied, so it remains to be seen how the settling Parties will receive the adjustments to be applied to the mortality estimates. However, the County stated that any adjustments outside the range allowed in the Agreement will have to go before the settling parties for their consideration (12-14 Feb 2008).
On February 5th, the SRC asked the Parties whether it will be restricted to the two mortality adjustment factors referenced in the settlement. An answer may have been provided on February 5th, but that answer remains unclear to the SRC. The SRC will plan on using additional mortality adjustment factors as needed (SRC S20).	No additional adjustment factors have been developed so far, but the settling Parties have also not clarified whether they will use the language of the agreement to intervene should the SRC use any additional adjustment factors, such as for crippling bias.
SRC will consider the point estimate in the context of the uncertainty term associated with it, such as the confidence interval. If the mortality reduction is estimated as 50% ±10%, then the SRC will conclude the actual mortality reduction was likely somewhere between 40% and 60%, but will not be able to conclude a 50% reduction was achieved with any reasonable scientific certainty (SRC S20).	No change was made to the settlement agreement or CUPs. Since mortality estimates have been compared (SRC M21), representatives of the companies expressed their concern over the upper and lower bounds of the confidence intervals around the estimates (12-14 Feb 2008).

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RECOMMENDATIONS AND CONCERNS FROM SRC	ACTIONS ON SRC RECOMMENDATIONS & CONCERNS
After some confusion in several recent discussions, the SRC discussed the length of the monitoring period for the Altamont-wide monitoring program and agreed that the monitoring period would run from November 2006 through November 2009 consistent with the settlement agreement (17 Aug 2007).	Confusion and debate continued over the issue of the period over which mortality should be estimated and compared to the baseline (10-12 Dec 2007), but the SRC finally agreed to measure mortality over 3 years, as well as at two year intervals and yearly (12-14 Feb 2008). However, the County issued draft contracts to SRC members which specified that the SRC membership shall end 31 Oct 2009, the same day the fatality monitoring ends, so there will be no opportunity for the SRC to make any estimates or comparisons involving the three years of data.
Measuring mortality reduction – Confounding factors	
Develop a protocol to monitor land owner practices, such as rodent control, which can affect avian use and fatality data. Suggested the wind companies work with the land owners, and notify designated monitor whenever rodent control was stopped or started (23 Oct 2006).	No action was taken (12-14 Feb 2008).
Warned about implications of detecting a 45% mortality reduction while relative abundance data show a decrease in raptor use (4-6 Dec 2006).	The CUPs have not been changed to consider relative abundance when comparing mortality estimates.
The tiered turbine removal is another confounding variable to the studies (27 Feb 2007).	The issue of confounding applies to the experimental attribution of treatment effects to mortality reduction, which may be less important than achieving the mortality reduction goal.
As pointed out in the February 7th meeting, the settlement agreement exempts wind turbines used in the blade painting experiment from both the winter and permanent shutdowns. Therefore, if these turbines are also to be included in the monitoring sample of 2,500 turbines, their shutdown exemptions will add another source of variation that could complicate the subsequent hypothesis-testing. Their inclusion would also decrease the sample size of turbines used to test the effectiveness of the winter shutdown. If the turbines used in the blade painting experiment are to be included in the monitoring sample of 2,500 turbines, then it would be much less complicated to treat these turbines the same as the other turbines in all respects other than the painting treatment, i.e., include them in the winter shutdown (SRC S20).	The settling Parties did not reverse the exemption provision in the post-settlement CUPs. However, the settling companies never produced a plan to experimentally paint blades of turbines, so this exemption provision has not been an issue.

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Comment Set B.21: Californians for Renewable Energy (CARE), continued

Attachment B

RECOMMENDATIONS AND CONCERNS FROM SRC	ACTIONS ON SRC RECOMMENDATIONS & CONCERNS
It remains unclear to the SRC whether the settling parties intended additional mitigation measures to be tested within the pool of 2500 monitored turbines, or outside of the pool (Attachment 2, SRC S20).	The settling Parties never did clarify their intention on this point, but no additional turbines have been proposed for testing the effectiveness of any mitigation measures.
The County should establish a system to provide updated information on turbine shutdowns, removals and relocations every 30 days, so that the Monitoring Team has accurate information for its monitoring program (20-22 Aug 2007).	The SRC had not heard whether such a program was pursued, but statements made during one meeting indicated no such program was developed (12-14 Feb 2008).
The SRC recommended continued discussion about pursuing a focused burrowing owl behavior study in order to learn why burrowing owls are being killed near wind turbines (12-13 Sep 2007). SRC recommended a study of burrowing owl behavior and possible predation near wind turbines, using thermal imaging and visual observations. It would incorporate an adaptive sampling method. Specifics of the study include: • Study time to occur in winter, between Thanksgiving and January • Simultaneously observe comparable sites with and without wind towers • Divide ridges into 3 high, medium, and low elevations • Observe each of the 3 areas for 2 hours, for a total of 6 hours • Before the 6 hours of nighttime viewing, 1 hour of binocular viewing before dark, for a total of 7 hours of viewing • Select areas of high burrowing owl density, with lattice and tubular towers • Conduct viewing for 20 nights at 40 sites • Study would encompass 4 pairs or replicates, each viewed 5 times • Randomly select the 3 elevation areas for viewing in random order • View on side of the slope with prevailing wind • Measure wind speed • Mark distance with thermally contrasting marker – pin flag or plastic bag • When fatality searches occur on these plots, they should include all segments	Throughout fall and winter 2007 there was no evidence of an initiative to implement a focused study of burrowing owl behavior around wind turbines. No funding was offered, and no hint that the County or the Companies discussed the SRC's recommendation. The SRC insisted that it needs to develop a study plan before May 2008 (12-14 Feb 2008), so it scheduled two meetings in late April and late May. The late April meeting occurred, but the late May meeting was canceled by County staff without consulting the SRC. The meeting was rescheduled for 13 June, but County staff again canceled it without consulting the SRC. Finally, a meeting was scheduled for July 8-9, but the agenda was crowded with other items, thus minimizing time to develop research recommendations. Furthermore, throughout the spring, County staff told the SRC funding would be sought through a PIER grant proposal solicitation, but it was learned in June that no such solicitation existed. The SRC submitted a research proposal to the County in summer 2008, but never heard back.
Measuring mortality reduction – monitoring	
County should enter into a short-term contract with the avian monitoring consultants, and SRC would like to review and make recommendations on the scope and budget	Completed.

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RECOMMENDATIONS AND CONCERNS FROM SRC	ACTIONS ON SRC RECOMMENDATIONS & CONCERNS
at its December meeting (11 Sep 2006).	
Need intensive fatality searches in a short-term study to improve estimates of scavenger removal rates of American Kestrels and Burrowing Owls (11 Sep 2006). Select sample areas where turbines are killing the birds (23 Oct 2006). County should eliminate ambiguity over the SRC's support for its recommended intensive study on American kestrels/burrowing owls. This study is an integral, required part of the Altamont-wide scope and budget (27 Feb 2007).	The intensive monitoring effort for American kestrel and burrowing owl fatalities was funded and the monitoring completed, albeit incompletely during the first week. No report was produced.
Concerned about monitoring team not being able to establish relation between spatial analysis and mortality, due to insufficient budget (4-6 Dec 2006).	The monitoring team's apparent ability to perform spatial analysis remains weak, and there remains no evidence that any spatial analysis has been or is about to be performed. The first two years of data are to be outsourced by the County for digitizing, but the County cannot give a date when the task will be initiated (23-24 Apr 2008).
The settlement agreement has NOT prompted a need for changes in the approach to the monitoring program put forth in the January 4, 2007 recommendations to the County. The SRC confirmed that, under the new settlement agreement goal of a 50% reduction in mortality, the needed sample size will remain 2500, as this will still achieve the same margin of error of ±10% (7 Feb 2007 Memo to Board).	Nothing has happened to likely change this recommendation.
The County should not adopt the monitoring program achievable with the County's desired $2 million budget cap (7 Feb 2007 Memo to Board).	The County adopted a monitoring plan for only one year, and did not fund the level of monitoring and study recommended by the SRC as the optimal program.
In the absence of the County's imposed cost constraint, the program should include the following elements: • A sample size of 3,000 turbines; • Fatality search interval of 15 days, consistent with CEC guidelines; • Background mortality surveys; • Necropsies of bird carcasses to more accurately determine cause of death and time since death;	This program was not adopted.

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Comment Set B.21: Californians for Renewable Energy (CARE), continued

Attachment B

RECOMMENDATIONS AND CONCERNS FROM SRC	ACTIONS ON SRC RECOMMENDATIONS & CONCERNS
• Daily searches for one-month periods per season at a sample of turbines to better understand scavenger removal rates of small-bodied birds and bats; • Weekly bird behavior observation surveys at all 67 plots; and, • Monitoring of ranchers' practices to incorporate knowledge of rodent control activities (7 Feb 2007 Memo to Board).	
With cost constraints, the program should include the following elements: • A sample size of 2,500 turbines; • Fatality search interval of 30 days; and, • Fatality search interval of 2 days over two 2-month periods in one year at a sample of turbines to better understand scavenger removal rates of small-bodied birds. Advised the Board that this program would likely be unable to achieve a 45% reduction in red-tailed hawk mortality, and unable to detect a 45% reduction in golden eagle mortality (7 Feb 2007 Memo to Board).	The Board approved this monitoring program, but funded it for only one year. County staff and the monitoring team were instructed to find public funds to support the last two years of the program (BOS Decision, 24 April 2007). Funds were insufficient for processing the behavior data collected over the first two years of the program. No funds were allocated to Lee Neher, who was named in the Organization Chart approved by the SRC, and who was instrumental to spatial data analysis. Funds were not allocated or sufficient for developing the EIR scoping document (23-24 Apr 2008).
To address the Board's cost concerns, the SRC recommended: 1. Changing consulting team structure and reducing administrative overhead; 2. Rather than doing one long-term study with 15-day interval, do a short-term intensive study at small sample of turbines combined with a long-term study with 30-day search interval at much larger sample of turbines; 3. Limiting the relative abundance study to raptors; and, 4. Eliminating the collection of behavior data as part of the long-term monitoring in the Altamont-wide study and instead focusing behavior data collection in response to specific management actions and research questions (7 Feb 2007 Memo to Board).	The monitoring team did not change their practices to be consistent with the SRC's recommendations (3) and (4). However, the monitoring team has lacked management actions to which they could have directed behavior observations. One flight diverter was installed by AWI, and the SRC did recommend that behavior observations be directed to it, but one flight diverter may not be enough of a measure for the monitoring team to justify shifting its resources in response to it.
SRC is concerned the Board could move forward on the monitoring program budget without realizing that additional studies could be necessary, which might raise future funding issues (27 Feb 2007).	Only a small fund was added to the budget to handle emerging study needs, but this amount was directed toward continued monitoring of the Diablo Winds turbines (9-11 Apr 2007).

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RECOMMENDATIONS AND CONCERNS FROM SRC	ACTIONS ON SRC RECOMMENDATIONS & CONCERNS
The companies are not clear about their responsibility to pay for additional studies recommended by the SRC and required by the County. The County should inform the companies that additional studies might need to be separate, peripheral programs (27 Feb 2007).	There has been no evidence of any initiative to fund additional studies recommended by the SRC, and the SRC's attempts to develop research recommendations and budgets have been frustrated by County's cancellations of meetings.
It is absolutely critical that the monitoring program continue uninterrupted, because lack of completeness and continuity in the data would compromise the program's precision in determining the percent reduction in mortality. Without the monitoring program recommended by the SRC, it will be impossible to determine if the 50% reduction required by the settlement agreement and stipulated in the conditional use permits is being reached. The budget is appropriate (17 Apr 2007 Memo to County).	Funding was not committed by 1 Jul 2008, as promised to the lead on the monitoring team. Because the monitoring team was owed $1.1M for work already completed, the County's failure to pay by 1 July resulted in the University of California at Santa Cruz withdrawing from the monitoring team and letting go the team leader and 3 colleagues. Jones & Stokes Associates was hired by the County to be the new lead.
County staff should clearly state to the Board the SRC's support for full funding of a three-year fatality monitoring program, and not just for one year (23 Apr 2007).	County staff conveyed the SRC's support, but funding was approved for only one year.
The SRC is concerned that if funding is curtailed (one year instead of 3, as decided by the Board), a gap in monitoring could occur or no one will be available to analyze the data. The potential implications for stopping the monitoring are significant (8 May 2007).	The Program was funded, but only after the leadership of the monitoring team was changed due to lack of payments. The SRC has not worked since funding was extended, following the order by the County to stop work.
Fatality monitoring at Diablo Winds should continue uninterrupted (9-11 Apr 2007, after SRC learned the monitoring was scheduled to end this month).	FPLE granted permission for the monitoring to continue at Diablo Winds (9-11 Apr 2007).
As the SRC suggested, the Monitoring Team is working with Lee Neher to use his maps for establishing observation points for behavioral monitoring. The monitoring program has budgeted the item, but may have to supplement the budget to digitize the data. (16 Oct 2007). (Actually, the recommendation was to use Neher's computer-based maps (ortho-photos warped over DEM) and ArcGIS mapping capabilities to record bird locations using notebook computers.)	Lee Neher worked with the monitoring team through July 2008, refining the data recording system to meet the specific needs of the monitoring team. However, after UC Santa Cruz left the project at the end of July, Jones & Stokes Associates – the new lead on the monitoring team – terminated the approach. The SRC was not consulted.
The SRC recommends that Alameda County conduct a Data Quality Assurance/Quality Control Study to improve the estimates for scavenging and searching efficiency in calculating avian mortality in the APWRA Monitoring Program. The current analytical practice of using these correction factors in the	The SRC submitted a proposal to Alameda County during summer 2008, but never heard back from the County on this matter.

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RECOMMENDATIONS AND CONCERNS FROM SRC	ACTIONS ON SRC RECOMMENDATIONS & CONCERNS
science of avian mortality could be biasing mortality estimates. The study would add searches for avian carcasses by a second team at a subset of the monitored turbines. The QAQC study will move forward with the following parameters: • To start in October 2008 and run for one year. • Designed with a 90% confidence level • ±15% margin of error • There would be no proxies • To include all bird species • Study to be assessed after 6 months to determine feasibility of reducing the sample size • Searches would occur at an average rate of once per month.	
SRC recommended a background mortality study be performed in areas within the APWRA that lack turbines, but on terrain similar to that with wind turbines. (8-9 Jul 2008).	County staff informed me to stop work on the background mortality proposal. (4 Sep 2008).
General	
County should not follow the CEC's statewide guidelines suggestion that an oversight committee such as the SRC be composed of regulatory agency-based scientists, especially at the Altamont Pass, given its uncertainty and complexity. The SRC Charter should be modified to state that the County is better served by a committee composed of independent scientists, as scientific expertise is more important in this situation than is membership in a regulatory agency (5-7 Feb 2007).	The Charter has not been revised.
Henceforth all written materials to be reviewed by the SRC should be delivered to the SRC at least 3 days in advance of the meeting at which decisions are expected (23 Apr 2007).	Late document submittals continued to be a problem for the SRC. The monitoring team was granted permission to submit a report at an SRC meeting, which happened to be the day of the public workshop. The SRC actually obtained the report 30 min after the meeting started, and felt unprepared for the public workshop (12-14 Feb 2008). The SRC repeatedly reminded the facilitator of its expectation, but again the monitoring team presented a draft report to the SRC on the day of the meeting on 8 Jul 2008. A final draft

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RECOMMENDATIONS AND CONCERNS FROM SRC	ACTIONS ON SRC RECOMMENDATIONS & CONCERNS
	was posted on the County's web site at the same time it was delivered to SRC members.

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Comment Set B.21: Californians for Renewable Energy (CARE), continued

Attachment B
SUMMARY

The goal statement

The SRC's early concerns about the stated program goal have not been dealt with in any substantial manner. It remains possible that none of the target species die at wind turbines for the same reasons, and that separate suites of management actions may be needed to reduce mortality of each species by 50%. Management actions benefitting golden eagles may not benefit red-tailed hawks, and in fact may increase mortality of red-tailed hawks. Similarly, American kestrels and burrowing owls may often be killed by predators, so reducing mortality of these species may require entirely different strategies. Pooling these 4 species together likely decreased the likelihood the Program goal will be achieved.

Another problem with the goal statement is the large uncertainty terms associated with the mortality estimates, and whether these errors are so large that detecting a 50% change in mortality may be impossible (SRC P44, Smallwood and Thelander 2008). The duration of the monitoring program relates to the magnitude of the confidence interval of the mortality estimate, so the longer the duration of the monitoring underlying the mortality estimate, the smaller will be the confidence interval and the more likely a 50% mortality reduction can be detected (SRC P44).

Compliance with permit conditions

The SRC warned repeatedly that the companies did not appear to be complying with the terms of their permits, and if this trend continues, the mortality reduction goal will not be achieved. Although the SRC was charged with confirming that the companies are in compliance with their permits, the SRC was never given the means to provide such confirmation. The SRC recommended that a trusted third party be used for compliance monitoring, and it recommended specific monitoring methods, none of which appear to have been implemented.

The SRC expressed concerns over the terms of the settlement agreement, including the elimination or modification of required mitigation measures the SRC felt could have reduced raptor mortality. The SRC sought clarification on much of the language of the settlement agreement, but the agreement remained vague and contradictory on multiple key provisions. The SRC issued statements on how it intends to apply the scientific method, despite statements in the settlement agreement that tended to restrict methodology and to put non-scientists in the position of over-ruling scientific interpretations.

Mitigation measures

The SRC deliberated over mitigation strategies and recommended specific measures to reduce raptor mortality. These recommendations were not implemented, except for actions that did not require more than very minor changes to wind turbine operations in the APWRA. The SRC recommended repowering be pursued, but it has not been. It recommended the Tier 1 & 2 turbines be removed, but they were removed later than the permit deadlines, in some cases considerably later. The SRC repeatedly recommended the derelict towers be removed, including those the companies left at the ends of rows as flight diverters, but hundreds of derelict towers and non-functional turbines remain in the APWRA. Only one non-perchable flight diverter was installed in the entire APWRA, and no artificial rock piles were relocated. Most importantly, the companies rejected the SRC's recommendation to shut down the turbines over the entire winter period. Instead of shutting down their turbines for 4 months, they shut them down for only two months. The companies, citing their distrust of the SRC's scientific foundation, also rejected the SRC's recommendation to remove turbines the SRC rated 7 to 10 on a 1 to 10 hazard scale and the County required the removal of turbines the SRC rated 9.5 and 10 as a replacement of the CUP term requiring Tier 3 turbine removals. Therefore, the core elements of the SRC's mitigation strategy have not been implemented, and they were not required by the County.

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Attachment B

Measuring mortality reduction

The SRC's recommendations on funding have largely not been followed. The approved funding levels were lower than could support the monitoring elements recommended by the SRC and expected based on the language of the BOS Resolution. As a result, the confidence intervals around the mortality estimates may be too large to detect a 50% reduction in mortality, and key questions may go unanswered regarding cause of death of burrowing owls and scavenger removal rates in the APWRA. Spatial analysis of the data may prove impossible, and the relative abundance data may never be prepared adequately to relate them to fatality data.

The companies have not provided their power output data from individual wind turbines, thereby preventing the SRC from developing the mortality metric in a manner that would be most useful for hypothesis-testing and for deciding on which turbines to recommend for shutdown to achieve reductions in bird mortality while minimizing loss of power generation in the APWRA. The SRC has requested the power output data since its first meeting in September 2006, but has received none. Instead, data on operating hours were sent to the Monitoring Team in late 2008, for their eyes only.

The SRC recommended that provisions in the settlement agreement be clarified as to their restrictions on the SRC's use of the baseline mortality estimate. As mentioned earlier, the SRC ended up issuing statements on how it plans to proceed, but it remains to be seen how the settling parties will deal with the SRC's decisions over the baseline mortality estimate and the mortality adjustment factors. The County insisted that the monitoring team compare their new estimates to the baseline values in the settlement agreement, even though the assumptions and methods differ (12-14 Feb 2008).

The SRC recommended greater coordination between the monitoring team and the companies in regards to wind turbine management actions and land owner management actions. The SRC felt that the monitoring team needed to be kept informed of wind turbine operations, when wind turbines become functional or nonfunctional, and when and to where wind turbines are relocated. The SRC felt the monitoring team needed to know when and over what extent of the land area the land owners may be poisoning ground squirrels or doing something else that may affect the monitoring results. However, none of these recommendations were followed.

On the positive side, FPLE agreed to allow the monitoring team to continue monitoring fatalities and bird activity at Diablo Winds. Also, the companies agreed to synchronize their 2007 winter shutdowns with the monitoring team's fatality search schedule. The companies also agreed to allow the SRC access to the APWRA to evaluate wind turbines for their hazards to birds. All of these actions were helpful to the Avian Wildlife Protection Program, but none of them included any sacrifice of wind power generation to reduce bird mortality.

General

Perhaps because it is a consensus-based organization or perhaps because the SRC has had to deal with too many issues over a short period, it has been difficult to keep track of SRC recommendations. Its meeting notes are often vague and appear incomplete. It is often difficult to determine whether a recommendation was from the entire SRC or from one or a few members. I hope this review will help improve the SRC's effectiveness in making and monitoring its recommendations.

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Comment Set B.21: Californians for Renewable Energy (CARE), continued

Attachment B
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All referenced documents can be found on the SRC's web site: http://www.altamontsrc.org/alt_apwra.php.

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12 Jun 2007. P34_SRC Meeting Notes 6-12-07 Conference Call.

3 Jul 2007. P35_SRC Meeting Notes 7-2-07 Conference Call.

10 Jul 2007. P36_SRC Meeting Notes 7-10-07 Conference Call.

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17 Aug 2007. P48_SRC Meeting Notes 8-17-07 Conference Call.

20-22 Aug 2007. P53_SRC Meeting Summary August 2007.

12-13 Sep 2007. P49_SRC Meeting Summary 12-13 Sept 2007.

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18 Sep 2007. P50_SRC Meeting Notes 9-18-07 Conference Call.

24 Sep 2007. P59_SRC Meeting Notes 9-24-07 Conference Call.

10 Oct 2007. P61. Question and answer session between Settling Parties and the Altamont SRC.

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7 Nov 2007. P65_SRC Meeting Notes 11-7-07 Conference Call.

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SRC P38_AIC Response to Power Output Request, 5/24/2007.

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SRC P44_Smallwood: Effects of Monitoring Duration and Inter-Annual Variability on Precision of Wind-Turbine Causes mortality Estimates in the Altamont Pass Wind Resource Area, California, 26 July 2007.

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SRC P70 http://www.altamontsrc.org/alt_doc/p70_src_relocation_guidelines.pdf

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SRC S6. Golden Gate Audubon Response to Smallwood. 01/10/07. http://www.altamontsrc.org/alt_doc/alt_settlement/s6_goldent_gate_audubon_response_to_smallwood.pdf

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SRC S13_Questions for Settling Parties Response—Follow-Up to Feb 5 SRC Meeting.

SRC S14_Attorney General Concerns Regarding the Baseline… (3/1/07).

SRC S20_SRC Replies to the Parties' Response to SRC Queries and to Comments for the CA Office of the Attorney General, 3 April 2007.

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Smallwood, K. S. and C. Thelander. 2004. Developing methods to reduce bird mortality in the Altamont Pass Wind Resource Area. Final Report to the California Energy Commission, Public Interest Energy Research – Environmental Area, Contract No. 500-01-019. Sacramento, California.

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Comment Set B.21: Californians for Renewable Energy (CARE), continued

Smallwood CV

Kenneth Shawn Smallwood
Curriculum Vitae

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Born May 3, 1963 in
Sacramento, California.
Married, father of two.

Expertise

Ecology / Wildlife interactions with human infrastructure and activities / Conservation biology

Education

Ph.D. Ecology, University of California, Davis. September 1990.
M.S. Ecology, University of California, Davis. June 1987.
B.S. Anthropology, University of California, Davis. June 1985.
Corcoran High School, Corcoran, California. June 1981.

Experience

- 269 professional publications, including:
- 59 peer reviewed publications
- 24 in non-reviewed proceedings
- 178 reports, declarations, and book reviews (2)
- 8 in mass media outlets
- 66 public presentations of research results at professional meetings
- Reviewed many professional papers and reports
- Testified in 4 court cases.

Associate Editor, *Journal of Wildlife Management*, March 2004 to 30 June 2007.

Editorial Board Member, *Environmental Management*, 10/1999 to 8/2004.

Associate Editor, *Biological Conservation*, 9/1994 to 9/1995. Administered independent scientific reviews of submitted, professional papers in ecology and conservation biology, and made recommendations to the Editors.

Member, Alameda County Scientific Review Committee, 8/06 to present. As part of a five member committee, I investigate the causes of bird and bat collisions in the Altamont Pass Wind Resource Area, and I make recommendations to the monitoring team and to the County of Alameda. The Committee ensures the science applied to the problem is of the highest standards.

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Comment Set B.21: Californians for Renewable Energy (CARE), continued

Smallwood CV

Research Ecologist, 2/06 to 12/07, under contract to East Bay Regional Parks District. Performed research of how fossorial mammals and raptors responded to grazing treatments and wind turbines at Vasco Caves Regional Preserve and a newly acquired property north of the Preserve. I designed the study, trained the fatality monitors and behavior observers, mapped the burrows of fossorial mammals, analyzed the data, and took the lead on writing the report.

Consulting Ecologist, 7/04 to 12/07, California Energy Commission (CEC). In collaboration with Lawrence-Livermore National Lab, I performed independent research funded by the CEC on bird behavior in the Altamont Pass Wind Resources Area. I also provided consulting services as needed to the CEC. I produced several reports to the CEC and the CEC's Public Interest Energy Research program.

Consulting Ecologist, 11/99 to present, U.S. Navy. I provide endangered species surveys at multiple Navy facilities, hazardous waste site monitoring, and habitat restoration for the endangered Fresno kangaroo rat. I have worked at Naval Air Station, Lemoore; Naval Weapons Station, Seal Beach, Detachment Concord; Naval Security Group Activity, Skaggs Island; and National Radio Transmitter Facility, Dixon.

Part-time Lecturer, 1/98 to 2005, California State University, Sacramento. I taught Contemporary Environmental Issues, Natural Resources Conservation (twice), Mammalogy, Behavioral Ecology, and Ornithology Lab.

Senior Ecologist, 1999 to 2005, BioResource Consultants. I planned and carried out research and monitoring projects, and analyzed complex data related to avian fatalities at wind turbines, avian electrocutions on electric distribution poles across California, and avian fatalities at transmission lines.

Systems Ecologist, 7/96 to present, Consulting in the Public Interest, www.cipi.com. I am part of a multi-disciplinary consortium of scientists facilitating large-scale, environmental planning projects and litigation. We provide risk assessments, assessments of management practices, and expert witness testimony.

Chairman, Conservation Affairs Committee, The Wildlife Society--Western Section, 1999-2001. I prepared position statements and led efforts directed toward conservation issues, including travel to Washington, D.C. to lobby Congress for more wildlife conservation funding.

Systems Ecologist, 1/95 until about 2000, Institute for Sustainable Development. I headed ISD's program on integrated resources management. I developed indicators of ecological integrity for large areas, using remotely sensed data, local community involvement and GIS.

Associate, 1997-1998, Department of Agronomy and Range Science, University of California, Davis. I worked with Shu Geng and Mingua Zhang on several projects.

Lead Scientist, 6/96 to 6/99, National Endangered Species Network. I headed NESN's efforts to inform academic scientists and environmental activists about emerging issues regarding the

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Endangered Species Act and other environmental laws pertaining to legally rare species. I also testified at public hearings on behalf of environmental groups and endangered species.

Ecologist, 1/97 to 6/98, Western Foundation of Vertebrate Zoology. I conducted field research to determine the impact of past mercury mining on the status of red-legged frogs in Santa Clara County, California.

Senior Systems Ecologist, 7/94 to 12/95, EIP Associates, Sacramento, California. Provided consulting services in environmental planning. I also developed a quantitative assessment of land units for their conservation and restoration opportunities, using the ecological resource requirements of 29 legally rare species. I mapped vegetation and land use, and derived new spatial data from a GIS overlay of these variables with soil types, flood zones, roads, and other spatially referenced data. Using these derived data, I developed a set of indicators for prioritizing areas within Yolo County that will receive mitigation funds for habitat easements and restoration.

Post-Graduate Researcher, 10/90 to 6/94, with Dr. Shu Geng, Department of Agronomy and Range Science, *U.C. Davis*. Studied landscape and management effects on temporal and spatial patterns of abundance among pocket gophers and species of Falconiformes and Carnivora in the Sacramento Valley. I also developed and analyzed a data base of energy use in California agriculture, and I assisted with a landscape (GIS) study of groundwater contamination across Tulare County, California.

Co-teacher, 1/91 to 6/91 and 1/93 to 6/93, Graduate Group in Ecology, U.C. Davis. Co-taught conservation biology with Dr. Christine Schonewald.

Reader, 3/90 to 6/90, Department of Psychology, U.C. Davis. Assisted students of Psychobiology (taught by Dr. Richard Coss) with research and writing term papers.

Research Assistant, 11/88 to 9/90, with Dr. Walter E. Howard, Department of Wildlife and Fisheries Biology, U.C. Davis. Tested durable baits for pocket gopher control in forest plantations, and developed gopher sampling methods.

Fulbright Research Fellow, Indonesia, 7/88 to 11/88. Tested use of new sampling methods for monitoring the number of Sumatran tigers and six other species of endemic felids, and evaluated methods used by other researchers.

Research Assistant, 7/87 to 6/88, with Dr. Terrell P. Salmon, Wildlife Extension, Department of Wildlife and Fisheries Biology, U.C. Davis. Developed empirical models of mammal and bird invasions in North America, and a rating system for priority research and control of exotic species based on economic, environmental, and human health hazards in California.

Student Assistant, 3/85 to 6/87, with Dr. E. Lee Fitzhugh, Wildlife Extension, Department of Wildlife and Fisheries Biology, U.C. Davis. Developed and implemented a statewide mountain lion track count for long-term monitoring of numbers and distribution. Also developed quantitative

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techniques to identify individual mountain lions by their tracks, and to differentiate mountain lion and dog tracks.

Projects

Research to reduce avian mortality due to wind turbines at Altamont Pass. I used GPS and GIS to map and study environmental impacts of 5,400 wind turbines. I related the number of raptor fatalities at wind turbines to the degree of aggregation of prey species around the turbines, as well as many other factors related to where the turbines are located, how they are designed and operated, and how raptors behave in the Altamont Pass Wind Resource Area. I also serve on the Alameda County Scientific Review Committee, charged with recommending scientific monitoring methods and mitigation measures for reducing avian mortality.

Research to reduce avian mortality on electric distribution poles. Since about 2000 I have performed research directed toward reducing bird electrocutions on electric distribution poles. I led fatality monitoring efforts at 10,000 poles multiple times in California, spanning Orange County to Glenn County, and I have produced two large reports.

Cook *et al.* v. Rockwell International *et al.*, No. 90-K-181 (D. Colorado). I provided expert testimony on the role of burrowing animals in affecting the fate of buried and surface-deposited radioactive and hazardous chemical wastes at the Rocky Flats Plant, Colorado. I provided expert reports based on four site visits and the most extensive document review of burrowing animals ever conducted. I conducted transect surveys for evidence of burrowing animals and other wildlife on and around waste facilities. I also discovered substantial intrusion of waste structures by burrowing animals. I testified in federal court in November 2005, and my clients were subsequently awarded a $553,000,000 judgment by a jury.

Hanford Nuclear Reservation Litigation. I am providing expert testimony on the role of burrowing animals in affecting the fate of buried radioactive wastes at the Hanford Nuclear Reservation, Washington. I provided three expert reports based on three site visits and extensive document review. I predicted and verified a certain population density of pocket gophers on buried waste structures, as well as incidence of radionuclide contamination in body tissue. I conducted transect surveys for evidence of burrowing animals and other wildlife on and around waste facilities. I also discovered substantial intrusion of waste structures by burrowing animals.

Expert Testimony and Declarations on Residential and Commercial Development Proposals. I have testified before the California Coastal Commission, California Energy Commission, County Boards of Supervisors, and City Councils, and I have participated with press conferences and have been deposed by attorneys. I prepared expert witness reports and court declarations, which are summarized under Reports (below).

Expert Testimony on Proposed Gas-fired Power Plants. I provided comments letters, declarations, expert reports, and oral testimony on the impacts and appropriate mitigation of about eight natural gas-fired power plants in California.

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Smallwood CV

Expert Testimony on Proposed Wind Farms. I provided comment letters and oral testimony to administrative law courts in Klickitat and Skamania Counties, Washington, which convinced the court in Skamania County to require the replacement of a negative declaration with an EIS. I provided written testimony and deposition in support of litigation brought against the development of wind turbines in Cook County, Texas, which resulted in a settlement. I also provided written comments on the first EIR for the Buena Vista Wind Energy Project in Contra County, California, prompting the withdrawal of that EIR and the preparation of an improved EIR which was later certified.

Protocol-level endangered species searches and recovery efforts. I search for special-status species using Department of Fish and Game and US Fish and Wildlife Service protocols. I have searched for, or otherwise worked with, California red-legged frog, arroyo southwestern toad, California tiger salamander, blunt-nosed leopard lizard, western pond turtle, giant kangaroo rat, Fresno kangaroo rat, San Joaquin kit fox, Sumatran tiger, willow flycatcher, least Bell's vireo, western burrowing owl, Swainson's hawk, Valley elderberry longhorn beetle and many other special-status species. I also help with recovery of the Fresno kangaroo rat at Lemoore Naval Air Station.

Conservation of the endangered Fresno kangaroo rat. I am performing applied research to identify the factors responsible for the decline of this endangered species at Lemoore Naval Air Station, and am implementing habitat enhancements designed to reverse the trend and to expand the area occupied by this species.

Impact of West Nile Virus on yellow-billed magpies. Since 2005 I have worked under contract to the Sacramento-Yolo Mosquito and Vector Control District to gather post-West Nile Virus epidemic data to pre-epidemic data I had gathered on multiple bird species in the Sacramento Valley in the 1990s, but particularly on yellow-billed magpie and American crow, which are particularly susceptible to WNV.

Workshops on HCPs. Assisted Dr. Michael Morrison with organizing and conducting a 2-day workshop on Habitat Conservation Plans, sponsored by Southern California Edison, and another 1-day workshop sponsored by PG&E. These Workshops were attended by academics, attorneys, and consultants with HCP experience. We guest-edited a Proceedings published in Environmental Management.

Mapping of biological resources along Highways 101, 46 and 41. I used GPS and GIS to delineate vegetation complexes and locations of special-status species along 26 miles of highway in San Luis Obispo County, 14 miles of highway and roadway in Monterey County, and in a large area north of Fresno, including within reclaimed gravel mining pits.

GPS mapping and monitoring at restoration sites and at Caltrans mitigation sites. I am monitoring the success of elderberry shrubs at one location, the success of willows at another location, and the response of wildlife to the succession of vegetation at both these sits. I am also using GPS to monitor the response of fossorial animals to yellow star-thistle eradication and natural grassland restoration efforts at Bear Valley, Colusa County, and at the decommissioned Mather Air Force Base in Sacramento County.

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Mercury effects on Red-legged Frog. I assisted Dr. Michael Morrison and US Fish and Wildlife Service in assessing the possible impacts of historical mercury mining on the federally listed California red-legged frog in Santa Clara County. I also measured habitat variables in numerous streams.

Opposition to proposed No Surprises rule. I wrote a white paper and summary letter explaining scientific grounds for opposing the incidental take permit (ITP) rules providing ITP applicants and holders with general assurances they will be free of compliance with the Endangered Species Act once they adhere to the terms of a "properly functioning HCP." I obtained 188 signatures of scientists and environmental professionals on the letter submitted to the US Fish and Wildlife Service and the National Marine Fisheries Service. The letter was also provided to all US Senators. It helped change the prevailing view of HCPs as beneficial to listed species.

Natomas Basin Habitat Conservation Plan alternative. I designed narrow channel marsh to increase the likelihood of survival and recovery in the wild of giant garter snake, Swainson's hawk and Valley Elderberry Longhorn Beetle. The design included replication and interspersion of treatments for experimental testing of critical habitat elements. I provided a report to Northern Territories, Inc.

Assessment of Environmental Technology Transfer to China, and Assessment of Agricultural Production System. I twice traveled to China and interviewed scientists, industrialists, agriculturalists, and the Directors of the Chinese Environmental Protection Agency and the Department of Agriculture to assess the need and possible pathways for environmental clean-up technologies and trade opportunities between the US and China. I spent a total of five weeks in China, including in Shandong and Linxion Provinces and in Beijing.

Yolo County Habitat Conservation Plan. I conducted the landscape ecology study of Yolo County to identify the priority land units to receive mitigation so as to most improve the ecosystem functionality within the County from the perspective of 29 special-status species of wildlife and plants. I used a hierarchically structured indicators approach to apply principles of landscape and ecosystem ecology, conservation biology, and local values in rating land units. I derived GIS maps to help guide the conservation area design, and then I developed implementation strategies.

Mountain Lion Track Count. I developed and conducted the carnivore monitoring program throughout California since 1985. Species counted include mountain lion, bobcat, black bear, coyote, red and gray fox, raccoon, striped skunk, badger, and black-tailed deer. Vegetation and land use are also monitored. The transect was established on dusty, dirt roads within randomly selected quadrats. These roads are searched for tracks of the carnivores, which routinely use the roads for travel paths.

Sumatran Tiger and other Felids. I designed and conducted track counts for seven species of wild cats in Sumatra, including the Sumatran tiger, fishing cat, and golden cat. I spent four months on Sumatra and Java, and learned Bahasa Indonesia (the official Indonesian language). I was awarded a Fulbright Research Fellowship to complete the project.

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Wildlife in Agriculture. Beginning as my post-graduate research, I have studied pocket gophers and other wildlife in 40 alfalfa fields throughout the Sacramento Valley, and I surveyed for wildlife along a 200 mile road transect for six years. The data were analyzed using GIS and methods from landscape ecology, and the results were published and presented orally to farming groups in California and elsewhere. I also conducted the first study of wildlife in cover crops used on vineyards and orchards.

Agricultural Energy Use and Tulare County Groundwater Study. I developed and analyzed a data base of energy use in California agriculture, and collaborated on a landscape (GIS) study of groundwater contamination across Tulare County, California.

Pocket Gopher Damage in Forest Clearcuts. I tested various poison baits and baiting regimes for pocket gopher control in forest plantations, and I developed gopher sampling methods. I conducted the most extensive field study of pocket gophers ever, involving thousands of gophers in 68 research plots on 55 clearcuts among 6 National Forests in northern California.

Risk Assessment of Exotic Species in North America. I developed empirical models of mammal and bird species invasions in North America, as well as a rating system for assigning priority research and control to exotic species in California, based on economic, environmental, and human health hazards.

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Representative Clients

Law offices and environmental groups	Government agencies
Law Offices of Berger & Montague	US Department of Agriculture
Law Offices of Roy Haber	US Forest Service
Law Offices of Edward MacDonald	US Fish & Wildlife Service
Law Office of John Gabrielli	US Navy
Law Office of Bill Kopper	California Energy Commission
Law Office of Donald B. Mooney	California Office of the Attorney General
Law Office of Veneruso & Moncharsh	California Department of Fish & Game
Law Office of Steven Thompson	California Department of Transportation
California Wildlife Federation	California Department of Forestry
Defenders of Wildlife	California Department of Food & Agriculture
Sierra Club	Ventura County Counsel
National Endangered Species Network	County of Yolo
Spirit of the Sage Council	Tahoe Regional Planning Agency
The Humane Society	Sustainable Agriculture Research & Education Program
Hagens Berman LLP	Sacramento-Yolo Mosquito and Vector Control District
Environmental Protection Information Center	East Bay Regional Parks District
Goldberg, Kamin & Garvin, Attorneys at Law	County of Alameda
Californians for Renewable Energy (CARE)	
Seatuck Environmental Association	
Friends of the Columbia Gorge, Inc.	
Save Our Scenic Area	
Alliance to Protect Nantucket Sound	

Businesses	Other organizations and Individuals
Pacific Gas & Electric Co.	Don & LaNelle Silverstien
Southern California Edison Co.	Seventh Day Adventist Church
Georgia-Pacific Timber Co.	Escuela de la Raza Unida
Northern Territories Inc.	Susan Pelican and Howard Beeman
National Renewable Energy Lab	Residents Against Inconsistent Development, Inc.
David Magney Environmental Consulting	Bob Sarvey
Wildlife History Foundation	Mike Boyd
Emerald Farms	Hillcroft Neighborhood Fund
Terry Preston, Wildlife Ecology Research Center	Joint Labor Management Committee of the Retail Food Industry
G3 Energy and enXco	Lisa Rocca
Comstocks Business (magazine)	Kevin Jackson
Californians for Renewable Energy	Dawn Stover and Jay Letto
BioResource Consultants	Nancy Havassy
	Catherine Portman (for Brenda Cedarblade)

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Representative special-status species experience

Common name	Species name	Status[1]	Description
Field experience			
California red-legged frog	*Rana aurora draytonii*	FT, CSC	Protocol searches & detected at multiple sites
Foothill yellow-legged frog	*Rana boylii*	FSC, CSC	Research and search detections at multiple sites
Western spadefoot	*Spea hammondii*	FSC, CSC	Searches and search detections
California tiger salamander	*Ambystoma californiense*	FC, CSC	Protocol searches & detections at multiple sites
Coast range newt	*Taricha torosa torosa*	CSC	Searches and multiple detections
Blunt-nosed leopard lizard	*Gambelia sila*	FE, CE	Detected in San Luis Obispo County
California Horned Lizard	*Phrynosoma coronatum frontale*	FSC, CSC	Search and detected in San Luis Obispo Co.
Western pond turtle	*Clemmys marmorata*	FSC, CSC	Searches and detected at multiple sites
San Joaquin kit fox	*Vulpes macrotis mutica*	FE, CT	Protocol searches and detections
Sumatran tiger	*Panthera tigris*		Research in Sumatra
Mountain lion	*Puma concolor californicus*	CFP	Research and publications
Point Arena mountain beaver	*Aplodontia rufa nigra*	FE, CSC	Remote camera operation
Giant kangaroo rat	*Dipodomys ingens*	FE, CE	Detected in Cholame Valley
Fresno kangaroo rat	*Dipodomys nitratoides*	FE, CE	Research and conservation at Lemoore Naval Air Station – reports
Monterey dusky-footed woodrat	*Neotoma fuscipes luciana*	FSC, CSC	Non-target captures and mapping of dens
Salt marsh harvest mouse	*Reithrodontomys raviventris*	FE, CE	Habitat assessment, monitoring
Salinas harvest mouse	*Reithrodontomys megalotus distichlus*	G5T1S1	Captures in the Salinas area; habitat assessment
California clapper rail	*Rallus longirostris*	FE, CE	Surveys at Concord Naval Weapons Station
Golden eagle	*Aquila chrysaetos*	CSC	Research in Sacramento Valley
Swainson's hawk	*Buteo swainsoni*	CT	Research in Sacramento Valley
Northern harrier	*Circus cyaeneus*	CSC	Research and publication
White-tailed kite	*Elanus leucurus*	CFP	Research and publication
Loggerhead shrike	*Lanius ludovicianus*	FSC, CSC	Research in Sacramento Valley
Least Bell's vireo	*Vireo bellii pusillus*	FE, CE	Detected in Monterey County
Willow flycatcher	*Empidonax traillii extimus*	FE, CE	Research at Sierra Nevada breeding sites
Burrowing owl	*Athene cunicularia hypugia*	FSC, CSC	Research at multiple locations
Valley elderberry longhorn beetle	*Desmocerus californicus dimorphus*	FT	Research on mitigation site and publication
Analytical			
Arroyo southwestern toad	*Bufo microscaphus californicus*	FE, CSC	Research and report.
Giant garter snake	*Thamnophis gigas*	FT, CE	Research and publication.
Northern goshawk	*Accipiter gentilis*	FSC, CSC	Research and publication.
Northern spotted owl	*Strix occidentalis*	FT	Research and reports. Publication in progress.

[1] FE = Federal Endangered, FT = Federal threatened, FC = Federal candidate for listing, FSC = Federal species of concern, CE = California Endangered, CT = California threatened, CFP = California Fully Protected, CSC = California Species of Concern, G5T1S1 = CNDDB rating of imperiled throughout California range.

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Peer Reviewed Publications

Smallwood, K. S. and B. Nakamoto. In press. Impacts of West Nile Virus Epizootic on Yellow-Billed Magpie, American Crow, and other Birds in the Sacramento Valley, California. The Condor: In press.

Smallwood, K. S., L. Rugge, and M. L. Morrison. In press. Influence of Behavior on Bird Mortality in Wind Energy Developments: The Altamont Pass Wind Resource Area, California. Journal of Wildlife Management: In press.

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Smallwood, K. S. 2008. Wind power company compliance with mitigation plans in the Altamont Pass Wind Resource Area. Environmental & Energy Law Policy Journal 2(2):229-285.

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Smallwood, K. S., C. G. Thelander, M. L. Morrison, and L. M. Rugge. 2007. Burrowing owl mortality in the Altamont Pass Wind Resource Area. Journal of Wildlife Management 71:1513-1524.

Cain, J. W. III, K. S. Smallwood, M. L. Morrison, and H. L. Loffland. 2005. Influence of mammal activity on nesting success of Passerines. J. Wildlife Management 70:522-531.

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Geng, S., Yixing Zhou, Minghua Zhang, and K. Shawn Smallwood. 2001. A Sustainable Agro-ecological Solution to Water Shortage in North China Plain (Huabei Plain). Environmental Planning and Management 44:345-355.

Smallwood, K. Shawn, Lourdes Rugge, Stacia Hoover, Michael L. Morrison, Carl Thelander. 2001. Intra- and inter-turbine string comparison of fatalities to animal burrow densities at Altamont Pass. Pages 23-37 in S. S. Schwartz, ed., Proceedings of the National Avian-Wind Power Planning Meeting IV. RESOLVE, Inc., Washington, D.C.

Smallwood, K.S., S. Geng, and M. Zhang. 2001. Comparing pocket gopher (*Thomomys bottae*) density in alfalfa stands to assess management and conservation goals in northern California. Agriculture, Ecosystems & Environment 87: 93-109.

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Comment Set B.21: Californians for Renewable Energy (CARE), continued

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Morrison, M.L., and K.S. .Smallwood. 1999. NTI plan evaluation and comments. Exhibit C in W.D. Carrier, M.L. Morrison, K.S. Smallwood, and Vail Engineering. Recommendations for NBHCP land acquisition and enhancement strategies. Northern Territories, Inc., Sacramento.

Smallwood, K. S. 1999. Estimation of impacts due to dredging of a shipping channel through Humboldt Bay, California. Court Declaration prepared on behalf of EPIC.

Smallwood, K. S. 1998. 1998 California Mountain Lion Track Count. Report to the Defenders of Wildlife, Washington, D.C. 5 pages.

Smallwood, K.S. 1998. Draft report of a visit to a paint sludge dump site near Ridgewood, New Jersey, February 26th, 1998. Unpublished report to Consulting in the Public Interest.

Smallwood, K.S. 1997. Science missing in the "no surprises" policy. Commissioned by National Endangered Species Network and Spirit of the Sage Council, Pasadena, California.

Smallwood, K.S. and M.L. Morrison. 1997. Alternate mitigation strategy for incidental take of giant garter snake and Swainson's hawk as part of the Natomas Basin Habitat Conservation Plan. Pages 6-9 and *iii* illustrations in W.D. Carrier, K.S. Smallwood and M.L. Morrison, Natomas Basin Habitat Conservation Plan: Narrow channel marsh alternative wetland mitigation. Northern Territories, Inc., Sacramento.

Smallwood, K.S. 1996. Assessment of the BIOPORT model's parameter values for pocket gopher burrowing characteristics. Report to Berger & Montague, P.C. and Roy S. Haber, P.C., Philadelphia. (peer reviewed).

Smallwood, K.S. 1997. Assessment of plutonium releases from Hanford buried waste sites. Report Number 9, Consulting in the Public Interest, 53 Clinton Street, Lambertville, New Jersey, 08530.

Smallwood, K.S. 1996. Soil Bioturbation and Wind Affect Fate of Hazardous Materials that were Released at the Rocky Flats Plant, Colorado. Report to Berger & Montague, P.C., Philadelphia.

Smallwood, K.S. 1996. Second assessment of the BIOPORT model's parameter values for pocket gopher burrowing characteristics and other relevant wildlife observations. Report to Berger & Montague, P.C. and Roy S. Haber, P.C., Philadelphia.

Smallwood, K.S., and R. Leidy. 1996. Wildlife and Their Management Under the Martell SYP. Report to Georgia Pacific, Corporation, Martel, CA. 30 pp.

EIP Associates. 1995. Yolo County Habitat Conservation Plan Biological Resources Report. Yolo County Planning and Development Department, Woodland, California.

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Comment Set B.21: Californians for Renewable Energy (CARE), continued

Smallwood, K.S. and S. Geng. 1995. Analysis of the 1987 California Farm Cost Survey and recommendations for future survey. Program on Workable Energy Regulation, University-wide Energy Research Group, University of California.

Smallwood, K.S., S. Geng, and W. Idzerda. 1992. Final report to PG&E: Analysis of the 1987 California Farm Cost Survey and recommendations for future survey. Pacific Gas & Electric Company, San Ramon, California. 24 pp.

Fitzhugh, E.L. and K.S. Smallwood. 1987. Methods Manual – A statewide mountain lion population index technique. California Department of Fish and Game, Sacramento.

Salmon, T.P. and K.S. Smallwood. 1989. Final Report – Evaluating exotic vertebrates as pests to California agriculture. California Department of Food and Agriculture, Sacramento.

Smallwood, K.S. and W. A. Erickson (written under supervision of W.E. Howard, R.E. Marsh, and R.J. Laacke). 1990. Environmental exposure and fate of multi-kill strychnine gopher baits. Final Report to USDA Forest Service –NAPIAP, Cooperative Agreement PSW-89-0010CA.

Fitzhugh, E.L., K.S. Smallwood, and R. Gross. 1985. Mountain lion track count, Marin County, 1985. Unpublished report on file at Wildlife Extension, University of California, Davis.

Comments on Environmental Documents

I was retained or commissioned to comment on environmental planning and review documents, including:

- Delta Shores Project EIR, south Sacramento (2009; 11 pp + addendum 2 pp)
- The Public Utility Commission's Implementation Analysis December 16 Workshop for the Governor's Executive Order S-14-08 to implement a 33% Renewable Portfolio Standard by 2020 (2008; 9 pp)
- The Public Utility Commission's Implementation Analysis Draft Work Plan for the Governor's Executive Order S-14-08 to implement a 33% Renewable Portfolio Standard by 2020 (2008; 11 pp):
- Draft 1A Summary Report to California Independent System Operator for Planning Reserve Margins (PRM) Study (2008; 7 pp.);
- SEPA Determination of Non-significance regarding zoning adjustments for Skamania County, Washington. Declaration to Friends of the Columbia Gorge, Inc. and
- Save Our Scenic Area (2008; 17 pp);
- California Energy Commission's Preliminary Staff Assessment of the Colusa Generating Station (2007; 24 pp);
- Rio del Oro Specific Plan Project Recirculated Draft Environmental Impact Report (2008: 66 pp);

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Comment Set B.21: Californians for Renewable Energy (CARE), continued

Smallwood CV

- Replies to Response to Comments Re: Regional University Specific Plan Environmental Impact Report (2008; 20 pp);
- Regional University Specific Plan Environmental Impact Report (2008: 33 pp.);
- Clark Precast, LLC's "Sugarland" project, Negative Declaration (2008: 15 pp.);
- Cape Wind Project Draft Environmental Impact Statement (2008; 157 pp.);
- Yuba Highlands Specific Plan (or Area Plan) Environmental Impact Report (2006; 37 pp.);
- Replies to responses to comments on Mitigated Negative Declaration of the proposed Mining Permit (MIN 04-01) and Modification of Use Permit 96-02 at North Table Mountain (2006; 5 pp);
- Mitigated Negative Declaration of the proposed Mining Permit (MIN 04-01) and Modification of Use Permit 96-02 at North Table Mountain (2006; 15 pp);
- Windy Point Wind Farm Environmental Review and EIS (2006; 14 pp and 36 Powerpoint slides in reply to responses to comments);
- Shiloh I Wind Power Project EIR (2005; 18 pp);
- Buena Vista Wind Energy Project Notice of Preparation of EIR (2004; 15 pp);
- Negative Declaration of the proposed Callahan Estates Subdivision (2004; 11 pp);
- Negative Declaration of the proposed Winters Highlands Subdivision (2004; 9 pp);
- Negative Declaration of the proposed Winters Highlands Subdivision (2004; 13 pp);
- Negative Declaration of the proposed Creekside Highlands Project, Tract 7270 (2004; 21 pp);
- Conditional Use Permit renewals from Alameda County for wind turbine operations in the Altamont Pass Wind Resource Area (2003; 41 pp);
- UC Davis Long Range Development Plan of 2003, particularly with regard to the Neighborhood Master Plan (2003; 23 pp);
- Anderson Marketplace Draft Environmental Impact Report (2003: 18 pp + 3 plates of photos);
- Negative Declaration of the proposed expansion of Temple B'nai Tikyah (2003: 6 pp);
- Antonio Mountain Ranch Specific Plan Public Draft EIR (2002: 23 pp);
- Response to testimony of experts at the East Altamont Energy Center evidentiary hearing on biological resources (2002: 9 pp);
- Revised Draft Environmental Impact Report, The Promenade (2002: 7 pp);
- Recirculated Initial Study for Calpine's proposed Pajaro Valley Energy Center (2002: 3 pp);
- UC Merced -- Declaration of Dr. Shawn Smallwood in support of petitioner's application for temporary restraining order and preliminary injunction (2002: 5 pp);
- Replies to response to comments in Final Environmental Impact Report, Atwood Ranch Unit III Subdivision (2003: 22 pp);
- Draft Environmental Impact Report, Atwood Ranch Unit III Subdivision (2002: 19 pp + 8 photos on 4 plates);
- California Energy Commission Staff Report on GWF Tracy Peaker Project (2002: 17 pp + 3 photos; follow-up report of 3 pp);
- Initial Study and Negative Declaration, Silver Bend Apartments, Placer County (2002: 13 pp);

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Comment Set B.21: Californians for Renewable Energy (CARE), continued

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- UC Merced Long-range Development Plan DEIR and UC Merced Community Plan DEIR (2001: 26 pp);
- Initial Study, Colusa County Power Plant (2001: 6 pp);
- Comments on Proposed Dog Park at Catlin Park, Folsom, California (2001: 5 pp + 4 photos);
- Pacific Lumber Co. (Headwaters) Habitat Conservation Plan and Environmental Impact Report (1998: 28 pp);
- Final Environmental Impact Report/Statement for Issuance of Take authorization for listed species within the MSCP planning area in San Diego County, California (Fed. Reg. 62 (60): 14938, San Diego Multi-Species Conservation Program) (1997: 10 pp);
- Permit (PRT-823773) Amendment for the Natomas Basin Habitat Conservation Plan, Sacramento, CA (Fed. Reg. 63 (101): 29020-29021) (1998);
- Draft Recovery Plan for the Giant Garter Snake (*Thamnophis gigas*). (Fed. Reg. 64(176): 49497-49498) (1999: 8 pp);
- Review of the Draft Recovery Plan for the Arroyo Southwestern Toad (*Bufo microscaphus californicus*) (1998);
- Ballona West Bluffs Project Environmental Impact Report (1999: oral presentation);
- California Board of Forestry's proposed amended Forest Practices Rules (1999);
- Negative Declaration for the Sunset Skyranch Airport Use Permit (1999);
- Calpine and Bechtel Corporations' Biological Resources Implementation and Monitoring Program (BRMIMP) for the Metcalf Energy Center (2000: 10 pp);
- California Energy Commission's Final Staff Assessment of the proposed Metcalf Energy Center (2000);
- US Fish and Wildlife Service Section 7 consultation with the California Energy Commission regarding Calpine and Bechtel Corporations' Metcalf Energy Center (2000: 4 pp);
- California Energy Commission's Preliminary Staff Assessment of the proposed Metcalf Energy Center (2000: 11 pp);
- Site-specific management plans for the Natomas Basin Conservancy's mitigation lands, prepared by Wildlands, Inc. (2000: 7 pp);
- Affidavit of K. Shawn Smallwood in Spirit of the Sage Council, et al. (Plaintiffs) vs. Bruce Babbitt, Secretary, U.S. Department of the Interior, et al. (Defendants), Injuries caused by the No Surprises policy and final rule which codifies that policy (1999: 9 pp).

I also issued formal comments on the following documents:

- Draft Program Level EIR for Covell Village (2005; 19 pp);
- Bureau of Land Management Wind Energy Programmatic EIS Scoping document (2003: 7 pp.);
- NEPA Environmental Analysis for Biosafety Level 4 National Biocontainment Laboratory (NBL) at UC Davis (2003: 7 pp);
- Notice of Preparation of UC Merced Community and Area Plan EIR, on behalf of The Wildlife Society—Western Section (2001: 8 pp.);
- Preliminary Draft Yolo County Habitat Conservation Plan (2001; 2 letters totaling 35 pp.);

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- Merced County General Plan Revision, notice of Negative Declaration (2001: 2 pp.);
- Notice of Preparation of Campus Parkway EIR/EIS (2001: 7 pp.);
- Draft Recovery Plan for the bighorn sheep in the Peninsular Range (*Ovis candensis*) (2000);
- Draft Recovery Plan for the California Red-legged Frog (*Rana aurora draytonii*), on behalf of The Wildlife Society—Western Section (2000: 10 pp.);
- Sierra Nevada Forest Plan Amendment Draft Environmental Impact Statement, on behalf of The Wildlife Society—Western Section (2000: 7 pp.);
- State Water Project Supplemental Water Purchase Program, Draft Program EIR (1997);
- Davis General Plan Update EIR (2000);
- Covell Center Project EIR and EIR Supplement (1997);
- Turn of the Century EIR (1999: 10 pp);
- Proposed termination of Critical Habitat Designation under the Endangered Species Act (Fed. Reg. 64(113): 31871-31874) (1999);
- NOA Draft Addendum to the Final Handbook for Habitat Conservation Planning and Incidental Take Permitting Process, termed the HCP 5-Point Policy Plan (Fed. Reg. 64(45): 11485 - 11490) (1999).

Position Statements I prepared the following position statements for the Western Section of The Wildlife Society, and one for nearly 200 scientists:

- Recommended that the California Department of Fish and Game prioritize the extermination of the introduced southern water snake in northern California. The Wildlife Society--Western Section (2001);
- Recommended that The Wildlife Society—Western Section appoint or recommend members of the independent scientific review panel for the UC Merced environmental review process (2001);
- Opposed the siting of the University of California's 10th campus on a sensitive vernal pool/grassland complex east of Merced. The Wildlife Society--Western Section (2000);
- Opposed the legalization of ferret ownership in California. The Wildlife Society--Western Section (2000);
- Opposed the Proposed "No Surprises," "Safe Harbor," and "Candidate Conservation Agreement" rules, including permit-shield protection provisions (Fed. Reg. Vol. 62, No. 103, pp. 29091-29098 and No. 113, pp. 32189-32194). This statement was signed by 188 scientists and went to the responsible federal agencies, as well as to the U.S. Senate and House of Representatives.

Printed Mass Media

Smallwood, K.S., D. Mooney, and M. McGuinness. 2003. We must stop the UCD biolab now. Op-Ed to the Davis Enterprise.

Smallwood, K.S. 2002. Spring Lake threatens Davis. Op-Ed to the Davis Enterprise.

Smallwood, K.S. Summer, 2001. Mitigation of habitation. The Flatlander, Davis, California.

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Comment Set B.21: Californians for Renewable Energy (CARE), continued

Entrikan, R.K. and K.S. Smallwood. 2000. Measure O: Flawed law would lock in new taxes. Op-Ed to the Davis Enterprise.

Smallwood, K.S. 2000. Davis delegation lobbies Congress for Wildlife conservation. Op-Ed to the Davis Enterprise.

Smallwood, K.S. 1998. Davis Visions. The Flatlander, Davis, California.

Smallwood, K.S. 1997. Last grab for Yolo's land and water. The Flatlander, Davis, California.

Smallwood, K.S. 1997. The Yolo County HCP. Op-Ed to the Davis Enterprise.

Radio/Television

KQED QUEST Episode #111. Bird collisions with wind turbines. 2007;

KDVS Speaking in Tongues (host Ron Glick), Yolo County HCP: 1 hour. December 27, 2001;

KDVS Speaking in Tongues (host Ron Glick), Yolo County HCP: 1 hour. May 3, 2001;

KDVS Speaking in Tongues (host Ron Glick), Yolo County HCP: 1 hour. February 8, 2001;

KDVS Speaking in Tongues (host Ron Glick & Shawn Smallwood), California Energy Crisis: 1 hour. Jan. 25, 2001;

KDVS Speaking in Tongues (host Ron Glick), Headwaters Forest HCP: 1 hour. 1998;

Davis Cable Channel (host Gerald Heffernon), Burrowing owls in Davis: half hour. June, 2000;

Davis Cable Channel (hosted by Davis League of Women Voters), Measure O debate: 1 hour. October, 2000;

KXTV 10, In Your Interest, The Endangered Species Act: half hour. 1997.

Posters at Professional Meetings

Smallwood, K. S. and C. G. Thelander. 2005. Lessons learned from five years of avian mortality research in the Altamont Pass WRA. AWEA conference, Denver, May 2005.

Neher, L., L. Wilder, J. Woo, L. Spiegel, D. Yen-Nakafugi, and K.S. Smallwood. 2005. Bird's eye view on California wind. AWEA conference, Denver, May 2005.

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Comment Set B.21: Californians for Renewable Energy (CARE), continued

Smallwood, K. S., C. G. Thelander and L. Spiegel. 2003. Toward a predictive model of avian fatalities in the Altamont Pass Wind Resource Area. Windpower 2003 Conference and Convention, Austin, Texas.

Smallwood, K.S. and Eva Butler. 2002. Pocket Gopher Response to Yellow Star-thistle Eradication as part of Grassland Restoration at Decommissioned Mather Air Force Base, Sacramento County, California. White Mountain Research Station Open House, Barcroft Station.

Smallwood, K.S. and Michael L. Morrison. 2002. Fresno kangaroo rat (*Dipodomys nitratoides*) Conservation Research at Resources Management Area 5, Lemoore Naval Air Station. White Mountain Research Station Open House, Barcroft Station.

Smallwood, K.S. and E.L. Fitzhugh. 1989. Differentiating mountain lion and dog tracks. Third Mountain Lion Workshop, Prescott, AZ.

Smith, T. R. and K. S. Smallwood. 2000. Effects of study area size, location, season, and allometry on reported *Sorex* shrew densities. Annual Meeting of the Western Section of The Wildlife Society.

Presentations at Professional Meetings and Seminars

Environmental barriers to wind power. Getting Real About Renewables: Economic and Environmental Barriers to Biofuels and Wind Energy. A symposium sponsored by the Environmental & Energy Law & Policy Journal, University of Houston Law Center, Houston, 23 February 2007.

Lessons learned about bird collisions with wind turbines in the Altamont Pass and other US wind farms. Meeting with Japan Ministry of the Environment and Japan Ministry of the Economy, Wild Bird Society of Japan, and other NGOs Tokyo, Japan, 9 November 2006.

Lessons learned about bird collisions with wind turbines in the Altamont Pass and other US wind farms. Symposium on bird collisions with wind turbines. Wild Bird Society of Japan, Tokyo, Japan, 4 November 2006.

Responses of Fresno kangaroo rats to habitat improvements in an adaptive management framework. California Society for Ecological Restoration (SERCAL) 13th Annual Conference, UC Santa Barbara, 27 October 2006.

Fatality associations as the basis for predictive models of fatalities in the Altamont Pass Wind Resource Area. EEI/APLIC/PIER Workshop, 2006 Biologist Task Force and Avian Interaction with Electric Facilities Meeting, Pleasanton, California, 28 April 2006.

Burrowing owl burrows and wind turbine collisions in the Altamont Pass Wind Resource Area. The Wildlife Society—Western Section Annual Meeting, Sacramento, California, February 8, 2006.

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Smallwood CV

Mitigation at wind farms. Workshop: Understanding and resolving bird and bat impacts. American Wind Energy Association and Audubon Society. Los Angeles, CA. January 10 and 11, 2006.

Incorporating data from the California Wildlife Habitat Relationships (CWHR) system into an impact assessment tool for birds near wind farms. Shawn Smallwood, Kevin Hunting, Marcus Yee, Linda Spiegel, Monica Parisi. Workshop: Understanding and resolving bird and bat impacts. American Wind Energy Association and Audubon Society. Los Angeles, CA. January 10 and 11, 2006.

Toward indicating threats to birds by California's new wind farms. California Energy Commission, Sacramento, May 26, 2005.

Avian collisions in the Altamont Pass. California Energy Commission, Sacramento, May 26, 2005.

Ecological solutions for avian collisions with wind turbines in the Altamont Pass Wind Resource Area. EPRI Environmental Sector Council, Monterey, California, February 17, 2005.

Ecological solutions for avian collisions with wind turbines in the Altamont Pass Wind Resource Area. The Wildlife Society—Western Section Annual Meeting, Sacramento, California, January 19, 2005.

Associations between avian fatalities and attributes of electric distribution poles in California. The Wildlife Society—Western Section Annual Meeting, Sacramento, California, January 19, 2005.

Minimizing avian mortality in the Altamont Pass Wind Resources Area. UC Davis Wind Energy Collaborative Forum, Palm Springs, California, December 14, 2004.

Selecting electric distribution poles for priority retrofitting to reduce raptor mortality. Raptor Research Foundation Meeting, Bakersfield, California, November 10, 2004.

Responses of Fresno kangaroo rats to habitat improvements in an adaptive management framework. Annual Meeting of the Society for Ecological Restoration, South Lake Tahoe, California, October 16, 2004.

Lessons learned from five years of avian mortality research at the Altamont Pass Wind Resources Area in California. The Wildlife Society Annual Meeting, Calgary, Canada, September 2004.

The ecology and impacts of power generation at Altamont Pass. Sacramento Petroleum Association, Sacramento, California, August 18, 2004.

Burrowing owl mortality in the Altamont Pass Wind Resource Area. California Burrowing Owl Consortium meeting, Hayward, California, February 7, 2004.

Burrowing owl mortality in the Altamont Pass Wind Resource Area. California Burrowing Owl Symposium, Sacramento, November 2, 2003.

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Smallwood CV

Raptor Mortality at the Altamont Pass Wind Resource Area. National Wind Coordinating Committee, Washington, D.C., November 17, 2003.

Raptor Behavior at the Altamont Pass Wind Resource Area. Annual Meeting of the Raptor Research Foundation, Anchorage, Alaska, September, 2003.

Raptor Mortality at the Altamont Pass Wind Resource Area. Annual Meeting of the Raptor Research Foundation, Anchorage, Alaska, September, 2003.

California mountain lions. Ecological & Environmental Issues Seminar, Department of Biology, California State University, Sacramento, November, 2000.

Intra- and inter-turbine string comparison of fatalities to animal burrow densities at Altamont Pass. National Wind Coordinating Committee, Carmel, California, May, 2000.

Using a Geographic Positioning System (GPS) to map wildlife and habitat. Annual Meeting of the Western Section of The Wildlife Society, Riverside, CA, January, 2000.

Suggested standards for science applied to conservation issues. Annual Meeting of the Western Section of The Wildlife Society, Riverside, CA, January, 2000.

The indicators framework applied to ecological restoration in Yolo County, California. Society for Ecological Restoration, September 25, 1999.

Ecological restoration in the context of animal social units and their habitat areas. Society for Ecological Restoration, September 24, 1999.

Relating Indicators of Ecological Health and Integrity to Assess Risks to Sustainable Agriculture and Native Biota. International Conference on Ecosystem Health, August 16, 1999.

A crosswalk from the Endangered Species Act to the HCP Handbook and real HCPs. Southern California Edison, Co. and California Energy Commission, March 4-5, 1999.

Mountain lion track counts in California: Implications for Management. Ecological & Environmental Issues Seminar, Department of Biological Sciences, California State University, Sacramento, November 4, 1998.

"No Surprises" -- Lack of science in the HCP process. California Native Plant Society Annual Conservation Conference, The Presidio, San Francisco, September 7, 1997.

In Your Interest. A half hour weekly show aired on Channel 10 Television, Sacramento. In this episode, I served on a panel of experts discussing problems with the implementation of the Endangered Species Act. Aired August 31, 1997.

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Spatial scaling of pocket gopher (*Geomyidae*) density. Southwestern Association of Naturalists 44th Meeting, Fayetteville, Arkansas, April 10, 1997.

Estimating prairie dog and pocket gopher burrow volume. Southwestern Association of Naturalists 44th Meeting, Fayetteville, Arkansas, April 10, 1997.

Ten years of mountain lion track survey. Fifth Mountain Lion Workshop, San Diego, February 27, 1996.

Study and interpretive design effects on mountain lion density estimates. Fifth Mountain Lion Workshop, San Diego, February 27, 1996.

Small animal control. Session moderator and speaker at the California Farm Conference, Sacramento, California, Feb. 28, 1995.

Small animal control. Ecological Farming Conference, Asylomar, California, Jan. 28, 1995.

Habitat associations of the Swainson's Hawk in the Sacramento Valley's agricultural landscape. 1994 Raptor Research Foundation Meeting, Flagstaff, Arizona.

Alfalfa as wildlife habitat. Seed Industry Conference, Woodland, California, May 4, 1994.

Habitats and vertebrate pests: impacts and management. Managing Farmland to Bring Back Game Birds and Wildlife to the Central Valley. Yolo County Resource Conservation District, U.C. Davis, February 19, 1994.

Management of gophers and alfalfa as wildlife habitat. Orland Alfalfa Production Meeting and Sacramento Valley Alfalfa Production Meeting, February 1 and 2, 1994.

Patterns of wildlife movement in a farming landscape. Wildlife and Fisheries Biology Seminar Series: Recent Advances in Wildlife, Fish, and Conservation Biology, U.C. Davis, Dec. 6, 1993.

Alfalfa as wildlife habitat. California Alfalfa Symposium, Fresno, California, Dec. 9, 1993.

Management of pocket gophers in Sacramento Valley alfalfa. California Alfalfa Symposium, Fresno, California, Dec. 8, 1993.

Association analysis of raptors in a farming landscape. Plenary speaker at Raptor Research Foundation Meeting, Charlotte, North Carolina, Nov. 6, 1993.

Landscape strategies for biological control and IPM. Plenary speaker, International Conference on Integrated Resource Management and Sustainable Agriculture, Beijing, China, Sept. 11, 1993.

Landscape Ecology Study of Pocket Gophers in Alfalfa. Alfalfa Field Day, U.C. Davis, July 1993.

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Patterns of wildlife movement in a farming landscape. Spatial Data Analysis Colloquium, U.C. Davis, August 6, 1993.

Sound stewardship of wildlife. Veterinary Medicine Seminar: Ethics of Animal Use, U.C. Davis. May 1993.

Landscape ecology study of pocket gophers in alfalfa. Five County Grower's Meeting, Tracy, California. February 1993.

Turbulence and the community organizers: The role of invading species in ordering a turbulent system, and the factors for invasion success. Ecology Graduate Student Association Colloquium, U.C. Davis. May 1990.

Evaluation of exotic vertebrate pests. Fourteenth Vertebrate Pest Conference, Sacramento, California. March 1990.

Analytical methods for predicting success of mammal introductions to North America. The Western Section of the Wildlife Society, Hilo, Hawaii. February 1988.

A state-wide mountain lion track survey. Sacramento County Dept Parks and Recreation. April 1986.

The mountain lion in California. Davis Chapter of the Audubon Society. October 1985.

Ecology Graduate Student Seminars, U.C. Davis, 1985-1990: Social behavior of the mountain lion; Mountain lion control; Political status of the mountain lion in California.

Other forms of Participation at Professional Meetings

- Chair of Animal Damage Management Session, The Wildlife Society, Annual Meeting, Reno, Nevada, September 26, 2001.
- Chair of Technical Session: Human communities and ecosystem health: Comparing perspectives and making connection. Managing for Ecosystem Health, International Congress on Ecosystem Health, Sacramento, CA August 15-20, 1999.
- Student Awards Committee, Annual Meeting of the Western Section of The Wildlife Society, Riverside, CA, January, 2000.
- Student Mentor, Annual Meeting of the Western Section of The Wildlife Society, Riverside, CA, January, 2000.

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Comment Set B.21: Californians for Renewable Energy (CARE), continued

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Reviews of Journal Papers (Scientific journals for whom I've provided peer review)

Journal	Journal
American Naturalist	Journal of Animal Ecology
Journal of Wildlife Management	Western North American Naturalist
Auk	Journal of Raptor Research
Biological Conservation	National Renewable Energy Lab reports
Canadian Journal of Zoology	Oikos
Ecosystem Health	The Prairie Naturalist
Environmental Conservation	Restoration Ecology
Environmental Management	Southwestern Naturalist
Functional Ecology	The Wildlife Society--Western Section Trans.
Journal of Zoology (London)	Proc. Int. Congress on Managing for Ecosystem Health
Journal of Applied Ecology	Transactions in GIS
Ecology	Tropical Ecology
Biological Control	

Committees

- Scientific Review Committee, Alameda County, Altamont Pass Wind Resource Area
- Ph.D. Thesis Committee, Steve Anderson, University of California, Davis
- MS Thesis Committee, Marcus Yee, California State University, Sacramento
- Board Member, Iron Mountain Conservancy

Other Professional Activities or Products

Testified in Federal Court in Denver during 2005 over the fate of radio-nuclides in the soil at Rocky Flats Plant after exposure to burrowing animals. My clients won a judgment of $553,000,000. I have also testified in many other cases of litigation under CEQA, NEPA, the Warren-Alquist Act, and other environmental laws. My clients won most of the cases for which I testified.

Testified in Skamania County Hearing in 2009 on the potential impacts of zoning the County for development of wind farms and hazardous waste facilities.

Testified in deposition in 2007 in the case of O'Dell et al. vs. FPL Energy in Houston, Texas.

Testified in Klickitat County Hearing in 2006 on the potential impacts of the Windy Point Wind Farm.

Memberships in Professional Societies

The Wildlife Society

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Raptor Research Foundation
American Museum of Natural History

Honors and Awards

Certificate of Appreciation, The Wildlife Society—Western Section, 2000, 2001
Fulbright Research Fellowship to Indonesia, 1987.
Northern California Athletic Association Most Valuable Cross Country Runner, 1984.
J.G. Boswell Full Academic Scholarship, 1981 (Paid expenses for undergraduate education).
American Legion Award, Corcoran High School, 1981, and John Muir Junior High, 1977.
CIF Section Champion, Cross Country in 1978 and Track & Field 2 mile run in 1981.
National Junior Record, 20 kilometer run, 1982.
National Age Group Record, 1500 meter run, 1978

Community Activities

District 64 Little League Umpire, 2003-2007
Dixon Little League Umpire, 2006-07
Davis Little League Chief Umpire and Board member, 2004-2005
Davis Little League Safety Officer, 2004-2005
Davis Little League Certified Umpire, 2002-2004
Davis Little League Scorekeeper, 2002
Davis Visioning Group member
Petitioner for Writ of Mandate under the California Environmental Quality Act against City of Woodland decision to approve the Spring Lake Specific Plan, 2002
Served on campaign committees for City Council candidates

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Response to Comment Set B.21: Californians for Renewable Energy (CARE)

B.21-1

Response to Comment Set B.21: Californians for Renewable Energy (CARE)

B.21-1 Thank you for your comments. The information you have provided will be shared with the decision makers. The public review period for the TRTP Draft EIR/EIS was 52 days long, in accordance with CEQA Guidelines Section 15105(a).

B.21-2 Because the proposed TRTP would serve future wind development projects in the Tehachapi Wind Resource Area (TWRA), the potential effects of these future wind projects are addressed in Chapter 6 (Development of the Tehachapi Wind Resource Area) of the Final EIR for the benefit of decision makers and the public. However, approval of the proposed TRTP or any alternative would not result in approval of any wind generation projects, and any future wind generation projects would be subject to separate environmental review, as discussed in Section 6.1.3 of the EIR. Therefore, the "expanded wind farm" as described by the commenter is not part of the proposed TRTP or any alternative.

The EIR's analysis of future wind development projects in the TWRA was prepared "with a sufficient degree of analysis to provide decision makers with information which enables them to make a decision which intelligently takes account of environmental consequences," as required by CEQA Guidelines § 15151. It also provides information on future wind projects for purposes of the cumulative projects analysis. The programmatic analysis of wind development provided in the EIR allows for "consideration of cumulative impacts that might be slighted in a case by case analysis." (CEQA Guidelines § 15168.) The CEQA Guidelines explain that the discussion of cumulative impacts in an EIR "shall reflect the severity of the impacts and the likelihood of occurrence, but the discussion need not provide as great detail as is provided for the effects attributable to the project alone. The discussion should be guided by the standards of practicality and reasonableness…" (CEQA Guidelines § 15130(b).) Therefore, this analysis presents the potential impacts and mitigation of wind development on a programmatic level, based on reasoned assumptions (assumptions were developed based on proposed wind farms in the TWRA) that constitute a potential scenario of future activities developed for future build out of the TWRA. (Final EIR, Section 6.1.) A more detailed analysis is not possible at this time, in part, because of the evolving nature of projects within the TWRA. Specifically, Section 6.2.2.2 of the EIR explains that "[a]s energy projects are proposed, completed, or withdrawn, the CAISO queue is constantly changing, and updated regularly. Therefore, the queue has been tracked throughout the course of this analysis. On July 25, 2008, the total wind energy proposed for Kern County was 5,973.1 MW. The total has since changed to 4,791.1 MW, as listed in the January 9, 2009, CAISO queue."

The EIR studied the impacts of wind development to the extent reasonably feasible. The current general condition and quality of existing biological resources within the identified boundaries of the TWRA (as presented in EIR Figure 6.7-1) was used as the baseline against which to compare potential impacts of the development of wind generation projects throughout the TWRA. Surveys were not conducted as specific project details are as yet unknown, and much of the TWRA contains privately owned lands that are inaccessible for reconnaissance surveys. Therefore, the affected environment description focuses on review of publicly available literature, CNDDB database searches, and aerial photographs to characterize the biological resources present. This was not done to "downgrade occurrence likelihoods" as the commenter suggests, but was, instead, a reasonable analysis guided by the standards of practicality. The information and analysis provided in the TRTP Final EIR is adequate for the level of detail

required under CEQA. (See CEQA Guidelines § 15151 [““[a]n evaluation of the environmental effects of a proposed project need not be exhaustive, but the sufficiency of an EIR is to be reviewed in light of what is reasonably feasible.”].) Detailed analyses of these wind projects, including project-specific surveys for sensitive species, can and should be conducted by the agencies that have primary responsibility for supervising or approving each new wind project as it is proposed and developed. The development and adoption of project-specific mitigation measures can and should be conducted by these lead agency(s).

B.21-3 As described in the response to Comment B.21-2, above, the analysis of the development of the TWRA was programmatic in nature. The level of detail provided in the EIR was appropriate; however, additional, detailed analysis can and should be developed by the agencies that will supervise or approve each new wind project as it is proposed. The EIR evaluated the risk of avian mortality from collision with wind turbines (Impact TWRA-BIO-11) using the best available information and determined that injury and mortality of migratory and resident birds would be substantial and adverse. This analysis provides decision makers with sufficient information to enable them to intelligently take account of environmental consequences. (See CEQA Guidelines § 15151.) Please note that the information regarding domestic cats in the Avian Risk Assessment (Appendix B of the Biological Resources Specialist Report) was included to convey the context of avian mortality in general and was not intended to diminish impacts from future wind farm development. Further, the Avian Risk Assessment is applicable only to the proposed transmission line and is not intended to analyze impacts of future wind farm development.

B.21-4 Please see the response to Comment B.21-42, below, regarding the commenter’s evaluation of existing data from the region.

B.21-5 Please see the response to Comment B.21-42, below, regarding the commenter’s evaluation of existing data from the region.

B.21-6 Chapter 6 (Development of the Tehachapi Wind Resource Area) of the EIR/EIS analyzes the cumulative impacts of the development of the TWRA, using the best data available on current and foreseeable future projects in the study area. It is beyond the scope of this document to analyze the impacts of the Governor’s Executive Order to achieve a 33 percent Renewable Portfolio Standard (RPS) by 2020 by using solar energy generation.

B.21-7 Please see the response to Comment B.21-6. It is beyond the scope of this document to analyze the effects of meeting the 33 percent RPS using various types of energy generation. The purpose of the TRTP EIR/EIS was to analyze the environmental effects of the construction of a 173-mile long transmission line that would carry energy from wind generation sources in the TWRA to load centers in Southern California.

B.21-8 Avian collisions and electrocutions were evaluated in Appendix B (Avian Risk Assessment) of the TRTP Biological Resources Specialist Report, and the impact of the Project on birds and bats due to collision with overhead wires was analyzed in Section 3.4 of the EIR/EIS. The Biological Resources Specialist Report is available as part of the Final EIR and was incorporated by reference in the EIR/EIS. The TRTP EIR/EIS discloses that transmission lines do pose a risk from collision to birds and bats. However, the risk that a transmission line poses to birds is highly dependent on a number of factors, including voltage of the line, proximity to water, proximity to known migratory and movement corridors, and other ecological variables. The Biological Resources Specialist Report analyzed the impacts of the proposed Project

specifically, including all of these factors. The commenter's estimate that the transmission line would kill 14,748 birds per year based on data collected from a transmission line in Northern California that would not share the same ecological context as the proposed Project is inaccurate. The results of the Avian Risk Assessment conducted by experts in the avifauna of Southern California indicate that the overall risk to birds from the TRTP is low, and additional mitigation beyond constructing the Project to current Avian Power Line Interaction Committee (APLIC) standards is not warranted.

B.21-9 As described in the response to Comment B.21-2, above, approval of the proposed TRTP or any alternative would not result in approval of any wind generation projects, and any future wind generation projects would be subject to separate environmental review. Detailed analyses of these wind projects can and should be conducted by the agencies that have primary responsibility for supervising or approving each new wind project as it is proposed and developed. The development and adoption of project-specific mitigation measures can and should be conducted by these lead agency(s).

B.21-10 The purpose of the proposed TRTP (as stated in Chapters 1 and 2 of the EIR/EIS) is to provide the electrical facilities necessary to interconnect and integrate in excess of 700 megawatts (MW) and up to approximately 4,500 MW of new wind generation in the TWRA currently being planned or expected in the future, thereby enabling SCE and other California utilities to comply with the California Renewables Portfolio Standard in an expedited manner (i.e., 20 percent renewable energy by year 2010 per California Senate Bill 107); to further address the reliability needs of the CAISO-controlled grid due to projected load growth in the Antelope Valley; and to address the South of Lugo transmission constraints, an ongoing source of concern for the Los Angeles Basin. (See TRTP EIR/EIS Section 1.2.) Without the TRTP, the additional reliability needs of the CAISO-controlled grid due to projected load growth in the Antelope Valley would not be met and would have to be accommodated by other transmission upgrades to bring power into the area, and the reliability issues of the existing Lugo-Mira Loma transmission lines within the Cajon Pass related to voltage collapse as a result of uncontrollable loss of load (in the event of wildfires or other natural disasters in the area) would persist.

The TRTP EIR/EIS analyzes the environmental impacts of the project at length in Chapters 3 through 6. The potential effects of future wind projects that may be developed in the TWRA are addressed in Chapter 6 of the Draft EIR/EIS for the benefit of decision makers and the public. However, approval of the proposed TRTP or any alternative would not result in the approval of any wind generation projects. Furthermore, any future wind generation projects would be subject to separate environmental review, as discussed in Section 6.1.3 of the EIR. Please see the response to Comment B.21-2 for further discussion of this issue.

B.21-11 The TRTP would accommodate up to 4,500 MW of electricity. The provision of additional capacity is not proposed as part of the TRTP or any alternative and is outside the scope of the EIR/EIS. If wind energy in excess of 4,500 MW total is proposed for the TWRA, alternative transmission capacity would have to be developed. Should that occur, that development would be subject to independent CEQA and/or NEPA review.

B.21-12 Please see the response to Comment B.21-2, above. The TRTP does not include the development of any wind generation projects. Chapter 6 (Development of the Tehachapi Wind Resource Area) analyzed the effects of potential future wind projects which would not constitute a single "wind farm" but would rather be a series of projects developed over an extended time period. Approval of the proposed TRTP or any alternative would not result in

approval of any wind generation projects. Furthermore, any future wind generation projects would be subject to separate environmental review, as discussed in Section 6.1.3 of the EIR.

B.21-13 As shown on Figure 6.7-2 and described in Section 6.7.1.2 (Regional Setting) of the EIR/EIS, the northern portion of the TWRA was considered to be the portion that is situated within the southernmost foothills of the Sierra Nevada, outside of the project area for the TRTP transmission line. Appendix K (Wildlife Observed) of the Biological Resources Technical Report (presumably the appendix referenced in the comment) includes a list of all wildlife observed during surveys conducted for the TRTP. As the northern portion of the TWRA is outside of the project area for the TRTP, these species were not observed in this portion of the TWRA. No changes have been made to the text.

B.21-14 The likelihood for occurrence of species in the TWRA was not based solely on records in the CNDDB and CNPS Online Inventory. As stated in Section 6.7.1.2 (Regional Setting) of the EIR/EIS, "…the analysis is based on the best information available at the time of this report. This includes the CNDDB Rarefind Database, CNPS Online Inventory, previous technical reports and EIR/EISs, aerial imagery, maps, and known ranges, distributions, and habitats for each special-status species." Therefore, the CPUC believes that the potential for occurrence for the various species listed in Table 6.7-1 (Special-Status Plant Species with the Potential to Occur in the TWRA) and Table 6.7-2 (Special-Status Wildlife Species with the Potential to Occur in the TWRA) of the EIR/EIS are accurate according to best available data. Because the TWRA project area could not be inspected or surveyed, and because approval of the proposed TRTP or any alternative would not result in approval of any wind generation projects, and any future wind generation projects would be subject to separate environmental review, the EIR/EIS provides a programmatic level of analysis. It is likely that occurrence data for individual species would change based on surveys of the wind farm areas conducted during the required CEQA and/or NEPA review for future wind development projects in the TWRA. Detailed analyses of these wind projects can and should be conducted by the agencies that have primary responsibility for supervising or approving each new wind project as it is proposed and developed. The development and adoption of project-specific mitigation measures can and should be conducted by these lead agency(s).

B.21-15 Thank you for the information regarding the most current California Department of Fish and Game (CDFG) Species of Special Concern designation.

B.21-16 Please see the response to Comment B.21-2, above. The TRTP does not include the development of any wind generation facilities. Therefore, analysis of "the project's potential impacts" is related to the construction and operation of the transmission line and substations and related infrastructure only, and can be found in Chapter 3 (Affected Environment and Environmental Consequences) of the EIR/EIS. Chapter 6 (Development of the Tehachapi Wind Resource Area) of the EIR/EIS was meant to provide a programmatic level of analysis of the potential environmental impacts of the build-out of the TWRA in the context of cumulative projects to provide decision makers with information which enables them to make a decision which intelligently takes account of environmental consequences, as required by CEQA Guidelines § 15151. Detailed analyses of these wind projects can and should be conducted by the agencies that have primary responsibility for supervising or approving each new wind project as it is proposed and developed. The development and adoption of project-specific mitigation measures can and should be conducted by these lead agency(s).

B.21-17 Thank you for the suggested revisions to Tables 6.7-1 and 6.7-2. The CPUC has determined that the information presented in these tables in the EIR/EIS is accurate and satisfactory to enable an analysis under CEQA. No changes have been made to the text.

B.21-18 Habitat loss was considered as a potential impact to California condors due to the build-out of the TWRA (see Impact TWRA-BIO-6: Direct or indirect loss of California condor or direct loss of habitat.) The TRTP EIR/EIS considered impacts to condors from exposure to loss of habitat, perch sites, or micro trash to be significant and unavoidable. Thank you for the additional information regarding avoidance of turbines.

B.21-19 It is recognized that there is variation among wind developments due to the size and age of turbines utilized, the topography of the site, and the wind characteristics of a given area. The EIR's analysis of future wind development projects in the TWRA was prepared "with a sufficient degree of analysis to provide decision makers with information which enables them to make a decision which intelligently takes account of environmental consequences," as required by CEQA Guidelines §15151. It also provides information on future wind projects for purposes of the cumulative projects analysis. The programmatic analysis of wind development provided in the EIR allows for "consideration of cumulative impacts that might be slighted in a case by case analysis." (CEQA Guidelines § 15168.) The CEQA Guidelines explain that the discussion of cumulative impacts in an EIR "shall reflect the severity of the impacts and the likelihood of occurrence, but the discussion need not provide as great detail as is provided for the effects attributable to the project alone. The discussion should be guided by the standards of practicality and reasonableness…" (CEQA Guidelines § 15130(b).) Therefore, this analysis presents the potential impacts and mitigation of wind development on a programmatic level, based on reasoned assumptions (assumptions were developed based on proposed wind farms in the TWRA) that constitute a potential scenario of future activities developed for future build out of the TWRA. (Final EIR, Section 6.1.) All values given were approximations based on the most current information available at the time this document was prepared.

B.21-20 The estimates on acreages provided by the commenter were based on data from a wind farm in a different wind resource area, and may or may not typify requirements that would be realized in the TWRA. The CPUC agrees that the photographs provided (Photo 1) likely illustrate the grading conditions that could occur at a future wind farm to be developed in the TWRA. However, conditions from one wind resource area to another, and even conditions within one wind resource area, vary dramatically and any estimation of disturbance would be speculative.

B.21-21 Please see the responses to Comments B.21-2 and B.21-12, above. As stated in those responses, approval of the proposed TRTP or any alternative would not result in approval of any wind generation projects, and any future wind generation projects would be subject to separate environmental review. Detailed analyses of these wind projects can and should be conducted by the agencies that have primary responsibility for supervising or approving each new wind project as it is proposed and developed. The development and adoption of project-specific mitigation measures can and should be conducted by these lead agency(s). However, the EIR analyzed the impact of future wind development projects in the TWRA on sensitive wildlife at a programmatic level and concluded that impacts would be significant and unavoidable. (Final EIR, Section 6.7.3 (Impact TWRA-BIO-3).) Please see the response to Comment B.21-2, above, for further discussion of the analysis provided in Chapter 6 of the EIR/EIS.

B.21-22 As described in Section 6.2.2.2 (Current and Future Wind Development within the Study Area) of the EIR/EIS, "wind farms typically require 5 to 17 acres per MW generated. In order to

develop an additional 3,400 MW of wind capacity, approximately 17,000 to 57,800 acres of land would be required." The EIR/EIS does in fact discuss the effects of habitat loss of wildlife species (see Impact TWRA-BIO-3: 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). As described under that impact, without detailed survey and siting information, it is not possible to completely assess the impacts to listed or sensitive species. The EIR/EIS concludes that the future projects developed in the TRWA would have a significant and unavoidable impact on sensitive wildlife and their habitat. (EIR/EIS, Section 6.7.3.2.) Please see the response to Comment B.21-2, above, for further discussion of the analysis provided in Chapter 6 of the EIR/EIS.

B.21-23 Thank you for providing the information regarding habitat loss due to avoidance of wind turbines. However, as stated above, approval of the proposed TRTP or any alternative would not result in approval of any wind generation projects, and each project that would be developed in the TWRA would be required to undergo complete environmental analysis under CEQA and/or NEPA, conducted by the agency(s) with primary responsibility for supervising or approving those projects. Please see the response to Comment B.21-2, above, for further discussion of this issue. The EIR/EIS analyzed the potential impacts of wind development on a programmatic level and concluded that habitat loss would be significant and unavoidable. (EIR/EIS, Section 6.7.3.2.)

B.21-24 The CPUC agrees with the commenter that the prudent approach would be to err on the side of caution when making impact assessments and planning mitigation. However, as stated in the response to Comment B.21-2, above, the CPUC has no jurisdiction over wind developments and therefore cannot analyze these as-yet-unspecified projects in detail or prescribe or enforce mitigation.

B.21-25 Please see the responses to Comments B.21-2 and B.21-12, above. As stated in those responses, approval of the proposed TRTP or any alternative would not result in approval of any wind generation projects, and any future wind generation projects would be subject to separate environmental review. Detailed analyses of these wind projects can and should be conducted by the agencies that have primary responsibility for supervising or approving each new wind project as it is proposed and developed. The development and adoption of project-specific mitigation measures can and should be conducted by these lead agency(s).

B.21-26 Thank you for the information regarding tower height and potential collision risks. The CPUC understands that the risk that a turbine of a given height will pose depends on many factors including species, presence of migration corridors, and the specific ecological context of the area proposed for turbine development, and that taller turbines cannot be said to pose less risk than smaller turbines.

B.21-27 As described in the response to Comment B.21-2, above, the analysis of the development of the TWRA is programmatic in nature based on reasoned assumptions (assumptions were developed based on proposed wind farms in the TWRA) that constitute a potential scenario of future activities developed for future buildout of the TWRA. (Final EIR, Section 6.1.) A more detailed analysis is not possible at this time, in part because of evolving nature of projects within the TWRA. In addition, approval of the proposed TRTP or any alternative would not result in approval of any wind generation projects, and any future wind generation projects would be subject to separate environmental review. Detailed analyses of these wind projects can and should be conducted by the agencies that have primary responsibility for supervising or

approving each new wind project as it is proposed and developed. The development and adoption of project-specific mitigation measures can and should be conducted by these lead agency(s). Further, the CPUC would have no role in determining the siting of any future turbines installed in the TWRA.

B.21-28 Thank you for the information regarding prey density and raptor use, and subsequent study results.

B.21-29 Thank you for the information regarding the role of rock piles and the associated vegetation communities in attracting raptors to the turbine vicinity.

B.21-30 Thank you for the information regarding mammal species burrowing under turbine pads.

B.21-31 Thank you for the information regarding rodent control and its role in raptor fatalities at wind farms.

B.21-32 Several sources support the conclusion that guyed meteorological towers pose a greater collision risk than wind turbines of similar height (see, e.g., Longcore et al., 2008). For example, an investigation of the initial phase of operation of the Foote Creek Rim Windpower Project in Carbon County, Wyoming, found an estimated 1.5 birds were killed per turbine per year over the course of a 3.5-year study. An estimated 8.09 birds were killed per guyed met tower per year during the same study period (Young et al., 2003).

B.21-33 Thank you for the information regarding the placement of wind turbines and transmission lines and the collision risk to birds. The level of detail and discussion in the Final EIR of impacts from wind turbines is appropriate given the programmatic nature of that discussion and the suggested language has not been incorporated. Approval of the proposed TRTP or any alternative would not result in approval of any wind generation projects, and any future wind generation projects would be subject to separate environmental review, as discussed in Section 6.1.3 of the EIR. Please see the response to Comment B.21-2, above, for further discussion of this issue.

B.21-34 Please see the responses to Comments B.21-2, B.21-3, and B.21-12, above. The proposed Project does not include any wind development. The TRTP consists of the construction and upgrade of a 173-mile transmission line and associated substations and infrastructure. The EIR/EIS included a programmatic level discussion of the impacts of future wind development for the benefit of decision makers and the public. (See the response to Comment B.21-2.) These impacts are not assumed to be trivial. Chapter 6 of the EIR/EIS concludes that impacts to birds from collisions with wind turbines and other wind development structures would be significant and unavoidable. (EIR/EIS, Section 6.7.3.2 (Impact TWRA-BIO-11).) Appendix B (Avian Risk Assessment) of the TRTP Biological Resources Specialist Report analyzed the potential for collision with the transmission line, not wind turbines.

B.21-35 Please see the response to Comment B.21-34, above. The Erickson et al. (2001 and 2005) reports were cited because they contain estimates of various sources of bird mortality. The CPUC is not aware of any more recent comparable studies. Further, these studies were not discussed in the context of wind turbine impacts, as the commenter suggests. In fact, this report (Avian Risk Assessment, Appendix B of the TRTP Biological Resources Specialist Report) was prepared to assess the risks of collision with the transmission line that would be constructed as part of the TRTP, and does not evaluate wind development.

B.21-36 Thank you for the information regarding bias in mortality estimates.

B.21-37 Thank you for your assessment of the Erickson et al. (2001, 2005) studies. These studies were not cited in the EIR/EIS and Avian Risk Assessment as evidence of low mortality risk of wind turbines. Rather, they were intended to provide context when discussing collision risks of the transmission lines.

B.21-38 Thank you for your comment. However, the CPUC is not aware of any evidence supporting the conclusion that the TWRA is an "ecological sink" to raptors. TWRA impacts to birds, bats and raptors are discussed in the Final EIR in Section 6.7.3 (See Impacts BIO-7, BIO-8, BIO-9, and BIO-11, and BIO-12). Numerous mitigation measures are suggested to reduce significant impacts associated with avian and bat mortality from collision with turbines. (See mitigation measure TWRA-BIO-11a, TWRA-BIO-11b, TWRA-BIO-11c.) Despite these mitigation measures the EIR concludes that Impact TWRA-BIO-11 (Avian Mortality) and Impact TWRA-BIO-12 (Bat Mortality) would be significant and unavoidable.

Further, as discussed in various responses above, approval of the proposed TRTP or any alternative would not result in approval of any wind generation project, and any future wind generation project would be subject to separate environmental review. Detailed analyses of these wind projects can and should be conducted by the agencies that have primary responsibility for supervising or approving each new wind project as it is proposed and developed. The development and adoption of project-specific mitigation measures can and should be conducted by these lead agency(s).

B.21-39 Thank you for the discussion of the comparability of the Anderson et al. (2004) data to other wind development studies. The Anderson et al. (2004) data was reviewed during the preparation of the TRTP EIR/EIS. While the new information provided by the commenter is helpful it would not change the conclusion of the EIR. Impact TWRA-BIO-11 (Avian Mortality) and Impact TWRA-BIO-12 (Bat Mortality) would remain significant and unavoidable.

B.21-40 Thank you for the description of your evaluation of the data presented in Anderson et al. (2004). This comment does not address the adequacy of the impact analysis in the EIS/EIR; therefore, no further response is required. (See CEQA Guidelines Section 15204(a); see also *Environmental Protection & Info. Ctr. v California Dep't of Forestry & Fire Protection* (2008) 44 Cal.4th 459, 483, and 484.)

B.21-41 Thank you for the results of your evaluation of the data presented in Anderson et al. (2004). Please see the response to Comment B.21-40, above.

B.21-42 Thank you for your interpretation of the Anderson et al. (2004) data. However, the CPUC is aware of other studies in the region that indicate that bird use within portions of the TWRA is relatively low compared to other wind resource areas for which data exists (see Erickson and Chatfield, 2009; Erickson et al., 2009; and Anderson et al., 2000), and the CPUC is unaware of any literature that supports the contention that the TWRA is "one of the most dangerous wind turbine fields for birds worldwide." Please also see the response to Comment B.21-40, above.

B.21-43 Thank you for Table 2 (Estimates of annual adjusted fatalities in the Tehachapi Pass WRA, California, 1996-1998 [Anderson et al. 2004]). This data does not change the impact analysis or conclusions for the TWRA in Chapter 6 of the EIS/EIR. Please also see the response to Comment B.21-40, above.

B.21-44 Thank you for Table 3 (Comparison of fatality rates between West Ridge, Middle Ridge, and East Slope turbine fields in the Tehachapi Pass WRA, 1996-1998). This data does not change the impact analysis or conclusions for the TWRA in Chapter 6 of the EIR/EIS. Please also see the response to Comment B.21-40, above.

B.21-45 Thank you for Table 4 (Comparison of fatality rates between Tehachapi and other California WRAs). This data does not change the impact analysis or conclusions for the TWRA in Chapter 6 of the EIR/EIS. Please also see the response to Comment B.21-40, above.

B.21-46 Thank you for Table 5 (Estimated annual fatality rates of select species and groups of species after extrapolating existing Tehachapi Pass WRA fatality rates to 4,500 MW of rated capacity). This information will be shared with the decision makers.

B.21-47 Please see the response to Comment B.21-7. As discussed in that response, it is beyond the scope of this document to analyze the effects of meeting the 33 percent RPS using various types of energy generation. Additionally, the comment suggests that the cumulative analysis did not consider impacts of the "proposed development of the Tehachapi Pass WRA." Chapter 6 (Development of the Tehachapi Wind Resource Area) of the EIR/EIS analyzes the cumulative impacts of the development of the TWRA, using the best available data available on current and foreseeable future projects in the study area.

Cumulative Projects are discussed Section 2.9 and Chapter 6 of the EIR, and the cumulative impact analysis is provided in the individual resource chapters in Chapter 3. As discussed in Chapter 6, as energy projects are proposed, completed, or withdrawn, the CAISO queue is constantly changing, and updated regularly. Therefore, the queue has been tracked throughout the course of this analysis. On July 25, 2008, the total wind energy proposed for Kern County was 5,973.1 MW. The total has since changed to 4,791.1 MW, as listed in the January 9, 2009 CAISO queue. Chapter 6 therefore provided a programmatic analysis of up to 4,500 MW of new wind generation in the TWRA. Furthermore, the cumulative analysis provides a list of cumulative projects. (See EIR Tables 2.9-1 though 2.9-6, including discussion of "Tehachapi Pass Wind Park.") Cumulative impacts associated with wind projects in the TWRA were appropriately addressed in the EIR/EIS.

B.21-48 Please see the response to Comment B.21-7, above. As discussed in that response, it is beyond the scope of this document to analyze the effects of meeting the 33 percent RPS using various types of energy generation.

B.21-49 Please see the response to Comment B.21-7, above. As discussed in that response, it is beyond the scope of this document to analyze the effects of meeting the 33 percent RPS using various types of energy generation.

Additionally, the EIR/EIS analyzed a reasonable range of alternatives and considered system alternatives such as solar generation in Section 2.8.4, Other Alternatives Considered, and in Appendix A, Alternatives Screening Report. As discussed in the screening report, a System Alternative based upon solar generation would not be feasible because it would not interconnect new wind generation resources in the TWRA, would not necessarily meet projected load growth in the Antelope Valley or address South of Lugo transmission constraints. For additional details, please see General Response 1 in Appendix H of the Final EIR.

B.21-50 Please see the response to Comment B.21-7, above. As discussed in that response, it is beyond the scope of this document to analyze the effects of meeting the 33 percent RPS using various types of energy generation.

B.21-51 Please see the response to Comment B.21-7, above. As discussed in that response, it is beyond the scope of this document to analyze the effects of meeting the 33 percent RPS using various types of energy generation.

B.21-52 Please see the response to Comment B.21-7, above. As discussed in that response, it is beyond the scope of this document to analyze the effects of meeting the 33 percent RPS using various types of energy generation.

B.21-53 Thank you for Table 6 (Capacity factors in the year 2006 calculated from wind power generation data managed by the California Energy Commission). However, as discussed in the response to Comment B.21-7, above, it is beyond the scope of this document to analyze the effects of meeting the 33 percent RPS using various types of energy generation.

B.21-54 Thank you for Table 7 (Scenarios of wind versus solar energy contributions to achieving the 33% Renewable Portfolio Standard…). However, as discussed in the response to Comment B.21-7, above, it is beyond the scope of this document to analyze the effects of meeting the 33 percent RPS using various types of energy generation.

B.21-55 Thank you for Table 8 (Projected annual fatality rates to meet various levels of the 33 percent RPS using wind power). However, as discussed in the response to Comment B.21-7, above, it is beyond the scope of this document to analyze the effects of meeting the 33 percent RPS using various types of energy generation.

B.21-56 Thank you for Table 9 (Projected annual fatality rates to meet various levels of the 33 percent RPS using wind power). However, as discussed in the response to Comment B.21-7, above, it is beyond the scope of this document to analyze the effects of meeting the 33 percent RPS using various types of energy generation.

B.21-57 Thank you for Figure 1, which illustrates the commenter's estimates of square miles required and annual fatalities of various species in relation to the percent of the resource gap provided by wind energy. However, as discussed in the response to Comment B.21-7, above, it is beyond the scope of this document to analyze the effects of meeting the 33 percent RPS using various types of energy generation.

B.21-58 As required under CEQA (CEQA Guidelines Section 15126.6), and NEPA (40 CFR § 1502.14), the EIR/EIS contains a discussion of the six action alternatives developed for the TRTP, plus the No Project Alternative. Impacts of the proposed Project and the alternatives are provided in Sections 3.1 through 3.17 of the EIR/EIS.

As discussed in the response to Comment B.21-1, above, the public review period for the TRTP Draft EIR/EIS was 52 days long, in accordance with CEQA Guidelines Section 15105(a). The TRTP Biological Resources Specialist Report was provided on CD with every hard copy of the document, and it was also available on the official CPUC project website:

http://docs.cpuc.ca.gov/environ/tehachapi_renewables/TRTP_SpecialistReports/SpecialistReportsTOCL.htm

B.21-59 As presented in Chapter 2 (Description of Alternatives) and Table 4.1-10 (Summary Comparison of Components of the Proposed Project and Alternatives) of the Final EIR, the

proposed Project would disturb a total of 1,612 acres (349 acres permanent). As described in Chapter 2 (Description of Alternatives), many access roads that would be used during construction and operation of the TRTP already exist, but may require some level of reconstruction or improvement to meet the minimum width (16 feet) and surface quality necessary for use by construction vehicles and equipment. These roads were estimated to require approximately 5 feet of new ground disturbance to widen the road, as most currently average a width of approximately 11 feet. Therefore, the entire 16-foot width was only calculated for new roads, and as such, disturbance related to road improvement and construction would actually total approximately 293.1 acres. Also, as presented in Chapter 2 (Description of Alternatives) of the Final EIR, the transmission line portion of the proposed Project (not including substation work) would disturb a total of approximately 1,477 acres during construction and result in permanent disturbance to a total of approximately 214 acres. All calculations are provided in Tables 2.2-1 through 2.2-9 at the end of Chapter 2 (Description of Alternatives).

B.21-60 Please see Impact B-21(The Project could result in collision with overhead wires by State and/or federally protected birds; page 3.4-206) for a complete discussion of impacts associated with avian collisions with transmission lines. As this risk was relevant to individual avian species addressed under different impact discussions, it was also mentioned in these discussions, with a note directing the reader to Impact B-21 for more information. As described under Impact B-21, an Avian Risk Assessment (Appendix B of the TRTP Biological Resources Specialist Report) conducted by experts in the avifauna of Southern California indicates that the overall risk to birds from the TRTP is low. The EIR/EIS concludes that Impact B-21 for the proposed Project would be less than significant. Mitigation measures are not required for less than significant impacts (see CEQA Guidelines Section 15041 and 15126.4) and additional mitigation beyond constructing the Project to current Avian Power Line Interaction Committee (APLIC) standards is not warranted.

B.21-61 It would be inaccurate to attempt to apply the data results from the study on Mare Island, referenced by the commenter, to the TRTP transmission lines because the ecological context of the two projects are quite different. In order to assess the risks posed by this Project specifically, ornithologists conducted bird use evaluations at various locations along the transmission line route (see Avian Risk Assessment, Appendix B of the TRTP Biological Resources Technical Report), as well as reviewed available literature regarding collision risks. It should also be noted that the majority of the Project would involve upgrading existing transmission lines in existing transmission line corridors. The TRTP would result in only limited new right of way where lines would pose a new risk to birds. Please also see the response to Comment B.21-60, above.

B.21-62 As described in the response to Comment B.21-2, above, approval of the proposed TRTP or any alternative would not result in approval of any wind generation projects, and any future wind generation projects would be subject to separate environmental review. Detailed analyses of these wind projects can and should be conducted by the agencies that have primary responsibility for supervising or approving each new wind project as it is proposed and developed. The development and adoption of project-specific mitigation measures can and should be conducted by these lead agency(s). The mitigation measures included in Chapter 6 (Development of the Tehachapi Wind Resource Area) of the EIR/EIS were suggestions of the types of measures that could be prescribed by the appropriate lead agency(s) when approving a specific wind development project.

B.21-63 See the response to Comment B.21-62, above.

B.21-64 See the response to Comment B.21-62, above.

B.21-65 See the response to Comment B.21-62, above.

B.21-66 See the response to Comment B.21-62, above.

B.21-67 See the response to Comment B.21-62, above.

B.21-68 See the response to Comment B.21-62, above.

B.21-69 See the response to Comment B.21-62, above.

B.21-70 See the response to Comment B.21-62, above.

B.21-71 See the response to Comment B.21-62, above.

B.21-72 See the response to Comment B.21-62, above.

B.21-73 See the response to Comment B.21-62, above.

B.21-74 See the response to Comment B.21-62, above.

B.21-75 See the response to Comment B.21-62, above.

B.21-76 See the response to Comment B.21-62, above. Also, as discussed in the response to Comment B.21-27, above, the CPUC would have no role in determining the siting of any future turbines installed in the TWRA.

B.21-77 See the response to Comment B.21-62, above.

B.21-78 See the response to Comment B.21-62, above.

B.21-79 See the response to Comment B.21-62, above.

B.21-80 See the response to Comment B.21-62, above.

B.21-81 See the response to Comment B.21-62, above.

B.21-82 See the response to Comment B.21-62, above.

B.21-83 See the response to Comment B.21-62, above.

B.21-84 See the response to Comment B.21-62, above.

B.21-85 See the response to Comment B.21-62, above.

B.21-86 See the response to Comment B.21-62, above.

B.21-87 See the response to Comment B.21-62, above.

B.21-88 As discussed in the response to Comment B.21-1, above, the public review period for the TRTP Draft EIR/EIS was 52 days long, in accordance with CEQA Guidelines Section 15105(a). All impacts and mitigation measures related to biological resources for the TRTP were discussed in Section 3.4 (Biological Resources). Section 3.4.6 (Alternative 2: SCE's Proposed Project) presented impact analysis and mitigation measures for the proposed Project, while Sections 3.4.7 through 3.4.11 presented impact analysis for the action alternatives. All biological resources mitigation measures recommended for the action alternatives were the same measures recommended for the proposed Project; i.e., no new biological resources mitigation was recommended for any Project alternative.

For additional clarification, the organization of the EIR/EIS can be clearly viewed in the Table of Contents:

ftp://ftp.cpuc.ca.gov/gopher-data/environ/tehachapi_renewables/TRTP_Final%20EIR-EIS/EIR-EIS/0-TOC.pdf

B.21-89 The comment suggests that "the EIR/EIS could be improved by adding more restrictions and much more care regarding translocations and habitat restoration." However, no specific revisions are provided. Furthermore, as described in Mitigation Measure B-1a, a Habitat Restoration and Revegetation Plan (Plan) will be prepared in consultation with a qualified restoration ecologist. The Plan shall include at minimum: (a) the location of the mitigation site (off site mitigation may be required); (b) locations and details for top soil storage (c) the plant species to be used; (d) seed and cutting collecting guidelines; (d) a schematic depicting the mitigation area; (e) time of year that the planting will occur and the methodology of the planting; (f) a description of the irrigation methodology for container, bareroot or other planting needing irrigation; (g) measures to control exotic vegetation on site; (h) success criteria; (i) a detailed monitoring program; (j) locations and impacts to all oaks and native trees (over 3 inches DBH); (k) locations of temporary or permanent gates, barricades, or other means to control unauthorized vehicle access on access and spur roads as deemed necessary by the FS (NFS lands only).

B.21-90 The TRTP EIR/EIS discloses that the replacement of the existing transmission line would have the potential to result in the loss of birds through collision. As described in the Final EIR on page 3.4-207, on NFS lands, raptor safety measures in the form of swan wrap will be required on towers/shield/conductor lines where it is deemed necessary by the Forest Service. In addition, SCE shall construct all transmission facilities in accordance with APLIC standards (APM BIO-9). Because the change of baseline conditions is incremental and would not fundamentally alter the potential for bird strikes no additional mitigation is feasible or warranted.

B.21-91 As stated in response to Comment B.21-10, above, the TRTP includes proposed upgrades and new transmission lines with associated construction and upgrades to several substations and associated infrastructure. One objective of the proposed Project, as identified by the applicant (Southern California Edison), is to provide capacity for new wind developments in the TWRA to comply with California's RPS. The intent of the EIR/EIS prepared in support of the analysis of this Project's environmental effects under CEQA and NEPA was to disclose the effects of this Project and propose mitigation for these effects, not to evaluate the effects of the RPS. This Project would comply with State mandates for the transmission of renewable energy and has nothing to do with the policy itself. Therefore, it is beyond the scope of this document to analyze the effects of the RPS. The stated objective quoted by the commenter does not run contrary to CEQA's purpose, and simply states that the Project would allow SCE to meet State requirements for the transmission of renewable energy. There is no evidence that the TRTP, as proposed, would "threaten the ecological integrity of the entire state of California and the western U.S."

B.21-92 According to the Bureau of Land Management, on the basis of experience to date, the final footprint or permanent disturbance of the wind component (turbine towers, access roads, facility interconnections, switch yard, operation and maintenance facilities, and ancillary facilities) would be 5 to 10 percent of the total acreage of the wind component sites (Page 6-14 of the Final EIR). For example, the Altamont Wind Resource Area listed in Table 6 of your

comments indicates 55,000 acres are required to produce 593 MW. Using the 5 to 10 percent range, and assuming 1-MW turbines, the amount of acreage per MW required would be 5 or 9.3. Therefore, the 5 to 17 acres per MW stated on page 6-9 of the Final EIR is applicable.

B.21-93 Since wind turbine land leases typically expire in 40 years and the example projects (Alta-Oak Creek Mojave Project, PdV Wind Energy Project, Pine Tree Wind Project) researched for this analysis typically had a projected lifespan of 30 years, it was determined that conservatively stating a 25- to 40-year lifespan would be appropriate.

B.21-94 As discussed in response to Comment B.21-62, above, the CPUC has no jurisdiction over wind development in the TWRA and therefore cannot prescribe or enforce mitigation or compliance with environmental laws and operating permits for current and future wind development projects.

B.21-95 See the response to Comment B.21-62, above.

B.21-96 Thank you for providing the information regarding electrocution of small birds on power lines. However, published data supporting this information was not available at the time that the Avian Risk Assessment was prepared.

B.21-97 The Mitigation Monitoring Program is included as Appendix G to the Final EIR.

B.21-98 As described in the response to Comment B.21-1, above, the public review period for the TRTP Draft EIR/EIS was 52 days long, in accordance with CEQA Guidelines Section 15105(a). The analysis of back-up sources of energy generation to augment wind energy generation is beyond the scope of this document, as the TRTP does not include the development of any wind generation facilities. Please see response to Comment B.21-2, above, for further discussion of this issue.

B.21-99 Please see response to Comment B.21-2, above. The TRTP does not include the development of wind energy generation facilities. It is a transmission line with associated substations and infrastructure. The EIR/EIS adequately discloses the impacts of and proposed feasible and effective mitigation for the development of the proposed Project. Approval of the proposed TRTP or any alternative would not result in approval of any wind generation projects, and any future wind generation projects would be subject to separate environmental review. Detailed analyses of these wind projects can and should be conducted by the agencies that have primary responsibility for supervising or approving each new wind project as it is proposed and developed. The development and adoption of project-specific mitigation measures can and should be conducted by these lead agency(s). Recirculation of the TRTP EIR/EIS is not required.

B.21-100 The commenter's professional credentials are noted.

B.21-101 Thank you for the information regarding the mitigation plan adopted by the Alameda County Board of Supervisors and the assessment of its progress.

B.21-102 Thank you for the summary of Alameda County SRC recommendations and concerns and subsequent actions.

References:

Anderson, R.L.; Strickland, D.; Tom, J.; Neumann, N.; Erickson, W.; Cleckler, J.; Mayorga, G.; Nuhn, G.; Leuders, A.; Schneider, J.; Backus, L.; Becker, P.' and N. Flagg. 2000. "Avian monitoring and risk assessment at Tehachapi Pass and San Gorgonio Pass Wind Resource Areas, California:

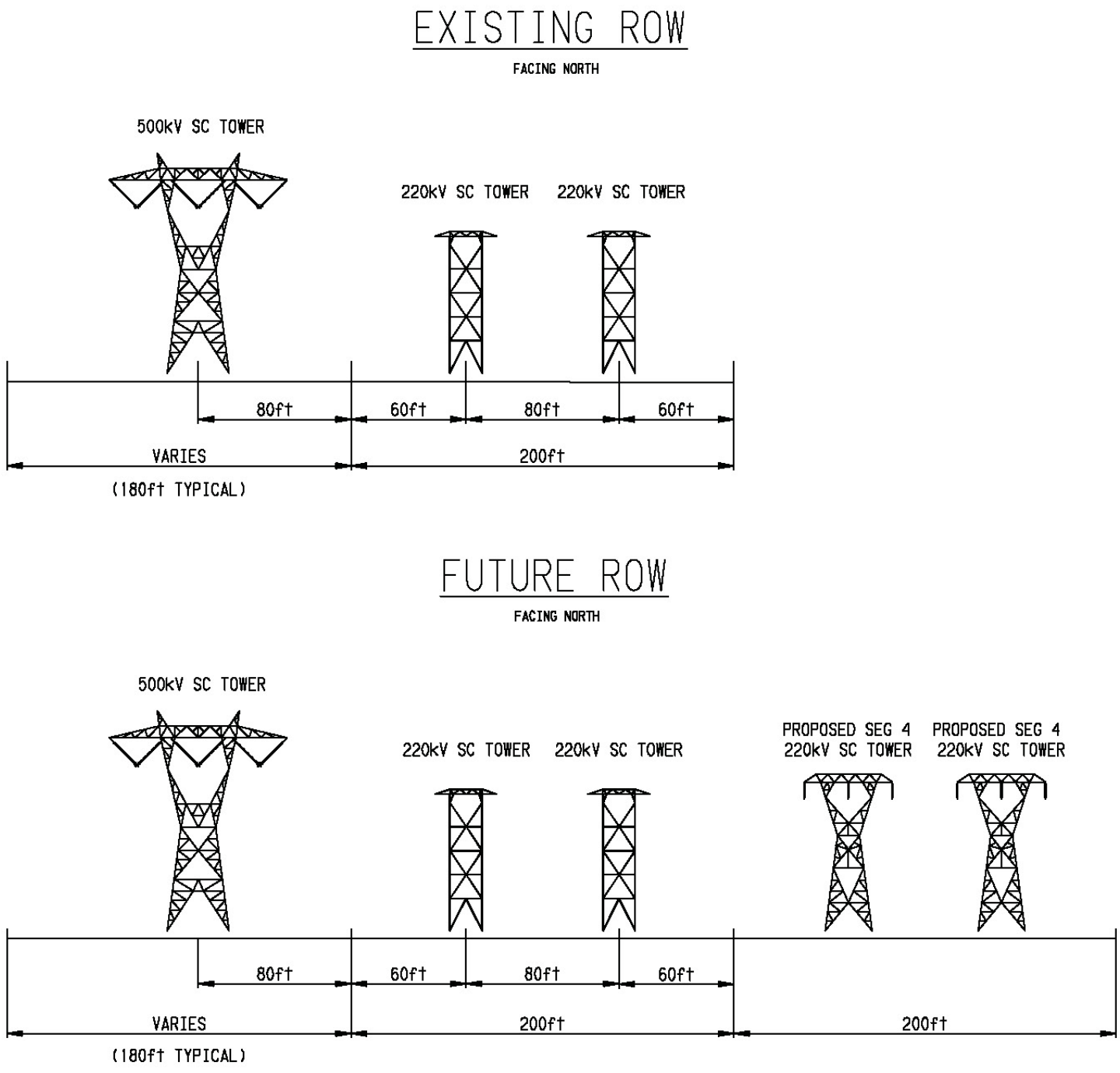
Phase I preliminary results." in *Proceedings of National Avian - Wind Power Planning Meeting III, San Diego, California, May 1998*. Prepared for the Avian Subcommittee of the National Wind Coordinating Committee by LGL Ltd., King City, Ont. 202 p.

Erickson, W. and A. Chatfield. 2009. Avian Baseline Studies for the Alta-Oak Creek Wind Energy Project, Kern County, California. Western EcoSystems Technology, Cheyenne, Wyoming.

Erickson, W.; Chatfield, A.; and K. Bay. 2009. Review of Avian Studies in the Tehachapi Wind Resource Area, Kern County, California. Western EcoSystems Technology, Cheyenne, Wyoming.

Longcore, T.; Rich, C.; and S. A. Gauthreaux, Jr. 2008. Height, guy wires, and steady burning lights increase hazard of communication towers to nocturnal migrants: A review and meta-analysis. *The Auk* 125(2): 485-492.

Young, D. P., Jr., W. P. Erickson, R. E. Good, M. D. Strickland, and G. D. Johnson. 2003. Final report: Avian and bat mortality associated with the initial phase of the Foote Creek Rim Wind Power Project, Carbon County, Wyoming, November 1998–June 2002. Western EcoSystems Technology, Cheyenne, Wyoming.



Source: SCE, 2009.

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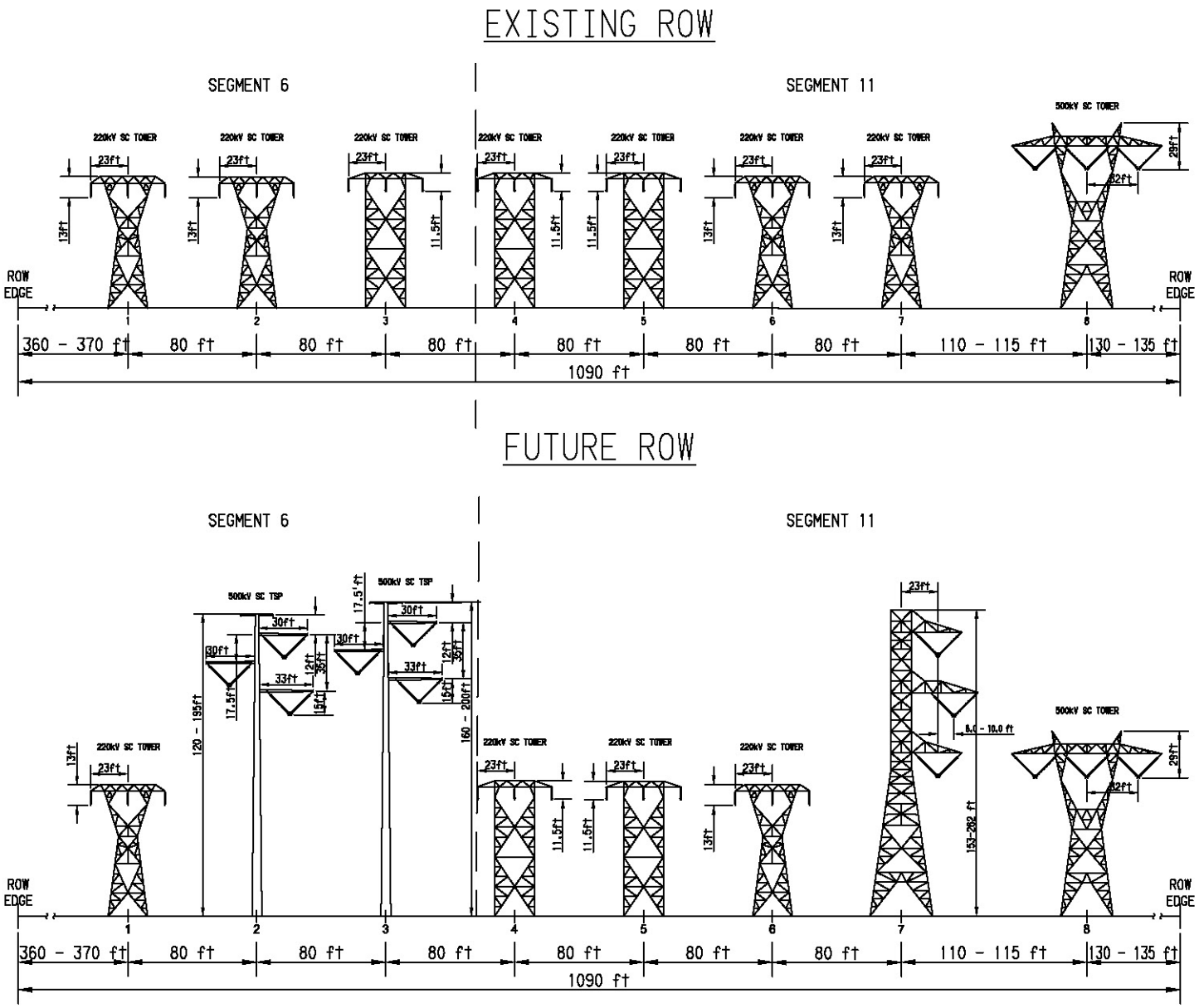
Figure 2.2-2 (Revised)

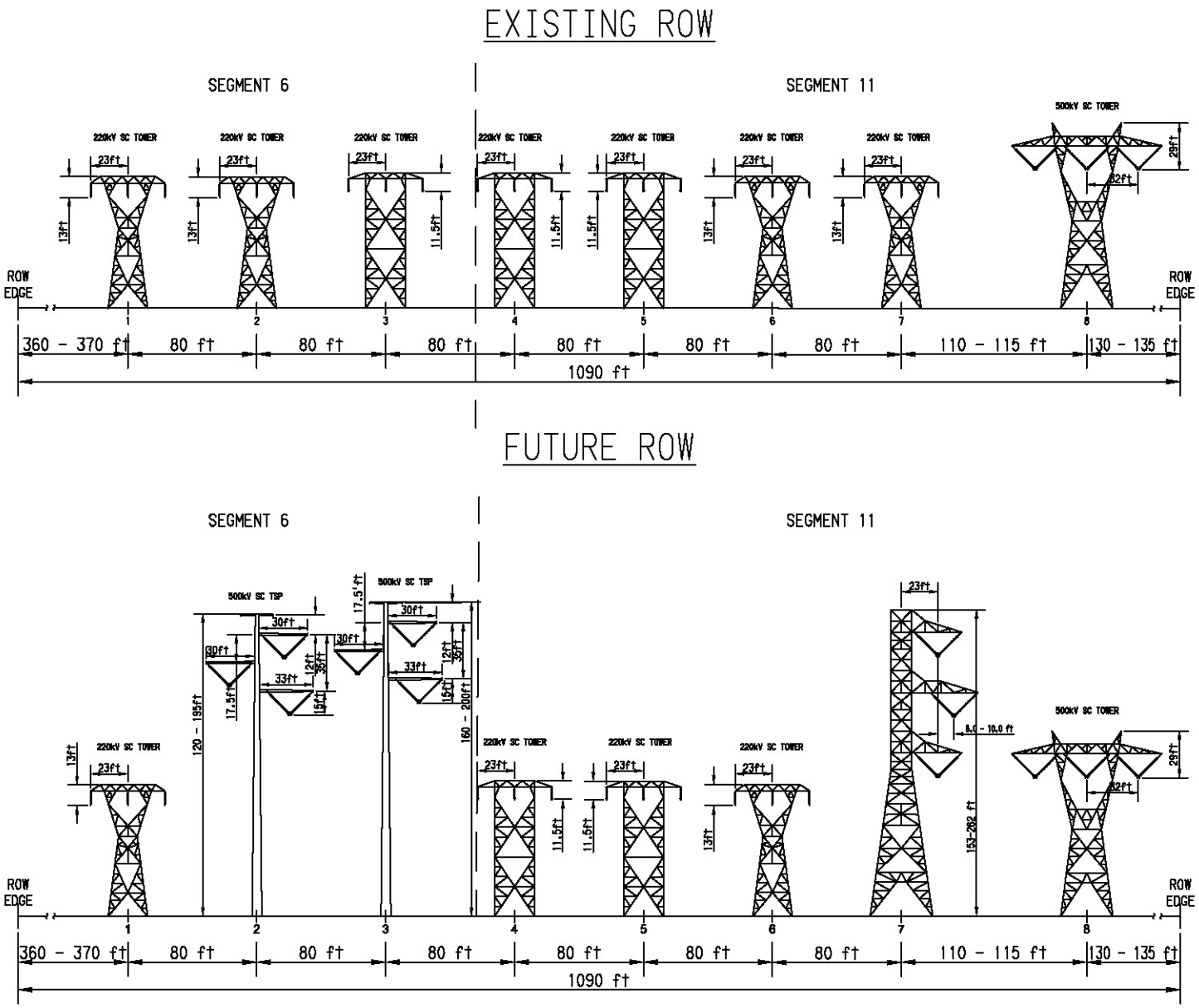
Segment 4 ROW Cross-Section (S4 MP 0.0 to S4 MP 5.1)



Source: SCE, 2009.

Figure 2.2-10 (Revised)

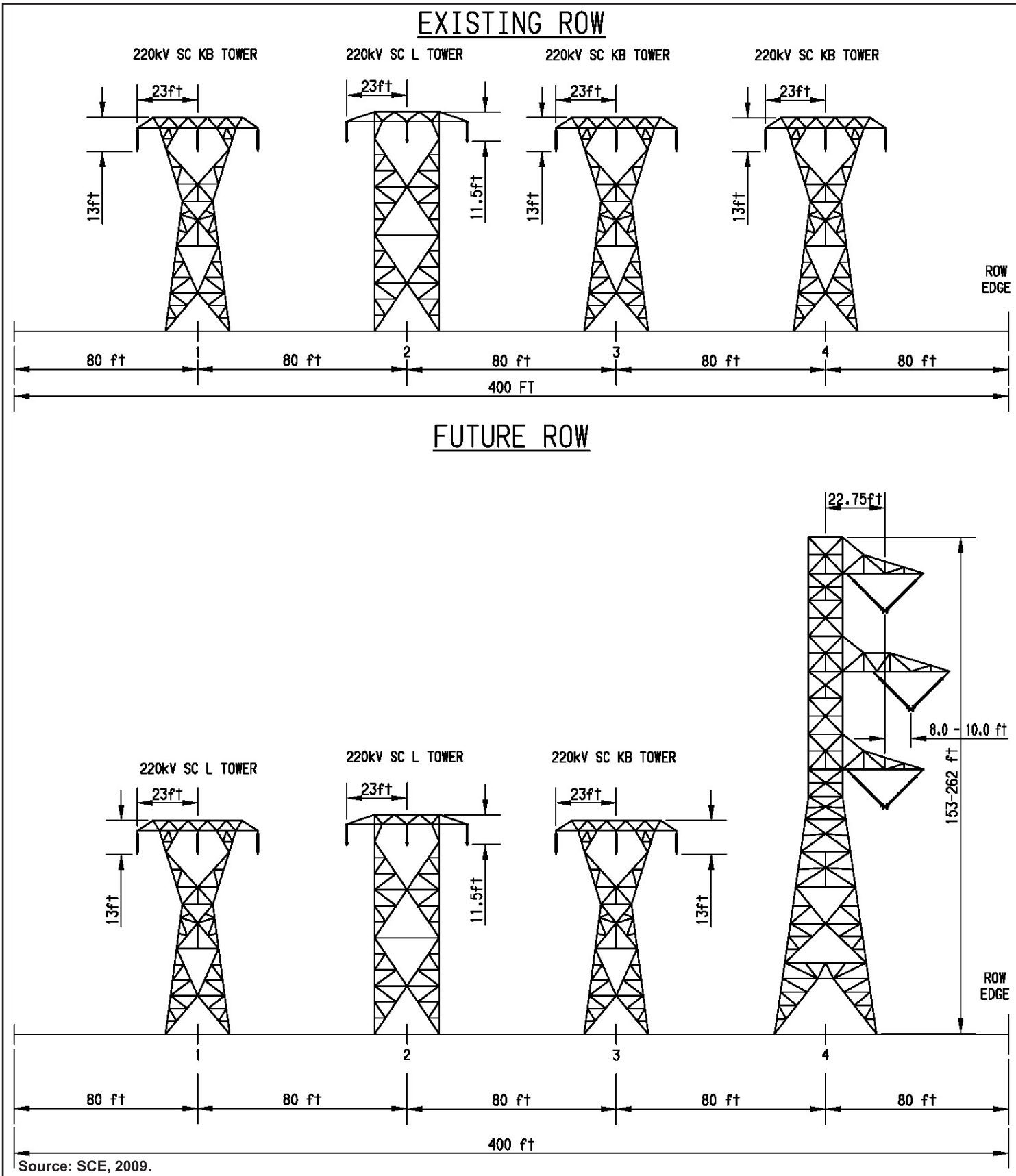
Segment 6 ROW Cross-Section (S6 MP 0.0 to S6 MP 0.8)



Source: SCE, 2009.

Figure 2.2-56 (Revised)

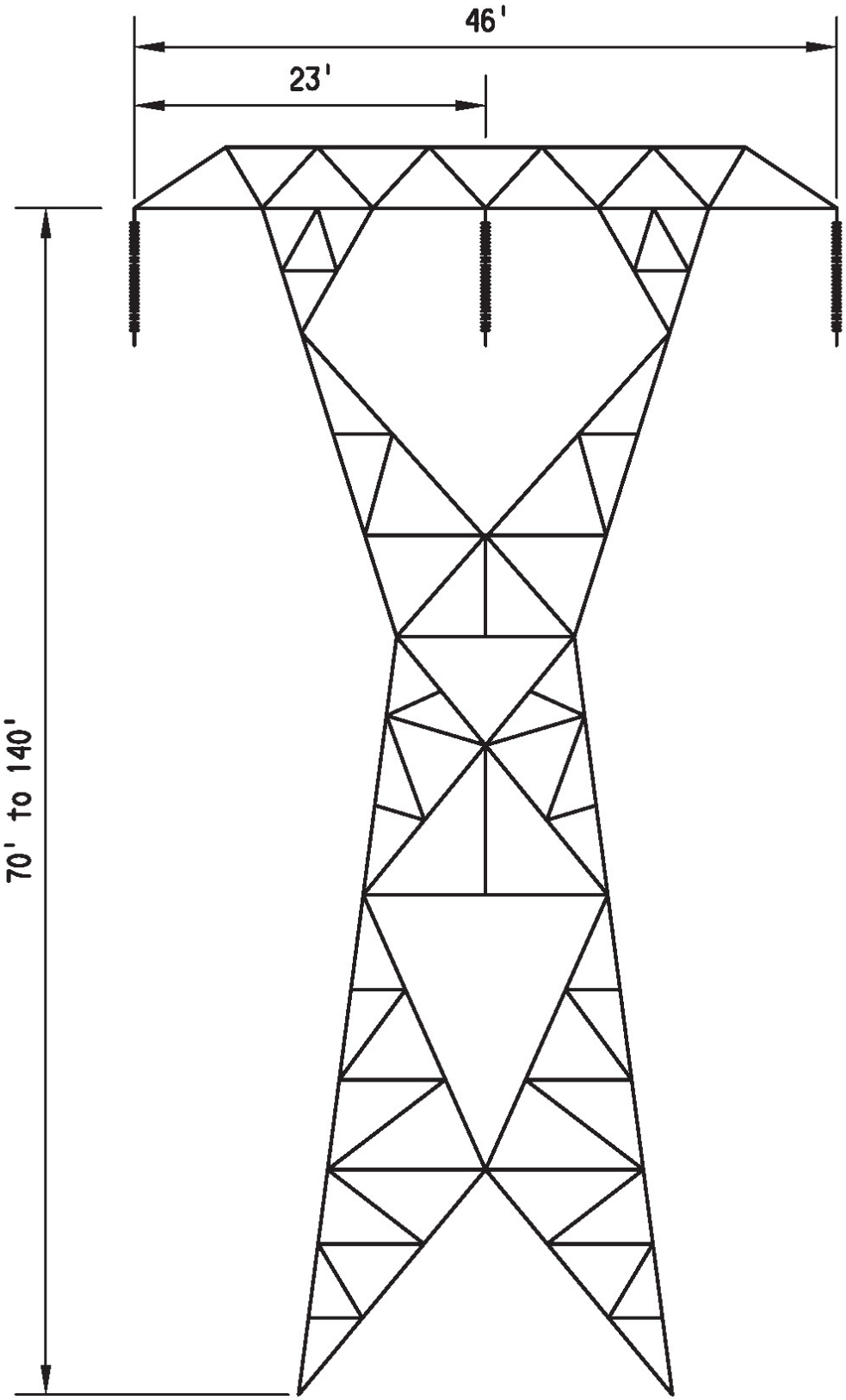
Segment 11 ROW Cross-Section (S11 MP 0.0 to S11 MP 0.9)



Source: SCE, 2009.

Figure 2.2-58 (Revised)

Segment 11 ROW Cross-Section (S11 MP 2.5 to S11 MP 4.0)



Source: SCE, 2009.

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Figure 2.2-64 (Revised)
Typical 220-kV Single-Circuit Lattice Steel Tower

Figure 3.14-53c (Revised)
Visual Simulation for KOP- South-18 Chipola Court, Chino (Alternative 4, Segment 8)

Source: SCE, 2007.