Summary

This Specialist Report describes existing environmental conditions and analyzes environmental impacts related to visual resources that are expected to result from the implementation of Southern California Edison's (SCE's) proposed Tehachapi Renewable Transmission Project (TRTP). This report has been prepared in support of an Environmental Impact Report and Environmental Impact Statement (EIR/EIS) being prepared jointly by the California Public Utilities Commission (CPUC) and the USDA Forest Service (Forest Service) for SCE's proposed TRTP.

Implementation of the proposed TRTP would require the approval of a Certificate of Public Convenience and Necessity by the CPUC and a Special Use authorization from the Forest Service. Amendments to the Forest Land Management Plan (Forest Plan) would be required to allow the implementation of the TRTP across National Forest System (NFS) lands in the Angeles National Forest (ANF). Additional approvals and permits from other agencies would also be required and vary by alternative.

Impacts related to visual resources are evaluated for both the construction and operation of the proposed TRTP. Key issues related to proposed Project construction and operations include the following:

- Existing visual quality of the Project site and vicinity
- Landscape visibility, viewing distance, frequency and duration that the landscape is viewed
- Level of public interest in the existing landscape characteristics and concern over potential changes
- Determination of potential impacts on visual resources of affected landscapes
- Contrast of the proposed facilities or activities with existing landscape characteristics
- Degree to which Project components would dominate the view of observers
- Extent to which Project features or activities would interfere with, or block views of higher value landscape features
- Determination of compliance with adopted planning goals and standards for visual resources

Overview of the Project Purpose, Proposed Project/Action, and Alternatives

Below is an overview of the alternatives analyzed in this Specialist Report. Pursuant to CEQA (Guidelines Section 15126.6(a)) and NEPA (40 CFR 1505.1(e)), a reasonable range of alternatives to SCE's proposed project (Alternative 2) are examined in this Specialist Report, which 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; and (3) the alternative's ability to address significant environmental issues associated with SCE's proposed Project (CEQA, 2007). As required under CEQA Section 15126.6(e) and NEPA Section 1502.14(d), a No Project/Action Alternative was also considered (NEPA, 2007). The proposed Project and alternatives include the following:

Alternative 1: No Project/Action Alternative. Under the No Project/Action Alternative the Tehachapi Renewable Transmission Project, as proposed, would not be implemented. As such, none of the associated Project activities would occur and the environmental impacts associated specifically with the proposed 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 US Army Corps of Engineers). For

example, within the ANF, approximately 80 miles of roads are currently being used to access the existing structures along Segments 6 and 11, which the use and maintenance of is authorized through existing roads permits issued by the Forest Service). 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 see Section 2.1 of the EIR/EIS.

Alternative 2: SCE's Proposed Project. SCE's proposed Project would involve construction, operation, and maintenance of new and upgraded transmission infrastructure along approximately 173 miles of new and existing rights-of-way (ROW) from the Tehachapi Wind Resource 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. Invasive plant species will be controlled using manual techniques and approved herbicides within the Project area on NFS lands on the ANF. The major components of SCE's proposed Project include the following:

- Build a new single-circuit 500-kV transmission line (T/L) traveling approximately 16.8 miles over 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 15.6 miles in new ROW between the proposed new Whirlwind Substation to 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. Also rebuild approximately seven miles of the existing Chino-Mira Loma No. 1 line from single-circuit to double-circuit 220-kV structures (Segment 8).
- 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.

Alternative 3: West Lancaster Alternative. This alternative would re-route the new 500-kV T/L in Segment 4, which is currently proposed along 110th Street West, 0.5 miles farther west along 115th Street West. This alternative represents a refinement of the applicant's proposed Project that would place the T/L 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 route variations in the Chino Hills area have been analyzed, as described below. These routes have been retained for further analysis, as each would avoid proximity of the T/L to existing residences of the City of Chino Hills; and implementation of one of these routes would eliminate construction of approximately 16 miles of 500-kV structures along Segment 8A. Construction of Segment 8B (6.8 miles), between Chino Substation and Mira Loma Substation, would still occur under each of the Alternative 4 routing options.

- ***Route A*** would place a new double-circuit 500-kV T/L in Segment 8A through Chino Hills State Park (CHSP) parallel to and south of an existing double-circuit 220-kV T/L. This alternative route would require construction of a new 500-kV switching station in CHSP, which would allow the new 500-kV T/Ls to connect to existing 500-kV T/Ls located in this area that provide connections to the Mira Loma Substation.
- ***Route B*** represents a modification to Alternative 4 Route A, in which a new double-circuit 500-kV T/L in Segment 8A would be routed completely through CHSP parallel to and north of an existing double-circuit 220-kV T/L. 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 T/L to connect to existing 500-kV T/Ls located in this area that provide connections to the Mira Loma Substation.
- ***Route C*** represents a modification to Alternative 4 Route A, in which a new double-circuit 500-kV T/L in Segment 8A would be placed parallel to and south of an existing double-circuit 220-kV T/L 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 T/Ls within CHSP would be re-routed to tie into the new switching station, which would allow the new double-circuit 500-kV T/L to connect to these existing 500-kV T/Ls to allow power flow to continue on to the Mira Loma Substation. In addition, a portion of the existing 220-kV T/L within CHSP would be re-routed outside of CHSP, paralleling the new 500-kV T/Ls from just west of the CHSP boundary to the new switching station. The re-routed 500-kV and 220-kV T/Ls would proceed north out of the new switching station, and would then re-enter CHSP paralleling the re-routed 500-kV T/Ls to reconnect with the existing 220-kV T/L.
- ***Route C Modified*** is similar to the original Route C option, 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.
- ***Route D*** also represents a refinement to Alternative 4 Route A, in which a new double-circuit 500-kV T/L in Segment 8A would be placed parallel to and north of an existing double-circuit 220-kV T/L 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. This switching station would allow the new double-circuit 500-kV T/L to connect to existing 500-kV T/Ls 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 from approximately S8A MP 21.9 to 25.4 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. Potential helicopter staging and landing areas have been identified within the vicinity of Segments 6 and 11 to facilitate helicopter construction within the ANF. A total of 148 new 500-kV

towers would be constructed by helicopter under this alternative: 92 within Segment 6 and 56 within 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 between MP 8.9 and MP 9.9 of Segment 7 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); and (4) Re-routing the existing 66-kV subtransmission line around the Whittier Narrows Recreation Area along Segment 8A between the San Gabriel Junction at S8A 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.

Summary of Impacts and Mitigation Measures

Direct and Indirect Effects

Table S-1 lists the direct and indirect environmental impacts of the proposed Project and alternatives analyzed in this Specialist Report. The direct and indirect effects of the proposed Project and alternatives are described in full detail in Sections 5 through 11. Alternative 1 (No Project/No Action) impacts are fully described in Section 5; however, because no potential future project information is available an impact significance level for Alternative 1 is not included in the table below.

Significant and Unavoidable Impacts

Table S-2 provides a summary of the direct and indirect impacts of the proposed Project and alternatives that are considered significant and unavoidable. These significant impacts cannot be reduced to a less-than-significant level with the application of recommended mitigation measures. Detailed analyses of these impacts are discussed in Sections 5 through 11. Alternative 1 (No Project/No Action) impacts are fully described in Section 7; however, since no potential future project information is available an impact significance level for Alternative 1 is not included in the table below (denoted as N/A).

Table S-1. Summary of Impacts and Mitigation Measures – Visual Resources

Impact	Impact Significance								Mitigation Measures
	Alt. 1+	Alt. 2	Alt. 3	Alt. 4	Alt. 5	Alt. 6	Alt. 7	NFS Lands[1]	
V-1: Temporary visibility of construction activities and equipment involved with the Project would alter the landscape character and visual quality of landscape views.	N/A	Class I [1]	Class I	Class I	Class I	Class I	Class I	Yes	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-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.	N/A	Class I	Class I	Class I	Class I	Class I	Class I	No	V-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-2c: Establish permanent screen. V-2d: At road crossings, structures should be offset so that they are equidistant on each side of the road where feasible. *[Alternatives 3, 4, 7]*
V-3: For a landscape with an existing transmission line, increased structure size and new materials would result in adverse visual effects.	N/A	Class I	Class I	Class I	Class I	Class I	Class I	Yes	V-1 V-2a through V-2c V-2d *[Alternatives 3, 4, 7]* 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 as prescribed. V-4d: Dispose of excavated materials as prescribed.
V-4: Vegetative clearing and/or earthwork associated with road improvements and pulling/splicing locations would adversely affect landscape character and visual quality.	N/A	Class I	Class I	Class I	Class I	Class I	Class I	Yes	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. V-4d: Dispose of excavated materials as prescribed.
V-5: New metal surfaces associated with transmission infrastructure would potentially reflect sunlight and produce glint and glare in certain lighting conditions.	N/A	Class II	Class II	Class II	Class II	Class II	Class II	Yes	V-2b
V-6: The Project would contribute to the long-term loss or degradation of a scenic highway viewshed or scenic trail viewshed.	N/A	Class II	Class II	Class II	Class II	Class II	Class II	Yes	V-3b: On NFS lands, provide restoration/compensation for impacts to landscape character and visual quality.
V-7: The Project would conflict with established visual resource management plans or landscape conservation plans.	N/A	Class I	Class I	Class I	Class I	Class I	Class I	No[2]	V-3b: On NFS lands, provide restoration/compensation for impacts to landscape character and visual quality.

N/A = Not Available

\+ Potential projects would likely traverse the same geographic regions as either the proposed Project or Alternatives 3 through 7, and subsequently introduce similar types of impacts.

1 Indicates whether this impact is applicable to the portion of the Project on National Forest System lands.

2 Indicates no impact on NFS after implementation of a Project-specific amendment to the Forest Plan. Before that amendment, the Project would be a significant visual impact on NFS land.

Class I: Significant impact; cannot be mitigated to a level that is less than significant; Class II: Significant impact; can be mitigated to a level that is less than significant; Class III: Adverse impact; less than significant; Class IV: Beneficial impact.

Table S-2. Summary of Significant and Unavoidable Impacts – Visual Resources							
Impacts	Alt. 1	Alt. 2	Alt. 3	Alt. 4	Alt. 5	Alt. 6	Alt. 7
V-1: Temporary visibility of construction activities and equipment involved with the Project would alter the landscape character and visual quality of landscape views.	N/A	X	X	X	X	X	X
V-2: For a landscape that currently has no transmission lines, introduction of a new transmission line would adversely affect landscape character and visual quality by creating visual contrasts that stand out and do not repeat natural-appearing form, line, color, texture, pattern, or scale.	N/A	X	X	X	X	X	X
V-3: For a landscape with an existing transmission line, increased structure size and new materials would result in adverse visual effects, including: increased structure prominence; additional structure skylining; ridgeline obstruction/intrusion; view blockage to desirable landscape features; visible increase in industrial landscape character by geometric forms or unnatural straight lines; and, increased visual complexity and visual clutter.	N/A	X	X	X	X	X	X
V-4: Vegetative clearing and/or earthwork associated with road improvements and pulling/splicing locations would adversely affect landscape character and visual quality by creating visual contrasts that do not repeat natural-appearing form, line, color, texture, pattern, or scale.	N/A	X	X	X	X	X	X
V-5: New metal surfaces associated with transmission infrastructure would potentially reflect sunlight and produce glint and glare in certain lighting conditions.	N/A	None	None	None	None	None	None
V-6: The Project would contribute to the long-term loss or degradation of a scenic highway viewshed or scenic trail viewshed.	N/A	None	None	None	None	None	None
V-7: The Project would conflict with established visual resource management plans or landscape conservation plans.	N/A	X	X	X	X	X	X

X = Significant and Unavoidable Visual Impacts

Cumulative Impacts

Table S-3 lists the significant cumulative impacts of the proposed Project as described in Section 6.2. This analysis describes the potential for impacts of the proposed Project and alternatives to combine with similar effects of other projects within the geographic scope of the cumulative analysis.

Summary Comparison of Alternatives

Section 12 of this Specialist Report provides a comparison of the proposed Project and alternatives based on the analysis presented in Sections 5 through 11. This comparison describes the differences in impacts among the various alternatives, with particular emphasis given to the differences in significant effects.

Based on the analyses of the Visual Resources impacts of the proposed Project and alternatives, as presented in Section 3.14 of the EIR/EIS, distinguishing characteristics of the alternatives have been highlighted in order to evaluate the overall effect of each alternative. For Visual Resources, the differentiators used to compare the alternatives included such considerations as differences in: visual sensitivity; changes from existing visual conditions to future conditions; total land area and visual environment disturbance; Project visibility from sensitive receptor locations; amount of skyline interruption; and, numbers of communities, residential areas, and/or parklands affected.

Alternative 2 (SCE's Proposed Project) would have the greatest visual impacts of all Project alternatives from placing new T/Ls along a second priority scenic highway (110th Street West) in Segment 4 and in a highly visible

location to many viewers (urban area) through the Cities of Chino Hills, Chino, and Ontario in Segment 8. Compared to Alternative 2, Alternative 3 (West Lancaster) would avoid visual impacts along the second priority scenic highway (110th Street West); Alternative 5 (Partial Underground) would reduce visual impacts in Chino Hills along a 3.5-mile portion; Alternative 6 (Maximum Helicopter Construction in the ANF) would utilize helicopter construction to reduce the construction of new and upgraded access and spur roads within the ANF in order to minimize visual impacts; and Alternative 7 (66-kV Subtransmission) would improve the visual environment of the Duck Farm Project area and the Whittier Narrows Recreation Area.

In comparison with the other Project alternatives, Alternative 4 (Chino Hills Routes) would eliminate construction and operation of new transmission lines through portions of Chino Hills, Chino, and Ontario, thereby reducing visual impacts in these communities; however, this alternative would create new significant and unavoidable visual impacts within CHSP.

Table S-3. Cumulative Effects Matrix – Alternative 2: SCE's Proposed Project

Type of Effect	Direct or Indirect Project Effects	Persistent Influence from Past Actions or Natural Events	Present and Reasonably Foreseeable Future Effects	Potential Cumulative Effect	Significance
VISUAL RESOURCES					
Have a substantial adverse effect on the existing landscape character and visual quality of the site and its surroundings (Criterion VIS1)	Temporary visibility of construction activities and equipment involved with the Project would alter the landscape character and visual quality of landscape views (Impact V-1).	All construction impacts are temporary in nature and therefore past actions do not have persistent influence.	Present and future construction-related impacts would combine if they occur at the same time and in the same vicinity.	Impact V-1 would occur if construction activities are visible from sensitive receptor locations. This impact would combine with similar impacts of other projects if multiple projects' activities occur at the same time and in the same vicinity.	Class I
	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 (Impact V-2).	Introduction of a new transmission line into a landscape that currently has no transmission lines would result in a persistent influence, as the life expectancy of a transmission line may be as much as 50 years.	In Segment 10, it is reasonably foreseeable that new wind farms will be constructed and operated in the Tehachapi Wind Resource Area. The introduction of a new transmission line plus new wind turbine generators is a significant, unavoidable visual impact. In Segment 4 along 110th Street West, introduction of a new transmission line parallel to a County designated scenic highway would impact visual resources	Once established, a new transmission line in a new ROW may encourage development of other transmission lines or cross-country infrastructure to develop in a parallel corridor. Development of additional transmission lines along Segment 10 or 4 would increase potential cumulative visual effects.	Class I
	For a landscape with an existing transmission line, increased structure size and new materials would result in adverse visual effects (Impact V-3).	Combined with the adverse visual effects of existing transmission lines in Segments 4 through 8, introduction of newer, taller transmission line structures would create a persistent adverse visual effect.	With increased population in the North and South Areas, it is reasonably foreseeable that additional new transmission lines will be needed in the future. Existing 220-kV single circuit transmission lines can be expected to be reconstructed to 500-kV single or double circuit capacities in the future.	Increased structure size and new materials of these future transmission lines would result in similar adverse visual effects.	Class I
	Vegetative clearing and/or earthwork associated with road improvements and pulling/splicing locations would adversely affect landscape character and visual quality (Impact V-4).	Existing SCE access roads, spur roads, splicing/ pulling locations have created visual scars in the landscape and have disrupted natural vegetative patterns, especially in the Center Area (Angeles National Forest). Some revegetation has naturally occurred in some of these areas.	With increased population in the North and South Areas, it is reasonably foreseeable that additional new transmission lines will be needed in the future. Existing 220-kV single circuit transmission lines can be expected to be reconstructed to 500-kV single or double circuit capacities in the future.	With construction of these new transmission lines, it is reasonably foreseeable that additional vegetative clearing would occur; further reducing landscape character and visual quality.	Class I

Table S-3. Cumulative Effects Matrix – Alternative 2: SCE's Proposed Project

Type of Effect	Direct or Indirect Project Effects	Persistent Influence from Past Actions or Natural Events	Present and Reasonably Foreseeable Future Effects	Potential Cumulative Effect	Significance
Create a new source of substantial light or glare that would adversely affect day or nighttime views in the area. (Criterion VIS2)	New metal surfaces associated with transmission infrastructure would potentially reflect sunlight and produce glint and glare in certain lighting conditions (Impact V-5).	Existing transmission line conductors reflect sunlight and produce glare in certain lighting conditions and from certain viewing angles, especially when viewed from above, such as in the Center Area.	With increased population in the North and South Areas, it is reasonably foreseeable that additional new transmission lines will be needed in the future. Existing 220-kV single circuit transmission lines can be expected to be reconstructed to 500-kV single or double circuit capacities in the future. Construction of additional transmission lines using the same technology that is currently producing glare off conductors would create adverse visual impacts.	With construction of these new transmission lines, it is reasonably foreseeable that additional vegetative clearing would occur; further reducing landscape character and visual quality.	Class II
Substantially damage scenic resources within a scenic highway viewshed or a national scenic trail viewshed (including, but not limited to, trees, rock outcroppings, and historic buildings). (Criterion VIS3)	The Project would contribute to the long-term loss or degradation of a scenic highway viewshed or scenic trail viewshed. (Impact V-6).	Existing transmission lines in the Center Area (ANF) for Segments 6 and 11 and in the South Area for Segment 8 have already created a persistent adverse visual effect on scenic highway and scenic trail viewsheds.	Existing 220-kV single circuit transmission lines can be expected to be reconstructed to 500-kV single or double circuit capacities in the future, due to increased population in the North and South Areas.	Combined with the adverse visual effects of existing transmission lines, introduction of newer, taller transmission line structures in Segments 6 and 11 in the Center Area (ANF) and in Segment 8 in the South Area would create a persistent adverse visual effect on scenic highway and scenic trail viewsheds.	Class II
Conflict with applicable adopted plans, policies, regulations, or standards applicable to the protection and management of visual quality in the landscape. (Criterion VIS4)	The Project would conflict with established visual resource management plans or landscape conservation plans. (Impact V-7).	Existing transmission lines in the Center Area (ANF) for Segments 6 and 11 and in the South Area for Segments 7, 8, and 11 have already created persistent adverse visual effects, and in the Center Area the existing transmission lines do not comply with Forest Plan directives for management of visual resources. In the South Area, visual resource goals of several cities request visual screening or protection of scenic ridgelines.	With increased population in the North and South Areas, it is reasonably foreseeable that additional new transmission lines will be needed in the future. Existing 220-kV single circuit transmission lines can be expected to be reconstructed to 500-kV single or double circuit capacities in the future. Construction of additional transmission lines by SCE and/or LADWP is reasonably foreseeable in these areas.	Construction and operation of additional transmission lines would increase visual clutter and degrade scenic quality of landscapes. Ridgelines with existing transmission lines might be further degraded by construction of future transmission lines.	Class I

Table S-4. Summary Comparison of Environmental Issues/Impacts

Environmental Issues	Alternative 1 (No Project/Action)	Alternative 2 (SCE's Proposed Project)	Alternative 3 (West Lancaster)	Alternative 4 (Chino Hills)	Alternative 5 (Partial Underground)	Alternative 6 (Max. Helicopter in ANF)	Alternative 7 (66-kV Subtransmission)
Temporary visual contrast resulting from construction activities and equipment	In the short term, existing visual conditions and landscapes would not be impacted. However there will continue to be a need for T/L project(s) to be implemented somewhere. The visual impacts of future T/L project(s) are not known.	Project construction activities including road improvements, heavy equipment use, and helicopter staging areas would be visible from sensitive receptor locations as strong visual contrasts.	*Slightly less than Alt. 2 due to minor re-route.* Construction activities along Segment 4 would not be visible in the immediate foreground of 110th Street West for two miles.	*Less than Alt. 2 due to shorter overall Project length and fewer visual effects in Chino Hills, Chino, and Ontario, but slightly more than Alt. 2 due to construction activities in and/or near Chino Hills State Park (CHSP).* Construction of double-circuit 500-kV T/L would not occur along S8A from MP 19.2 to 35.2, but would be visible from Carbon Canyon Rd and other roads and trails near and within CHSP.	*Greater than Alt. 2 due to underground const.* The underground portion of S8 would introduce the following visual contrasts: large earth-moving and boring equipment; truck trips to remove excavated materials; and large areas of land for disposal of excavated materials.	*Greater than Alt. 2 due to helicopter visibility.* Within the ANF, less access and spur road improvement would occur and associated visual contrast would be less; however, helicopter use would be more intense (construction of 148 towers via helicopter vs. 33 for Alt. 2) and temporary visual contrast would be substantial.	*Slightly greater than Alt. 2 due to 66-kV re-route in South Area.* Temporary visual contrast of equipment for underground construction would be greater in and near Whittier Narrows and the Duck Farm (South Area).
Visual contrast due to introducing T/L structure(s) where none currently exist	In the short term, existing visual conditions and landscapes would not be impacted. However there will continue to be a need for T/L project(s) to be implemented somewhere. The visual impact for future project(s) is not known.	Construction in new ROW (S10, S4, S8A) would modify existing landscape character from "natural" (S4, S10) and "urban park" (S8A) to "industrial". In these areas, new T/L towers would be the tallest structures in the landscape, creating skyline interference to landscape views.	*Slightly less than Alt. 2 due to minor re-route.* Direct alternation of landscape views would be less along 110th Street West in Lancaster (S4).	*Same as Alt. 2 for Segments 4, 10, and 8A (in Rose Hills Memorial Park). Greater than Alt. 2 for Alt. 4 Routes C, C Modified, and D, where portions of Segment 8A would be constructed in a new ROW north of CHSP where there are no existing T/Ls.*	*Slightly less than Alt. 2 due to underground.* In the long-term the underground portion of Alt. 5 would result in fewer overhead structures being installed.	*Same as Alternative 2.*	*Slightly greater than Alt. 2 due to re-routed subtransmission lines.* A new 66-kV subtransmission line would be introduced along San Gabriel Boulevard and Durfee Road, which are currently characterized as urban landscape character.

Table S-4. Summary Comparison of Environmental Issues/Impacts

Environmental Issues	Alternative 1 (No Project/Action)	Alternative 2 (SCE's Proposed Project)	Alternative 3 (West Lancaster)	Alternative 4 (Chino Hills)	Alternative 5 (Partial Underground)	Alternative 6 (Max. Helicopter in ANF)	Alternative 7 (66-kV Subtransmission)
Visual contrast due to increasing T/L structure size and/or type where T/L structures currently exist	In the short term, existing visual conditions and landscapes would not be impacted. However there will continue to be a need for T/L project(s) to be implemented somewhere. The visual impacts of future T/L project(s) are not known.	Single-circuit and double-circuit 500-kV T/L structures would be larger and taller than existing 220-kV structures and would result in the following visual contrasts: increased prominence and industrial character; structure skylining; increased backdrop landscape obstruction; lower scenic integrity conditions in the ANF; Project-specific Forest Plan amendments would be required for Standards S9 and S10.	*Same as Alternative 2.*	*Less than Alt. 2 due to shorter overall Project length and fewer visual effects in Chino Hills, Chino, and Ontario, but slightly greater than Alt. 2 due to taller structures in and/or near CHSP.* Adverse effects of taller structures would not occur along S8A from MP 19.2 to 35.2, but each route of Alt. 4 would introduce new and larger structures in and/or near CHSP.	*Slightly less than Alt. 2 due to underground.* A transition station would be installed at each end of the underground portion, but new overhead double-circuit 500-kV T/L structures (LSTs) would not be introduced along the underground segment.	*Less than Alt. 2 due to decrease visual prominence because of the use of colored galvanizing treatments. Fewer access and spur roads would decrease visual attention of new LSTs. Same Project-specific Forest Plan amendments would be required for Standards S9 and S10.*	*Less than Alt. 2 due to undergrounding 66-kV.* The underground installation of subtransmission lines through Whittier Narrows and the Duck Farm would decrease adverse visual effects.
Visual contrast due to clearing and grading activities	In the short term, existing visual conditions and landscapes would not be impacted. However there will continue to be a need for T/L project(s) to be implemented somewhere. The visual impacts of future project(s) are not known.	Roads (access / spur) in the ANF would be improved, resulting in substantial adverse visual effects including strong soil color contrasts. Visual effects from spur road improvement would not occur for 33 structures that would be constructed via helicopter. Thirteen helicopter staging areas would be cleared / graded in the ANF and would result in visual scarring and contrast similar to roads.	*Same as Alternative 2.*	*Slightly greater than Alt. 2 due to clearing and grading effects on hillsides in and/or near CHSP.* Adverse visual effects would be introduced to the CHSP as a result of clearing and grading activities for Routes A through D; however, these clearing and grading effects would not occur along S8A from MP 19.2 to MP 35.2.	*Temporary contrast would be greater than Alt. 2 due to u/g const.* Substantial earthwork would be required for installation of underground infrastructure and would introduce temporary adverse visual effects.	*Less than Alt. 2 due to fewer access road and spur road improvements.* Fewer access/spur roads would be constructed due to more structures being constructed via helicopter (148 for Alt. 6 vs. 33 for Alt.2); adverse visual effects of spur roads would not occur for the 148 helicopter-constructed towers. Other roads such as West Fork National Scenic Bikeway would not be widened or result in visual contrast.	*Same as Alternative 2.* Vegetative clearing and earthwork associated with the underground portions of Alternative 7 and pulling/splicing locations for the new overhead line would temporarily affect existing landscape character and visual quality in the vicinity of Whittier Narrows and the Duck Farm.

Table S-4. Summary Comparison of Environmental Issues/Impacts

Environmental Issues	Alternative 1 (No Project/Action)	Alternative 2 (SCE's Proposed Project)	Alternative 3 (West Lancaster)	Alternative 4 (Chino Hills)	Alternative 5 (Partial Underground)	Alternative 6 (Max. Helicopter in ANF)	Alternative 7 (66-kV Subtransmission)
Sunlight reflection and glint and glare from new metal surfaces	In the short term, existing visual conditions and landscapes would not be impacted. However there will continue to be a need for T/L project(s) to be implemented somewhere. The visual impacts of future project(s) are not known.	When viewed from higher vantage points, such as a mountain road, or crest trail, sunlight reflecting off new conductors and new metal towers would cause glint contrasts.	*Same as Alternative 2.*	*Slightly less than Alt. 2 due to non-build along Segment 8A from MP 19.2 to 35.2.* Routes 4A through 4D would have new double-circuit 500-kV LSTs and conductors that could be viewed from ridgetop trails in CHSP; however, no new T/Ls would be installed along S8A from MP 19.2 to MP 35.2, thereby lessening Project length and the amount of new metal surfaces.	*Same as Alternative 2.*	*Same as Alternative 2, except that medium and dark colored galvanizing treatments in ANF would reflect less light overall and would reduce sunlight glint.*	*Same as Alternative 2.*
Long-term loss or degradation of scenic viewshed(s)	In the short term, existing visual conditions and landscapes would not be impacted. However there will continue to be a need for T/L project(s) to be implemented somewhere. The visual impacts of future project(s) are not known.	The Project would traverse and/or be visible from multiple designated or eligible scenic highways and trails, thereby directly degrading and causing the long-term loss of scenic quality of the viewsheds.	*Same as Alternative 2.*	*Slightly greater than Alt. 2 due to effects to Carbon Canyon Rd.* Routes 4A through 4D. including 4C Modified would traverse Carbon Canyon Road (SR 142), which is an Eligible State Scenic Highway.	*Same as Alternative 2.*	*Less than Alt. 2 due to decreased road construction in the ANF.* Fewer access and spur roads would be built or improved in the ANF. Helicopter staging area #5 would be visible at background distances from the PCT along Santa Clara Divide; however, no helicopter staging areas would be visible from the Angeles Crest Scenic Byway , I-210, West Fork National Scenic Bikeway, or State Routes 39 and 57.	*Same as Alternative 2.*

Table S-4. Summary Comparison of Environmental Issues/Impacts

Environmental Issues	Alternative 1 (No Project/Action)	Alternative 2 (SCE's Proposed Project)	Alternative 3 (West Lancaster)	Alternative 4 (Chino Hills)	Alternative 5 (Partial Underground)	Alternative 6 (Max. Helicopter in ANF)	Alternative 7 (66-kV Subtransmission)
Non-compliance with established visual resource management plans or landscape conservation plans [1]	In the short term, existing visual conditions and landscapes would not be impacted. However there will continue to be a need for T/L project(s) to be implemented somewhere. The visual impacts of future project(s) are not known.	The Project would be inconsistent with Forest Plan Standards LMP (Part 3) S9 and S10, with the High Scenic Integrity Objective of NFS lands, and with Goal Visual-1 and Objective Visual-1.2 of the Puente Hills Landfill Native Habitat Preservation Authority Resource Management Plan.	*Same as Alternative 2.*	*Greater than Alt. 2 due to conflict with the CHSP General Plan.* Routes 4A through 4D, including 4C Modified would be in conflict with the CHSP General Plan's goals for visual resource management.	*Same as Alternative 2.*	*Less than Alt. 2 due to better compliance with Forest Plan Standards S9 and S10 because of use of colored galvanizing treatments.*	*Same as Alternative 2.*

[1] Following are the Forest Plan Standards that apply to visual resource management on the ANF:

- ANF S1 - Pacific Crest Trail - Protect scenic integrity of foreground views as well as from designated viewpoints. Where practicable, avoid establishing nonconforming land uses within the viewshed of the trail (Liebre-Sawmill, Santa Clara Canyons, Soledad Front Country and Angeles High Country). (p. 76)
- ANF S9: Design management activities to meet the Scenic Integrity Objectives (SIOs) shown on the Scenic Integrity Objectives Map.
- ANF S10: Scenic Integrity Objectives will be met with the following exceptions: Minor adjustments not-to-exceed a drop of one SIO level is allowable with the Forest Supervisor's approval.
- Temporary drops of more than one SIO level may be made during and immediately following project implementation providing they do not exceed three years in duration.

The Forest Supervisor may approve a project in the ANF that would lower the Scenic Integrity Objectives level without a Forest Plan amendment, as long as the decrease would not be greater than one SIO level (for instance if a project would achieve a Moderate SIO in an area designated for a High SIO). See the detailed discussion of SIOs achieved by mileposts (MP) for Segments 6 and 11 under Alternatives 2 and 6.

A drop of more than one level of SIO would require a Forest Plan amendment.