

Summary

This Specialist Report describes existing environmental conditions and analyzes environmental impacts related to Air Quality 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 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 2005 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 Air Quality are evaluated for both the construction and operation of the proposed TRTP. Key issues related to Project construction and operations include the following:

- Generation of emissions of air pollutants that would exceed the regional air quality standards established by the applicable air quality management or air pollution control districts
- Generation of emissions of air pollutants that would exceed localized significance thresholds established by the South Coast Air Quality Management District
- Non-compliance with the requirements of the Federal General Conformity Rule (40 CFR Parts 6, 51, and 93)
- Conflicts with air quality provisions of the Angeles National Forest Strategy
- Inconsistencies with the current approved Air Quality Management Plans

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. As required under CEQA Section 15126.6(e) and NEPA Section 1502.14(d), a No Project/Action Alternative was also considered. 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 (travelling 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 (no 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 routing options 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 routing options would eliminate construction of approximately 16 miles of 500-kV structures along Segments 8A and 8C.

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. 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 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 Project and alternatives are described in full detail in Sections 5 through 11.

Significant and Unavoidable Impacts

Table S-2 below 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.

Cumulative Impacts

Table S-3 lists the 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.

Table S-1. Summary of Impacts and Mitigation Measures

Impact	Impact Significance								Mitigation Measures	
	Alt. 1	Alt. 2	Alt. 3	Alt. 4	Alt. 5	Alt. 6	Alt. 7	NFS Lands*		
AIR QUALITY										
AQ-1: Construction emissions would exceed the SCAQMD, AVAQMD, and/or KCAPCD regional emission thresholds	Class I	Class I	Class I	Class I	Class I	Class I	Class I	Class I	Yes	AQ-1a: Implement Construction Fugitive Dust Control Plan. AQ-1b: Off-road Diesel-fueled Equipment Standards. AQ-1c: Limit Vehicle Traffic and Equipment Use. AQ-1d: Heavy Duty Diesel Haul Vehicle On-road Equipment Standards. AQ-1e: On-road Vehicles Standards. AQ-1f: Properly Maintain Mechanical Equipment. AQ-1g: Restrict Engine Idling to 5 Minutes. AQ-1h: Schedule Deliveries Outside of Peak Traffic Hours. AQ-1i: Off-road Gasoline-fueled Equipment Standards. AQ-1j: Reduction of Helicopter Emissions. AQ-1k: Waste Soil Trip Distance Minimization (Alt 4C Modified only) AQ-1l: Waste Soil Truck Capacity (Alt 4C Modified only) AQ-1m: Tunnel Waste Trip Distance Minimization (Alt 5 only) AQ-1n: Tunnel Waste Truck Capacity (Alt 5 only)
AQ-2: Operating emissions would exceed the SCAQMD, AVAQMD, and/or KCAPCD regional emission thresholds	Class IV	Class IV	Class IV	Class IV	Class IV	Class IV	Class IV	Class IV	Yes	None recommended
AQ-3: Construction of the Project would expose sensitive receptors to substantial pollutant concentrations	Class I	Class I	Class I	Class I	Class I	Class I	Class I	Class I	No	AQ-1a to AQ-1j
AQ-4: Operation of the Project would expose sensitive receptors to substantial pollutant concentrations	Class III	Class III	Class III	Class III	Class III	Class III	Class III	Class III	No	None recommended
AQ-5: Construction or operation of the Project would generate toxic air contaminant emissions that would exceed SCAQMD risk thresholds.	Class III	Class III	Class III	Class III	Class III	Class III	Class III	Class III	No	None recommended
AQ-6: The Project would not conform to Federal General Conformity Rules	Class II	Class II	Class II	Class II	Class II	Class II	Class II	Class II	Yes	AQ-6: General Conformity Emission Offset Mitigation. (Alt. 6 only)
AQ-7: The Project would create objectionable odors	Class III	Class III	Class III	Class III	Class III	Class III	Class III	Class III	Yes	None recommended

Table S-1. Summary of Impacts and Mitigation Measures

Impact	Impact Significance								Mitigation Measures	
	Alt. 1	Alt. 2	Alt. 3	Alt. 4	Alt. 5	Alt. 6	Alt. 7	NFS Lands*		
AQ-8: The Project would not conform to Angeles National Forest air quality strategies	Class II	Class II	Class II	Class II	Class II	Class II	Class II	Class II	Yes	AQ-1a to AQ-1j
AQ-9: The Project would not conform with applicable Air Quality Management Plans	Class II	Class II	Class II	Class II	Class II	Class II	Class II	Class II	Yes	AQ-1a, AQ-1b, and AQ-1d
AQ-10: Emissions would contribute to climate change	Class IV	Class IV	Class IV	Class IV	Class IV	Class IV	Class IV	Class IV	Yes	None recommended

* Indicates that this impact is applicable to National Forest System lands.

Impacts	Alt. 1	Alt. 2	Alt. 3	Alt. 4	Alt. 5	Alt. 6	Alt. 7
AQ-1: Construction emissions would exceed the SCAQMD, AVAQMD, and/or KCAPCD regional emission thresholds	X	X	X	X	X	X	X
AQ-3: Construction of the Project would expose sensitive receptors to substantial pollutant concentrations	X	X	X	X	X	X	X

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 Section 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 Air Quality impacts of the proposed Project and alternatives, distinguishing characteristics of the alternatives have been highlighted in order to evaluate the overall effect of each alternative. For Air Quality, the differentiators used to compare the alternatives included such considerations as total emissions, health impacts of the emissions, location of the emissions, and ability to mitigate the emissions due to the differences in construction methods for the alternatives.

Sections 5 through 11 describe the anticipated construction and operational emissions associated with each Project alternative, including GHG emissions. As shown in Table S-4, all of the Project alternatives would exceed regional emission thresholds for SCAQMD, AVAQMD, and KCAPCD. The magnitude of exceedances would vary for each alternative.

Of all the Project alternatives, construction and operation of Alternative 4 (Chino Hills Routes) would have the lowest emissions due to the construction of fewer towers, reduced tower removal (wreck-out), reduced substation improvement work, and reduced 66-kV pole removal and new construction in Segments 8 and 9 (Substations). Additionally, Alternative 4 would reduce emissions in an area with poor air quality and much higher population density than the other Project alternative routes.

Alternative 2 (SCE’s Proposed Project), Alternative 3 (West Lancaster), and Alternative 7 (66-kV Subtransmission) would have similar air quality impacts, although the emissions from Alternative 3 would be marginally less than Alternative 2, while the emissions from Alternative 7 would be marginally greater than Alternative 2.

Compared to the other Project alternatives, Alternative 6 (Maximum Helicopter Construction in the ANF) would contribute to a greater increase in annual and project total construction emissions for VOC and CO due to the significant increase in helicopter use. Additionally, this alternative would create the greatest federal lands emissions, and with only project alternative to trigger a general conformity analysis.

The maximum daily construction and operating criteria pollutants (specifically NO_x and PM₁₀) and GHG emissions would be higher for Alternative 5 (Partial Underground) than any other alternative due to; significantly increased construction requirements for the large tunnel required for Alternative 5; increased inspection and maintenance requirements for the underground lines; and due to the significant increase in SF₆ use, which is required to insulate the underground transmission lines. However, unlike Alternative 6, this alternative does not impact general conformity requirements.

Table S-3. Cumulative Effects Matrix – Alternative 2: Proposed Action					
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	Significant?
Air Quality					
Regional Emission Thresholds (Criterion AIR1)	Construction emissions would exceed the SCAQMD, AVAQMD, and/or KCAPCD regional emission thresholds (Impact AQ-1)	Existing emission sources are considered part of the existing ambient background cumulative condition.	The following projects would be within one mile of the proposed Project route: -4 projects in KCAPCD jurisdiction -5 projects in AVAQMD jurisdiction -18 projects in SCAQMD jurisdiction	Any of the identified projects that would be constructed concurrently with TRTP in the SCAQMD, AVAQMD, and KCAPCD jurisdictions would add to the Project's significant emission totals, thereby creating a cumulatively significant impacts in those jurisdictions.	Class I
	Operating emissions would exceed the SCAQMD, AVAQMD, and/or KCAPCD regional emission thresholds (Impact AQ-2)	Existing emission sources are considered part of the existing ambient background cumulative condition.	Direct operating emissions for the Project are very minimal and would occur over a large area and would not cumulatively have the potential to exceed SCAQMD, AVAQMD, and KCAPCD emission significance thresholds.	Project operations would have a less-than-significant cumulative regional impact.	Class III
SCAQMD Localized Significance Thresholds (Criterion AIR2)	Construction of the Project would expose sensitive receptors to substantial pollutant concentrations (Impact AQ-3)	Existing emission sources are considered part of the existing ambient background cumulative condition.	Construction activities associated with the Project would expose sensitive receptors in the populated areas along the construction route. It can be assumed that emissions from other projects would have similar impacts to sensitive receptors.	The Project would have cumulative significant impacts to sensitive receptors.	Class I
	Operation of the Project would expose sensitive receptors to substantial pollutant concentrations (Impact AQ-4)	Existing emission sources are considered part of the existing ambient background cumulative condition.	Direct operating emissions for the Project are minimal and not very localized, and indirectly the Project would reduce operating emissions.	Project operations would have a less-than-significant cumulative localized impact to sensitive receptors	Class III
Air Toxic Contaminant Emissions (Criterion AIR3)	Construction or operation of the Project would generate toxic air contaminant emissions that would exceed SCAQMD risk thresholds (Impact AQ-5)	Existing emission sources are considered part of the existing ambient background cumulative condition.	Similar to the proposed Project, the cumulative projects construction would not be expected to have significant emissions of toxic air contaminants, and would not have the potential to cumulatively exceed SCAQMD risk thresholds.	Given the temporary nature and low toxic air contaminant emission level for the proposed Project and cumulative projects, cumulative health risks would be less-than-significant.	Class III
Odors (Criterion AIR5)	The Project would create objectionable odors (Impact AQ-7)	Existing emission sources are considered part of the existing ambient background cumulative condition.	Construction equipment and operations may create temporary and mildly objectionable odors, but would not significantly affect a substantial number of people.	Given the temporary nature and relative mildness of the Project's construction odors, odor impacts related to the proposed Project would be adverse but not cumulatively significant.	Class III

Table S-4. Summary Comparison of Environmental Issues/Impacts							
Environmental Issues / Impacts	Alternative 1 (No Project/Action)	Alternative 2 (SCE's Proposed Project)	Alternative 3	Alternative 4	Alternative 5	Alternative 6	Alternative 7
Construction emissions would exceed the SCAQMD, AVAQMD, and/or KCAPCD regional emission thresholds.	The impacts of new power plants and new T/Ls could add air pollutants contributing to existing nonattainment conditions or violations of ambient air quality standards, if they occur in areas of substantial existing pollution.	SCAQMD – NOx, VOC, CO, PM10 and PM2.5 thresholds exceeded. AVAQMD – NOx, VOC, CO, and PM10 thresholds exceeded. KCAPCD – PM10 threshold exceeded.	Same as Alternative 2	Same as Alternative 2	Same as Alternative 2 with magnitudes of exceedances higher in SCAQMD.	Same as Alternative 2	Same as Alternative 2
Operating emissions would exceed the SCAQMD, AVAQMD, and/or KCAPCD regional emission thresholds.	Same as Alternative 2. However, the difference in net emissions of criteria pollutants is unknown.	No exceedances of emission thresholds. Indirect impacts of enabling renewable energy use would be beneficial.	Same as Alternative 2	Same as Alternative 2	Same as Alternative 2 with operating emissions higher than Alternative 2	Same as Alternative 2	Same as Alternative 2
The Project would not conform to Federal General Conformity Rules.	New transmission lines on federal lands are anticipated to exceed thresholds and require a General Conformity analysis.	Project would not exceed SoCAB thresholds. General Conformity analysis is not required.	Same as Alternative 2	Same as Alternative 2	Same as Alternative 2	General Conformity analysis required. SoCAB NOx threshold is exceeded. Emission offset mitigation required to demonstrate conformity.	Same as Alternative 2
The Project would not conform to Angeles National Forest air quality strategies.	A project similar to the TRTP which crosses the ANF with appropriate mitigation would conform with ANF air quality strategies.	With appropriate mitigation the Project would conform with ANF air quality strategies.	Same as Alternative 2	Same as Alternative 2	Same as Alternative 2	Same as Alternative 2	Same as Alternative 2
Emissions would contribute to climate change.	Same as Alternative 2. However, the difference in net greenhouse gas (GHG) emissions is unknown.	Indirect impacts of enabling renewable energy use are beneficial and greater than the direct emissions from construction and operation of the Project.	Same as Alternative 2	Same as Alternative 2	Same as Alternative 2 with direct GHG emissions from construction higher than Alternative 2.	Same as Alternative 2 with direct GHG emissions from construction higher than Alternative 2.	Same as Alternative 2