

5 Summary Comparison of Proposed Project and Alternatives

Table 3 provides a comparison of the proposed Project and alternatives based on the analysis presented in Chapter 3 of the EIR/EIS (Affected Environment and Environmental Consequences) and the comparative analysis presented in Chapter 4 (Comparison of Alternatives). This summary focuses on the differences in key issues among the various alternatives for each environmental issue area.

5.1 Agricultural Resources

Based on the analyses of the Agricultural Resources impacts of the proposed Project and alternatives, as presented in Section 3.2 of the EIR/EIS, distinguishing characteristics of the alternatives have been highlighted in order to evaluate the overall effect of each alternative. For Agricultural Resources, the differentiators used to compare the alternatives included primarily the amount of Prime Farmland, Unique Farmland, and Farmland of Statewide importance that would be converted to nonagricultural uses, and secondarily on the linear distance (miles) of agricultural lands that would be traversed by the Project.

As shown in Table 3, implementation of Alternative 2 (SCE's Proposed Project) would result in the permanent conversion of approximately 5.83 acres of Farmland to non-agricultural use. The other Project alternatives, except Alternative 4 (Chino Hills Routes), would result in the conversion of the same amount of Farmland as Alternative 2. Alternative 4 would result in the conversion of less Farmland because new transmission infrastructure would not be constructed through the agricultural areas of Chino and Ontario. For the same reason, substantially fewer miles of agricultural land would be traversed by Alternative 4 than the other Project alternatives.

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Environmental Issue	Alternative 1 (No Project/Action)	Alternative 2 (SCE's Proposed Project)	Alternative 3 (West Lancaster)	Alternative 4 (Chino Hills Routes)	Alternative 5 (Partial Underground)	Alternative 6 (Max. Helicopter Construction in ANF)	Alternative 7 (66-kV Subtransmission)
AGRICULTURAL RESOURCES							
Acres of Farmland temporarily converted to non-agricultural use.	Potential projects would likely traverse the same geographic regions as Alts 2 through 7, and subsequently introduce similar types of impacts.	54.75 acres	Same as Alternative 2.	33.07 acres	Same as Alternative 2.	Same as Alternative 2.	Same as Alternative 2.
Acres of Farmland permanently converted to non-agricultural use.	Potential projects would likely traverse the same geographic regions as Alts 2 through 7, and subsequently introduce similar types of impacts.	5.83 acres	Same as Alternative 2.	4.35 acres	Same as Alternative 2.	Same as Alternative 2.	Same as Alternative 2.
Miles of agricultural land traversed by Project.	Potential projects would likely traverse the same geographic regions as Alts 2 through 7, and subsequently introduce similar types of impacts.	75.55 miles	75.95 miles	Alternative 4A: 57.67 miles. Alternative 4B: 58.22 miles. Alternative 4C: 64.63 miles. Alternative 4D: 61.23 miles.	74.85 miles	Same as Alternative 2.	Same as Alternative 2.
AIR QUALITY							
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 with magnitudes of NOx exceedances higher and PM exceedances lower.	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.	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 exceed SoCAB NOx thresholds. General Conformity analysis required.	Same as Alternative 2.	Same as Alternative 2.	Same as Alternative 2.	General Conformity analysis required. Magnitude of SoCAB NOx threshold exceedance substantially higher than Alternative 2.	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.
BIOLOGICAL RESOURCES							
Loss or degradation of vegetation communities	Potential projects would likely traverse the same geographic regions as either the proposed Project or Alts 3 through 7, and subsequently introduce similar types of impacts	1,538 acres of vegetation communities will be degraded, of which 277 acres will be permanent.	1,538 acres of vegetation communities will be degraded, of which 277 acres will be permanent. (Note: Land disturbance under Alternative 3 would decrease by a factor of one structure within Segment 4. As such, the acres disturbed would continue to be almost identical to Alt. 2.)	Route A: 1,512 acres of vegetation communities will be degraded, of which 291 acres will be permanent. Route B: 1,539 acres of vegetation communities will be degraded, of which 281 acres will be permanent. Route C: 1,567 acres of vegetation communities will be degraded, of which 287 acres will be permanent. Route D: 1,549 acres of vegetation communities will be degraded, of which 290 acres will be permanent.	1,563 acres of vegetation communities will be degraded, of which 280 acres will be permanent.	1,456 acres of vegetation communities will be degraded, of which 230 acres will be permanent.	1,538 acres of vegetation communities will be degraded, of which 277 acres will be permanent. (Note: Alt. 7 would have additional temporary disturbance associated with underground construction of 66-kV lines in Segment 7, re-routing the 66-kV line around the Whittier Narrows Recreation area in Segments 7 and 8A. New access and spur roads may be required for the new ROW for the San Gabriel River crossing within Segment 8A.)

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Loss or degradation of riparian communities	Same as above.	13.4 acres of riparian communities will be degraded or impacted.	Unknown acreage of riparian communities will be degraded or impacted as final engineering has not been conducted. Similar to Alt. 2.	Unknown acreage of riparian communities would be degraded or impacted as final engineering has not been conducted. Greater than Alt. 2.	Same as Alternative 2.	12.8 acres of riparian communities will be degraded or impacted.	Unknown acreage of riparian communities will be degraded or impacted as final engineering has not been conducted. Greater than Alt. 2.
Number of Riparian Conservation Areas (RCAs) subject to Project disturbance	Same as above.	Vehicle access, road grading, and culvert placement would affect 171 RCAs, of which 95 would be negatively impacted.	Same as Alternative 2.	Same as Alternative 2.	Same as Alternative 2.	Vehicle access, road grading, and culvert placement would affect 86 RCAs, of which 57 would be negatively impacted.	Same as Alternative 2.
Potential to spread noxious weeds	Same as above.	Construction would result in potential spread of noxious weeds. 225.7 miles of access and spur roads would be constructed and improved and approx. 1,538 acres of ground-disturbing activities would result as part of construction.	Same as Alternative 2.	Greater land disturbance would occur in open space and riparian habitat; increased likelihood for spread of noxious weeds. Route A: 231.9 miles of constructed and improved roads and 1,512 acres of ground-disturbing activities. Route B: 228.5 miles of constructed and improved roads and 1,539 acres of ground-disturbing activities. Route C: 231.8 miles of constructed and improved roads and 1,567 acres of ground-disturbing activities. Route D: 233.2 miles of constructed and improved roads and 1,549 acres of ground-disturbing activities.	Greater land disturbance would occur in open space, increasing the likelihood for spread of noxious weeds. 225.7 miles of access and spur roads would be constructed and improved and approx. 1,563 acres of ground-disturbing activities would result as part of construction.	Reduced number of spur roads and potential decrease in road traffic may reduce the likelihood for spread of noxious weeds. 183.2 miles of access and spur roads would be constructed and improved and approx. 1,456 acres of ground-disturbing activities would result as part of construction.	Greater land disturbance would occur in open space and riparian habitat, increasing the likelihood for spread of noxious weeds. 225.7 miles of access and spur roads would be constructed and improved and approx. 1,538 acres of ground-disturbing activities would result as part of construction.
Disturbance to common wildlife, nesting birds and raptors	Same as above.	Construction would result in disturbance to wildlife and nesting birds. For noise, 361,703 onroad vehicle trips are estimated to occur as part of construction of this Project. Up to approx. 9,339 helicopter trips would occur as part of construction on the ANF. For habitat disturbances, approx. 225.7 miles of new and upgraded road and 1,538 acres of ground-disturbing activities would result. 172.9 miles of new transmission line.	For noise, 361,586 onroad vehicle trips are estimated to occur as part of construction. Up to approx. 9,339 helicopter trips would occur as part of construction on the ANF. For habitat disturbances, approx. 225.7 miles of new and upgraded road and 1,538 acres of ground-disturbing activities would result. 173.3 miles of new transmission line.	Greater loss of habitat; increased disturbance to wildlife and nesting birds. For noise, 340,332 (Route A), 348,691 (Route B), 357,930 (Route C), or 353,091 (Route D) estimated onroad construction vehicle trips would occur. Up to approx. 9,339 helicopter trips would occur as part of construction on the ANF. Route A: 231.9 miles of new and upgraded roads and 1,512 acres of ground-disturbing activities. 157.2 miles of new transmission line. Route B: 228.5 miles of new and upgraded roads and 1,539 acres of ground-disturbing activities. 160.8 miles of new transmission line. Route C: 231.8 miles of new and upgraded roads and 1,567 acres of ground-disturbing activities. 162.8 miles of new transmission line. Route D: 233.2 miles of new and upgraded roads and 1,549 acres of ground-disturbing activities. 160.9 miles of new transmission line.	Greater land disturbance would increase disturbance to wildlife and nesting birds. For noise, 418,912 onroad vehicle trips are estimated to occur as part of construction of this Project. Up to approx. 9,339 helicopter trips would occur as part of construction on the ANF. For habitat disturbances, approx. 225.7 miles of new and upgraded road and 1,538 acres of ground-disturbing activities would result. 172.9 miles of new transmission line.	A reduction in land disturbance would occur; however, helicopter use would increase disturbance to wildlife and nesting birds due to noise, rotor wash, etc. For noise, 361,697 onroad vehicle trips are estimated to occur as part of construction of this Project. Up to approx. 42,014 helicopter trips would occur as part of construction on the ANF. For habitat disturbances, approx. 183.2 miles of new and upgraded road and 1,456 acres of ground-disturbing activities would result. 172.9 miles of new transmission line.	Greater land disturbance in natural areas would increase disturbance to wildlife and nesting birds. For noise, 362,861 onroad vehicle trips are estimated to occur as part of construction of this Project. Up to approx. 9,339 helicopter trips would occur as part of construction on the ANF. For habitat disturbances, approx. 225.7 miles of new and upgraded road and 1,538 acres of ground-disturbing activities would result. 172.9 miles of new transmission line.

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Disturbance to threatened/endangered and special-status plants	Same as above.	Although not observed, construction may affect listed plant species if present. Potential impacts to special-status plant species observed and potentially occurring in the Project area. 1,538 acres of land disturbance (277 acres permanent)	Same as Alternative 2.	Greater land disturbance; increased potential impacts to listed plants. Route A: 1,512 acres of land disturbance (291 acres permanent). Route B: 1,539 acres of land disturbance (281 acres permanent). Route C: 1,567 acres of land disturbance (287 acres permanent). Route D: 1,549 acres of land disturbance (290 acres permanent).	Greater land disturbance would increase potential impacts to listed plants 1,563 acres of land disturbance (280 acres permanent).	Reduced potential to affect listed plant species due to decreased land disturbance. 1,456 acres of land disturbance (228 acres permanent).	Greater land disturbance in natural areas would increase potential impacts to listed plants. 1,538 acres of land disturbance (277 acres permanent).
Disturbance to threatened/endangered and special-status wildlife	Same as above.	Potential effects on listed species including arroyo toad, California condor, California Gnatcatcher, least Bell's vireo, and Santa Ana Sucker. For noise, 361,703 onroad vehicle trips are estimated to occur as part of construction of this Project. Up to approx. 9,339 helicopter trips would occur as part of construction on the ANF. For habitat disturbances, approx. 225.7 miles of new and upgraded road and 1,538 acres of ground-disturbing activities would result. 172.9 miles of new transmission line.	Same as Alternative 2. For noise, 361,586 onroad vehicle trips are estimated to occur as part of construction. Up to approx. 9,339 helicopter trips would occur as part of construction on the ANF. For habitat disturbances, approx. 225.7 miles of new and upgraded road and 1,538 acres of ground-disturbing activities would result. 173.3 miles of new transmission line.	Greater land disturbance, including effects to riparian habitat and coastal sage scrub in the Chino Hills; Increased potential impacts to listed species such as least Bell's vireo and California gnatcatcher. For noise, 340,332 (Route A), 348,691 (Route B), 357,930 (Route C), or 353,091 (Route D) onroad estimated construction vehicle trips would occur. Up to approx. 9,339 helicopter trips would occur as part of construction on the ANF. Route A: 231.9 miles of new and upgraded roads and 1,512 acres of ground-disturbing activities. 157.2 miles of new transmission line. Route B: 228.5 miles of new and upgraded roads and 1,539 acres of ground-disturbing activities. 160.8 miles of new transmission line. Route C: 231.8 miles of new and upgraded roads and 1,567 acres of ground-disturbing activities. 162.8 miles of new transmission line. Route D: 233.2 miles of new and upgraded roads and 1,549 acres of ground-disturbing activities. 160.9 miles of new transmission line.	Same as Alternative 2. For noise, 418,912 onroad vehicle trips are estimated to occur as part of construction of this Project. Up to approx. 9,339 helicopter trips would occur as part of construction on the ANF. For habitat disturbances, approx. 225.7 miles of new and upgraded road and 1,563 acres of ground-disturbing activities would result. 172.9 miles of new transmission line.	Decreased land disturbance may decrease effects to listed wildlife; however, use of access roads and helicopter staging areas may still affect listed species. Use of helicopters may affect California condor, if present. For noise, 361,697 onroad vehicle trips are estimated to occur as part of construction of this Project. Up to approx. 42,014 helicopter trips would occur as part of construction on the ANF. For habitat disturbances, approx. 183.2 miles of new and upgraded road and 1,456 acres of ground-disturbing activities would result. 172.9 miles of new transmission line.	Greater land disturbance, including effects to riparian habitat and coastal sage scrub in the vicinity of the Whittier Narrows, would increase impacts to listed species such as least Bell's vireo and California gnatcatcher. For noise, 362,861 onroad vehicle trips are estimated to occur as part of construction of this Project. Up to approx. 9,339 helicopter trips would occur as part of construction on the ANF. For habitat disturbances, approx. 225.7 miles of new and upgraded road and 1,538 acres of ground-disturbing activities would result. 172.9 miles of new transmission line.
Transmission line strikes and electrocutions	Potential for transmission line strikes and electrocutions of birds and bats.	Potential for transmission line strikes and electrocutions of birds and bats. 172.9 miles of new transmission line.	Slightly longer transmission line route would result in slightly higher potential for line strikes and electrocutions. 173.3 miles of new transmission line.	Greater length of transmission line in open space; Slightly higher potential for line strikes and electrocutions. 157.2 (Route A), 160.8 (Route B), 162.8 (Route C), 160.9 (Route D) miles of new transmission line.	Underground portion of transmission line in Chino Hills would result in lower potential for line strikes and electrocutions. 172.9 miles of new transmission line.	Same as Alternative 2	Greater length of 66-kV line in open space would result in slightly higher potential for line strikes and electrocution; however, underground portions would reduce potential for line strikes and electrocution. 172.9 miles of new transmission line.

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Interference with wildlife movement	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	For noise, 361,703 onroad vehicle trips are estimated to occur as part of construction of this Project. Up to approx. 9,339 helicopter trips would occur as part of construction on the ANF. For habitat disturbances, approx. 225.7 miles of new and upgraded road and 1,538 acres of ground-disturbing activities would result. Activities would occur during any hours of the day or potentially the night, thus impacts with vehicles or deterrents to wildlife movement would occur.	For noise, 361,586 onroad vehicle trips are estimated to occur as part of construction. Up to approx. 9,339 helicopter trips would occur as part of construction on the ANF. For habitat disturbances, approx. 225.7 miles of new and upgraded road and 1,538 acres of ground-disturbing activities would result. Activities would occur during any hours of the day or potentially the night, thus impacts with vehicles or deterrents to wildlife movement would occur.	For noise, 340,332 (Route A), 348,691 (Route B), 357,930 (Route C), or 353,091 (Route D) estimated onroad construction vehicle trips would occur. Up to approx. 9,339 helicopter trips would occur as part of construction on the ANF. Route A: 231.9 miles of new and upgraded roads and 1,512 acres of ground-disturbing activities. 157.2 miles of new transmission line. Route B: 228.5 miles of new and upgraded roads and 1,539 acres of ground-disturbing activities. 160.8 miles of new transmission line. Route C: 231.8 miles of new and upgraded roads and 1,567 acres of ground-disturbing activities. 162.8 miles of new transmission line. Route D: 233.2 miles of new and upgraded roads and 1,549 acres of ground-disturbing activities. 160.9 miles of new transmission line. Activities would occur during any the day or potentially the night, thus impacts with vehicles or deterrents to wildlife movement would occur.	For noise, 418,912 onroad vehicle trips are estimated to occur as part of construction of this Project. Up to approx. 9,339 helicopter trips would occur as part of construction on the ANF. For habitat disturbances, approx. 225.7 miles of new and upgraded road and 1,538 acres of ground-disturbing activities would result. Activities would occur during any hours of the day or potentially the night, thus impacts with vehicles or deterrents to wildlife movement would occur.	For noise, 361,697 onroad vehicle trips are estimated to occur as part of construction of this Project. Up to approx. 42,014 helicopter trips would occur as part of construction on the ANF. For habitat disturbances, approx. 183.2 miles of new and upgraded road and 1,456 acres of ground-disturbing activities would result. Activities would occur during any hours of the day or potentially the night, thus impacts with vehicles or deterrents to wildlife movement would occur.	For noise, 362,861 onroad vehicle trips are estimated to occur as part of construction of this Project. Up to approx. 9,339 helicopter trips would occur as part of construction on the ANF. For habitat disturbances, approx. 225.7 miles of new and upgraded road and 1,538 acres of ground-disturbing activities would result. Activities would occur during any hours of the day or potentially the night, thus impacts with vehicles or deterrents to wildlife movement would occur.
CULTURAL RESOURCES							
Number of identified resources in the APE.	The number and nature of cultural resources cannot be determined without specific information about actions that might occur in lieu of the Project.	135 (57 prehistoric/73 historical/5 both)	Same as Alternative 2.	139 (58 prehistoric/75 historical/6 both)	Same as Alternative 2.	142 (63 prehistoric/74 historical/5 both)	151 (57 prehistoric/88 historical/6 both)
Number of resources added.	Not known.	Not known without additional information.	None.	9	Not known without additional information.	7	10
Potential for unanticipated discoveries during construction.	Impacts would occur as a result of various actions in lieu of the Project, but the extent of such impacts is not known.	Yes	Yes, but greater than Alternative 2.	Yes, but greater than Alternative 2.	Same as Alternative 2.	Same as Alternative 2.	Yes, but greater than Alternative 2.
ENVIRONMENTAL CONTAMINATION AND HAZARDS							
Mobilization of contaminants currently existing in the soil.	Construction of new T/Ls in urban areas with historic and recent commercial/industrial land uses in lieu of the Project would have the same impacts.	228 known contaminated sites within 0.25-mile of ROW.	Same as Alternative 2.	Alts 4A & 4B: 169 known contaminated sites within 0.25-mile of ROW. Alts 4C & 4D: 170 known contaminated sites within 0.25-mile of ROW. One known munitions testing/disposal site within 150 feet of alignment.	Underground construction at shafts has increased potential to encounter pre-existing contaminated soil. Deep tunnel section likely below known soil and groundwater contamination.	Same as Alternative 2.	Underground construction of 0.6 mile of 66kV subtransmission line in commercial land use areas has incrementally increased potential to encounter preexisting contaminated soil.
Exposure of workers and the public to landfill/natural gas	New T/Ls may or may not avoid landfills and oil fields.	19 landfills, 2 oil fields within 0.25-mile of ROW.	Same as Alternative 2.	Alts 4A, 4B, & 4C: 19 landfills, 2 oil fields within 0.25-mile of ROW; Alt. 4D: 19 landfills, 4 oil fields within 0.25-mile of ROW.	Same as Alternative 2.	Same as Alternative 2.	Same as Alternative 2.

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Unanticipated preexisting soil and/or groundwater contamination could be encountered during excavation or grading	Construction of new T/Ls in urban areas with historic and recent commercial/industrial land uses in lieu of the Project would have the same impacts.	New T/Ls traverse 48.5 miles of urban area with commercial/industrial land use.	Same as Alternative 2.	New T/Ls traverse 32.5 miles of urban area with commercial/ industrial land use.	Generally the same as Alternative 2. Only east transition station located in urban area; remainder of deep tunnel and shafts are in non-urban areas.	Same as Alternative 2.	Same as Alternative 2.
Contamination of soils or groundwater within the Project area during operation.	Operation and maintenance (O&M) of comparably-sized substations and length of T/L would have the same impacts as the Project.	O&M of one new substation and 3 expanded substations and 172.9 miles of new T/L infrastructure (181.7 circuit miles).	Same as Alternative 2.	The total distance of any of the Alt. 4 routes would be shorter than Alt. 2, but all of these routes would result in O&M of a new substation, switching station, and 2 expanded substations. Transmission line distances: Alternative 4A – approx. 157.2 miles; Alternative 4B – approx. 160.8 miles; Alternative 4C – approx. 162.8 miles; Alternative 4D – approx. 160.8 miles.	Same as Alternative 2.	Same as Alternative 2.	Same as Alternative 2.
Mobilization of contaminants or encountering ordnance currently existing in the soil	Construction of new T/Ls in areas with historic and recent munitions testing and disposal in lieu of the Project would have the same impacts.	No known munitions testing and disposal sites within 0.25-mile of ROW.	Same as Alternative 2.	Known area of munitions testing and disposal within 0.25 mile of ROW: Alts 4A & 4B avoid the munitions areas; Alts 4C & 4D: construction areas and access routes may encounter munitions testing and disposal sites.	Same as Alternative 2.	Same as Alternative 2.	Same as Alternative 2.
GEOLOGY, SOILS, AND PALEONTOLOGY							
Erosion could be triggered or accelerated due to construction activities.	Construction of new T/Ls in areas with comparable soils in lieu of the Project would have the same impacts.	Soil erosion could occur due to grading and excavation at new and modified access and spur roads, storage yards, 853 tower locations, 12 helicopter staging areas, one new substation, and expansion at five existing substations.	Construct approx. 2 additional miles of new access road; two additional towers and spur roads.	Despite shorter length and reduction in towers compared to other alternatives, erosion potential is increased due to the need for new or modified access/spur roads in the Chino Hills State Park (CHSP). Approx. miles of additional roads: Alternatives 4A & 4B – 6.5 miles; Alternatives 4C & 4D – 9.5 miles.	Construction of large transition stations would disturb more soil resulting in increased potential to trigger or accelerate erosion.	Helicopter construction for most towers in the ANF results in less road grading and one less helicopter staging area that would potentially need to be graded compared to Alt. 2. The overall ground disturbance during construction would be reduced by approx. 82 acres compared to Alt. 2, resulting in a decreased potential to trigger or accelerate erosion.	Construction of underground re-routes would require additional excavation and trenching, resulting in slightly more soil disturbance and incrementally increased potential to trigger or accelerate erosion.
Excavation and grading during construction activities could cause slope instability or trigger landslides.	New T/Ls in hillside areas may or may not encounter areas of landslides and unstable slopes.	Slope failures could be triggered by construction related excavation and grading of access and spur roads, helicopter staging areas, and new towers through approx. 77 miles of hillside and mountain areas with known landslides and unstable slopes.	Same as Alternative 2.	Greater risk of slope instability due to increased length of alignment which would result in increased ground disturbance in the landslide-prone Puente Formation. Approx. mileage of new roads and towers in hillside area with known landslide potential: Alternatives 4A & 4B - 2.7 miles; Alternatives 4C & 4D - 9.5 miles.	Incrementally less than Alt. 2 because construction bypasses some towers along hillsides in the landslide prone Puente Formation.	Reduced construction and grading of access and spur roads in steep mountainous terrain (approx. 60 less acres of ground disturbance during construction than Alt. 2) resulting in decreased potential to trigger landslides or slope instability during construction.	Same as Alternative 2.
Project structures could be damaged by surface fault rupture at crossings of active faults exposing people or structures to hazards.	Construction of new T/Ls may or may not cross active faults with surface rupture potential.	New T/Ls cross or parallel active faults in nine locations.	Same as Alternative 2.	Minor decrease for Alts 4A & 4C due to one less fault crossing (Chino-Central Ave fault, which is not a large significantly active fault). Otherwise the same as Alt. 2. Slightly increased potential for fault rupture for Alts 4B & 4D due to the to the location of the switching station adjacent to or on the mapped trace of the Alquist-Priolo zoned Chino Fault.	Incrementally increased due to underground construction proposed across the projected trend of the active of Chino fault at eastern end of tunnel and at eastern transition station.	Same as Alternative 2.	Same as Alternative 2.

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Project structures could be damaged by problematic soils exposing people or structures to hazards.	Construction of new T/Ls and substations may or may not be in areas of unsuitable soil.	New T/Ls, new substation, and expanded substations are located locally in areas of unsuitable soils.	Same as Alternative 2.	Slightly less potential for damage to Project structures due to unsuitable soils because the shorter length would require fewer towers. Approx. reduction in towers: Alternative 4A – 91; Alternative 4B – 72; Alternative 4C – 51; Alternative 4D – 62.	Same as Alternative 2.	Same as Alternative 2.	Same as Alternative 2.
Transmission line structures could be damaged by landslides, earth flows, or debris slides, during operation.	Construction of new T/Ls and substations may or may not be in hillside areas with landslides or other types of slope failures.	Approx. 360 new towers would be constructed through 77 miles of hillside and mountain areas with known landslides and unstable slopes.	Same as Alternative 2.	Greater risk of slope instability due to increased length of alignment in landslide-prone Puente Formation. Approx. increase in towers within landslide-prone areas (Puente and Chino Hills): Alternative 4A – 15; Alternative 4B – 23; Alternatives 4C & 4D – 28.	Incrementally less than Alternative 2 because construction bypasses some towers along hillsides in the landslide-prone Puente Formation.	Same as Alternative 2.	Same as Alternative 2.
Grading and excavation could destroy paleontologic resources.	Construction of comparably-sized substations and length of T/L would have the same impacts as the Project.	Ground disturbance due to construction of new transmission structures and access and spur roads across approx. 66.4 miles of geologic units with moderate to high paleontologic sensitivity.	Same as Alternative 2.	Increased grading and excavation in geologic unit having high paleontologic sensitivity. Approx. miles of additional roads: Alternatives 4A & 4B - 6.5 miles; Alternatives 4C & 4D – 9.5 miles. Approx. reduction in towers: Alternative 4A – 91; Alternative 4B – 72; Alternative 4C – 51; Alternative 4D – 62.	Incrementally increased due to the greater ground disturbance required for tunneling and construction of the transition stations in units with moderate to high paleontologic sensitivity.	Same as Alternative 2.	Slightly increased due to the greater ground disturbance required for trenching and excavation for re-routes in units with moderate paleontologic sensitivity.
Existing structures could be damaged by ground settlement along the tunnel exposing people or structures to hazards.	Construction of new T/Ls may or may not include underground construction and tunneling.	Would not occur because no tunnels would be constructed.	Same as Alternative 2.	Same as Alternative 2.	Short-term (days) and long-term (years) settlement of the ground surface could occur during construction and operation of the tunnel and shafts (underground portion only).	Same as Alternative 2.	Same as Alternative 2.
HYDROLOGY AND WATER QUALITY							
Number of named streams crossed by ROW.	Many named streams would be crossed by various actions in lieu of the Project, but the exact number is unknown.	41	Same as Alternative 2.	Alternative 4A and 4C: 32 Alternative 4B and 4D: 33	36	Same as Alternative 2.	Same as Alternative 2.
Number of unnamed streams crossed by ROW.	Many unnamed streams would be crossed by various actions in lieu of the Project, but the exact number is unknown.	160	162	Alternative 4A: 152 Alternative 4B: 154 Alternative 4C: 157 Alternative 4D: 150	157	Same as Alternative 2.	Same as Alternative 2.
Miles of T/L within a Flood Hazard Area.	T/Ls that would be built in lieu of the Project could be placed in Flood Hazard Areas, but the number of miles is unknown.	19.94	19.86	Alternative 4 (A-D): 14.12	19.76. Also places the proposed eastern transition station in a Flood Hazard Area.	Same as Alternative 2.	Same as Alternative 2.
Number of named streams crossed by new and/or improved access and/or spur roads in the ANF	It is anticipated that many named streams would be crossed by various actions in lieu of the Project, but the exact number is unknown.	14	Same as Alternative 2.	Same as Alternative 2.	Same as Alternative 2.	6	Same as Alternative 2.

Table 3. Summary Comparison of Environmental Issues							
Environmental Issue	Alternative 1 (No Project/Action)	Alternative 2 (SCE's Proposed Project)	Alternative 3 (West Lancaster)	Alternative 4 (Chino Hills Routes)	Alternative 5 (Partial Underground)	Alternative 6 (Max. Helicopter Construction in ANF)	Alternative 7 (66-kV Subtransmission)
Number of unnamed streams crossed by new and/or improved access and/or spur roads in the ANF	It is anticipated that many named streams would be crossed by various actions in lieu of the Project, but the exact number is unknown.	123	Same as Alternative 2.	Same as Alternative 2.	Same as Alternative 2.	62	Same as Alternative 2.
LAND USE							
Residential land uses would be temporarily or permanently disrupted, displaced or precluded.	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.	No residential land uses would be temporarily or permanently displaced. In comparison to Alternative 3, a slightly greater number of residential land uses would be temporarily disturbed or disrupted by construction.	The number of residential land uses disturbed or disrupted by construction and O&M would be slightly reduced in the North Region compared to Alternative 2.	The number of residential land uses disturbed or disrupted by construction and O&M would be reduced by an estimated 29.2 miles of ROW in the South Region compared to Alternative 2. This represents the greatest reduction of temporary disturbance to residential land uses.	The number of residential land uses temporarily disturbed by construction would be slightly reduced along the underground portion of the alignment, except at the transition stations where construction-related disturbances would increase. Permanent disruptions and disturbances would be the same as Alternative 2.	Temporary disruptions and disturbances to residential land uses in the affected area of the ANF (private in-holdings) would be prolonged; however, short- and long-term total land disturbances within the ANF would be reduced. Outside of the ANF, temporary impacts to residential land uses would be the same as Alternative 2.	Same as Alternative 2.
Non-residential land uses would be temporarily or permanently disrupted, displaced or precluded.	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.	Non-residential land uses would be temporarily disrupted, displaced or precluded by construction, particularly in the South Region (Segments 7, 11, and 8). No non-residential land uses would be permanently displaced or precluded by O&M.	Same as Alternative 2.	Same as Alternative 2 except along Segment 8, where no temporary or permanent impacts to existing non-residential land uses along a portion of Segment 8A/8C (16 miles) and all of Segment 8C (6.4 miles) would occur. Temporary and permanent disruptions, displacements and preclusions of non-residential land uses within CHSP would occur.	Same as Alternative 2 except along Segment 8A between MP 21.9 and MP 25.8. At S8A MP 25.8 construction would result in the permanent displacement (removal) of commercial land uses.	Increase in the duration of temporary disruptions to non-residential land uses within the ANF. Additional coordination required with the FAA and L.A. County Sheriff's Dept. related to the use of helicopters in the ANF. Permanent disruptions within the ANF would be the same as Alt 2. Outside of the ANF, temporary and permanent impacts to non-residential land uses would be the same as Alt 2.	Same as Alternative 2 except along Peck Road and Durfee Avenue and through the Duck Farm Project area, where construction-related activities would be intensified.
Construction or O&M activities would conflict with applicable federal, State or local land use plans, goals, or policies.	Potential projects would likely traverse the same geographic regions as either the proposed Project or Alts 3 through 7, and subsequently introduce similar types of impacts.	No conflicts with any applicable federal, State or local land use plans, goals, or policies.	Same as Alternative 2.	Same as Alternative 2 except within CHSP. Construction and O&M would conflict with the CHSP General Plan.	Same as Alternative 2.	Same as Alternative 2; however, additional agency coordination would be necessary related to the increased level of helicopter construction within the ANF.	Same as Alternative 2.
NOISE							
Construction noise would substantially disturb sensitive receptors.	Because unspecified transmission upgrades would be required, it is assumed these activities would generate construction noise similar to the proposed Project.	Sensitive noise receptors within close proximity (200 feet) to construction activities would be disturbed by substantial construction noise (i.e. result in an ambient noise increase of at least 5 dBA).	Slightly fewer sensitive receptors in the City of Lancaster would be subjected to construction noise than Alternative 2.	Fewer sensitive residential receptors within the City of Chino Hills would be subject to construction noise than Alternative 2.	Because of underground tunnel construction within the City of Chino Hills, construction noise would affect fewer sensitive receptors within the City of Chino Hills than Alternative 2.	Construction of additional helicopter staging areas and the increased use of helicopters would substantially increase construction noise. Small increase in the number of sensitive receptors that would be subjected to construction noise in and around the ANF.	Slightly increased construction noise would occur in the areas where subtransmission lines would be re-routed or installed underground.
Construction noise levels would violate local standards.	Because unspecified transmission upgrades would be required, it is assumed these activities would generate construction noise similar to the proposed Project.	Construction would not comply with noise ordinances adopted by the Cities of Baldwin Park, Duarte, La Habra Heights, Pasadena, and South El Monte.	Same as Alternative 2.	Same as Alternative 2.	Same as Alternative 2.	Same as Alternative 2.	Same as Alternative 2.
Permanent noise levels along the ROW would increase due to corona noise from operation of the transmission lines and substations.	Substantial noise effects would occur for any noise sensitive uses near possible new substations and new transmission facilities, which could result in operational noise, including corona noise.	Corona noise modeled for the proposed Project indicates that corona noise would substantially increase (i.e. more than 5 dBA above existing ambient noise) along Segments 5, 6, 7, 8, 10, and 11, with fewer sensitive noise receptors present along Segments 10, 6 and 11 (in the ANF).	Same as Alternative 2; however, due to the rerouting of the T/L in the City of Lancaster, slightly fewer sensitive receptors would be subjected to corona noise in the City of Lancaster.	Same as Alternative 2; however, by rerouting the proposed T/L through more rural areas of the City of Chino Hills, fewer sensitive residential receptors would be subjected to corona noise.	Same as Alternative 2; however, because a transmission segment would be placed underground within the City of Chino Hills, operational corona noise would affect fewer sensitive receptors.	Same as Alternative 2.	Same as Alternative 2; however, would avoid some amount of operational corona from 66-kV subtransmission lines along the two underground segments.

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PUBLIC SERVICES AND UTILITIES							
Utility systems would be temporarily disrupted during the construction period	The construction of new generating sources would create additional impacts to existing utilities and service systems that may be similar to the Project.	Project construction may require existing utility systems to be temporarily removed from service.	May avoid potential disruption to utility systems associated with planned development in Lancaster.	CHSP routing options would avoid potential utility system disruptions in the cities of Chino and Ontario, but may introduce disruptions to existing utility systems in the vicinity of the Alt. 4 routes in Chino Hills.	Potential for rolling blackouts in the case a Gas Insulated Line (GIL) system failure occurs.	Same as Alternative 2.	Same as Alternative 2.
SOCIOECONOMICS							
Operations and maintenance activities would affect (decrease) property values along the Project alignment.	Potentially would occur in the future due to construction of other T/Ls to meet the purpose and need of the Project.	Would be expected to occur in the North and South Regions.	Same as Alternative 2.	Slightly less than Alternative 2; Alts 4A to 4D would avoid homes along 16 miles of Segment 8A through Chino Hills, Chino, and Ontario.	Same as Alternative 2.	Same as Alternative 2.	Same as Alternative 2.
Potential decrease in revenues for agricultural landowners during construction.	Potentially would occur in the future due to construction of other T/Ls to meet the purpose and need of the Project.	Would be expected to occur in agricultural areas of the North Region.	Same as Alternative 2.	Same as Alternative 2.	Same as Alternative 2.	Same as Alternative 2.	Same as Alternative 2.
Project activities would affect public agency revenue.	Public revenue would not benefit from Project implementation.	Long-term public revenue affect would be positive due to property taxes and fees paid for Project operation; temporary decrease in Forest Service revenue from Adventure Pass sales during construction.	Same as Alternative 2.	Same as Alternative 2.	Same as Alternative 2.	Same as Alternative 2.	Same as Alternative 2.
TRAFFIC AND TRANSPORTATION							
Closure of roads to through traffic or reduction of travel lanes that would result in substantial congestion.	Impacts of potential future projects would most likely be similar to those of the proposed Project or alternatives.	Potentially affects 420 roadways.	Same as Alternative 2.	Alts 4B & 4D: Potentially affect 361 roadways Alts 4A & 4C: Potentially affect 360 roadways (would not cross Bane Canyon Road).	Potentially affects 409 roadways (11 fewer roadways than Alternative 2).	Would potentially affect 420 roadways and require temporary closure of two roadways that would not be required during construction of any other alternative.	Requires longer duration of temporary closures along 4 more roadway segments than Alternative 2.
Construction traffic would result in congestion on area roadways.	Impacts of potential future projects would most likely be similar to those of the proposed Project or alternatives.	Potentially affects 420 roadways.	Same as Alternative 2.	Alts 4B & 4D: Potentially affect 361 roadways Alts 4A & 4C: Potentially affect 360 roadways (would not cross Bane Canyon Road).	Would result in substantially more congestion on roadways within the Southern Region.	Same as Alternative 2.	Affects 4 more roadway segments than Alternative 2.
Construction activities could temporarily interfere with emergency response.	Impacts of potential future projects would most likely be similar to those of the proposed Project or alternatives.	Potentially affects 420 roadways.	Same as Alternative 2.	Approx. 60 fewer roadways than Alternative 2.	Potentially affects 409 roadways (11 fewer roadways than Alternative 2).	Incrementally increased due to potential closures of Upper Big Tujunga Canyon Road and Angeles Forest Highway.	Affects 4 more roadway segments than Alternative 2.
Construction activities could temporarily interfere with the use of pedestrian/bicycle paths.	Impacts of potential future projects would most likely be similar to those of the proposed Project or alternatives.	Would potentially affect several pedestrian and bicycle paths along the Project route.	Same as Alternative 2.	The following numbers of paths would be affected compared to Alt. 2: Alternatives 4A & 4B: 9 more paths; Alternative 4C: 3 more paths; Alternative 4D: 2 more paths.	Would affect approx. 11 fewer residential roadways than Alternative 2; thus it incrementally affects fewer sidewalks and pedestrian paths.	Same as Alternative 2.	Would affect sidewalks along 5 more roadway segments than Alternative 2.
VISUAL RESOURCES							
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.	<i>Slightly less than Alt. 2 due to minor re-route.</i> Construction activities along Segment 4 would not be visible in the foreground of 110th Street West for two miles.	<i>Greater than Alt. 2 due to effects in the CHSP.</i> Construction activities would be visible within the Chino Hills State Park (CHSP), including from Carbon Canyon Rd and other roads and trails near and within the CHSP. Impact V-1 would not occur on S8 from MP 19.2 to 35.2.	<i>Greater than Alt. 2 due to underground const.</i> 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.	<i>Greater than Alt. 2 due to helicopter visibility.</i> Within the ANF, less spur road improvement would occur and associated visual contrast would be less; however, helicopter use would be more intense (construction of 143 towers via helicopter vs. 33 for Alt. 2) and temporary visual contrast would be substantial.	<i>Slightly greater than Alt. 2 due to 66-kV re-route in South Area.</i> Temporary visual contrast of equipment for underground construction would be greater in and near Whittier Narrows and the Duck Farm (South Area).

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Environmental Issue	Alternative 1 (No Project/Action)	Alternative 2 (SCE's Proposed Project)	Alternative 3 (West Lancaster)	Alternative 4 (Chino Hills Routes)	Alternative 5 (Partial Underground)	Alternative 6 (Max. Helicopter Construction in ANF)	Alternative 7 (66-kV Subtransmission)
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.	<i>Slightly less than Alt. 2 due to minor re-route.</i> Direct alternation of landscape views would be less along 110 th Street West in Lancaster (S4).	<i>Greater than Alt. 2 due to effects in the CHSP.</i> Adverse effects would not occur along S8A, MP 19.2 to 35.2. Routes 4C and 4D be in new ROWs near and within CHSP, introducing the tallest structures in the landscape and creating skyline interference to landscape views	<i>Slightly less than Alt. 2 due to underground.</i> In the long-term the underground portion of Alt. 5 would result in fewer overhead structures being installed.	<i>Same as Alternative 2.</i>	<i>Slightly greater than Alt. 2 due to re-routed subtransmission lines.</i> A new 66-kV subtransmission line would be introduced along San Gabriel Boulevard and Durfee Road, which are currently characterized as urban landscape character.
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.	Double-circuit 500-kV T/L structures would be larger than existing structures and would result in the following visual contrasts: increased prominence and industrial character; structure skylining; increased background landscape obstruction; lower scenic integrity conditions in the ANF; Forest Plan amendment for Standard ANF S1 (PCT).	<i>Same as Alternative 2.</i>	<i>Greater than Alt. 2 due to effects in the CHSP.</i> Each routing option would introduce new and/or larger structures in and/or near the CHSP.	<i>Slightly less than Alt. 2 due to underground.</i> A transition station would be installed at each end of the underground portion, but new overhead T/L structures (LSTs) would not be introduced along the underground segment.	<i>Less than Alt. 2 due to better compliance with Forest Standard ANF S1.</i> In the ANF, proposed use of a TSP at the Mill Creek Summit PCT Trailhead would allow the current trail location to remain and better comply with Standard ANF S1; a Forest Plan amendment would not be required in this location.	<i>Less than Alt. 2 due to undergrounding 66-kV.</i> 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. Twelve helicopter staging areas would be cleared / graded in the ANF and would result in visual scarring and contrast similar to roads.	<i>Same as Alternative 2.</i>	<i>Slightly greater than Alt. 2 due to effects in the CHSP.</i> Adverse visual effects would be introduced to the CHSP as a result of clearing and grading activities for Routes A through D; these effects would not occur along S8A from MP 19.2 to MP 35.2.	<i>Temporary contrast would be greater than Alt. 2 due to u/g const.</i> Substantial earthwork would be required for installation of underground infrastructure and would introduce temporary adverse visual effects.	<i>Less than Alt. 2 due to fewer spur road improvements.</i> Fewer spur roads would be constructed due to more structures being constructed via helicopter (143 vs. 33 for Alt.2); adverse visual effects of spur roads would not occur for the 143 helicopter-constructed towers. Other roads such as West Fork Bikeway would not be widened or result in visual contrast. One fewer helicopter staging area (11 vs. 12 for Alt. 2) would be cleared and graded.	<i>Same as Alternative 2.</i> 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.
Sunlight reflection 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 towers would cause color and texture contrasts.	<i>Same as Alternative 2.</i>	<i>Slightly less than Alt. 2 due to non-build along Segment 8A.</i> Routes 4A through 4D would have new conductors that could be viewed from ridgetop trails in CHSP; however, no new towers would be installed along S8A from MP 19.2 to MP 35.2, thereby lessening the amount of new metal surfaces.	<i>Same as Alternative 2.</i>	<i>Same as Alternative 2.</i>	<i>Same as Alternative 2.</i>
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.	<i>Same as Alternative 2.</i>	<i>Slightly greater than Alt. 2 due to effects to Carbon Canyon Rd.</i> Routes 4A through 4D would traverse Carbon Canyon Road (SR 142), which is an Eligible State Scenic Highway.	<i>Same as Alternative 2.</i>	<i>Less than Alt. 2 due to decreased road const. in the ANF.</i> Fewer 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 Highway, I-210, West Fork National Scenic Bikeway Trail, or State Routes 39 and 57.	<i>Same as Alternative 2.</i>

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Non-compliance with established visual resource management plans or landscape conservation plans ⁹	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 Standard ANF S1 of the Forest Plan, LMP Part 3 Aesthetic Standards ANF 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 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 compliance with Forest Standard S1. Use of a TSP at the PCT Trailhead at Mill Creek Summit would provide consistency with Forest Standard S1 and would not require an amendment to the Forest Plan.	Same as Alternative 2.
WILDERNESS AND RECREATION							
Total number of Developed Recreation resources located within one-half mile of Project components ¹⁰ (North Region / Central Region / South Region)	Another, similar T/L project would likely introduce similar impacts to recreational and wilderness resources that would be introduced through the Project or an alternative.	126 (13 / 53 / 60)	Same as Alternative 2.	Alternative 4A: 126 (13 / 53 / 60) Alternative 4B: 125 (13 / 53 / 59) Alternative 4C: 114 (13 / 53 / 48) Alternative 4D: 125 (13 / 53 / 59)	Same as Alternative 2.	122 (13 / 50 / 59)	Same as Alternative 2.
Comparison of Developed Recreation resources within one-half mile of Project components on NFS and non-NFS lands ¹¹	Another, similar T/L project would likely introduce similar impacts to recreational and wilderness resources that would be introduced through the Project or an alternative.	47 (NFS) / 79 (non-NFS)	Same as Alternative 2.	Alternative 4A: 47 / 79 Alternative 4B: 47 / 78 Alternative 4C: 47 / 71 Alternative 4D: 47 / 78	Same as Alternative 2.	44 (NFS) / 78 (non-NFS)	Same as Alternative 2.
Number of recreation resources (not incl. Dispersed Recreation) that would be temporarily disrupted during construction	Another, similar T/L project would likely introduce similar impacts to recreational and wilderness resources that would be introduced through the Project or an alternative.	80 (41 on NFS)	Same as Alternative 2.	Alternative 4A: 86 (+6) Alternative 4B: 89 (+9) Alternative 4C: 85 (+5) Alternative 4D: 81 (+1)	Same as Alternative 2.	78 (39 on NFS)	Same as Alternative 2.
Number of recreation resources (not incl. Dispersed Recreation) that would be regularly disrupted due to operation and maintenance activities ¹²	Another, similar T/L project would likely introduce similar impacts to recreational and wilderness resources that would be introduced through the Project or an alternative.	35 (16 on NFS)	Same as Alternative 2.	Alternative 4A: 40 (+5) Alternative 4B: 42 (+7) Alternative 4C: 33 (-2) Alternative 4D: 36 (+1)	Same as Alternative 2.	35 (16 on NFS)	Same as Alternative 2.

⁹ 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.

¹⁰ Project components are inclusive of T/L facilities as well as substations and helicopter staging areas. Recreational resources on NFS lands in the ANF are managed by the Forest Service as either Developed Recreation or Dispersed Recreation. Unless defined otherwise on a case-by-case basis in this analysis, "Developed Recreation" includes resources that are regularly maintained by the Forest Service such as OHV routes, trails (for hiking, biking, and equestrian use), campgrounds, picnic areas, information centers, and other, similar facilities. Also unless defined otherwise on a case-by-case basis in this analysis, "Dispersed Recreation" includes undeveloped areas such as open space and natural scenic vistas which are used for recreational purposes but are not regularly maintained by the Forest Service.

¹¹ The Central Region of the Project Area extends slightly beyond the southern border of the ANF and therefore, not all recreational resources in the Central Region are located on NFS lands.

¹² Operation and maintenance activities would only have the potential to result in wilderness and recreation impact(s) for those resources which experience a "direct crossing" by the Project.

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Level of disturbance to Dispersed Recreation that would occur as a result of construction-related access restrictions/disturbances such as increased noise ¹³	Another, similar T/L project would likely introduce similar impacts to recreational and wilderness resources that would be introduced through the Project or an alternative.	Medium	Same as Alternative 2.	High	Same as Alternative 2.	High	Same as Alternative 2.
Number of recreation resources within one-half mile of the T/L route that are located on State Park lands	Another, similar T/L project would likely introduce similar impacts to recreational and wilderness resources that would be introduced through the Project or an alternative.	0	Same as Alternative 2.	Alternative 4A: 12 Alternative 4B: 11 Alternative 4C: 7 Alternative 4D: 11	Same as Alternative 2.	Same as Alternative 2.	Same as Alternative 2.
Level of unmanaged recreation that would occur as a result of Project construction ¹⁴	Another, similar T/L project would likely introduce similar impacts to recreational and wilderness resources that would be introduced through the Project or an alternative.	Medium	Same as Alternative 2.	Same as Alternative 2.	Same as Alternative 2.	Low	Same as Alternative 2.
Level of temporary degradation of the "Solitude and Unconfined Recreation" characteristic of the San Gabriel WA ¹⁵	Another, similar T/L project would likely introduce similar impacts to recreational and wilderness resources that would be introduced through the Project or an alternative.	Low	Same as Alternative 2.	Same as Alternative 2.	Same as Alternative 2.	Medium	Same as Alternative 2.
Level of temporary degradation of the "backcountry experience" on the PCT (temporary / permanent) ¹⁶	Another, similar T/L project would likely introduce similar impacts to recreational and wilderness resources that would be introduced through the Project or an alternative.	Medium / Low	Same as Alternative 2.	Same as Alternative 2.	Same as Alternative 2.	High / Low	Same as Alternative 2.
Level of temporary disturbance and/or preclusion that would affect hunting and fishing opportunities in the ANF ¹⁷	Another, similar T/L project would likely introduce similar impacts to recreational and wilderness resources that would be introduced through the Project or an alternative.	Medium	Same as Alternative 2.	Same as Alternative 2.	Same as Alternative 2.	High	Same as Alternative 2.

¹³ "Level of disturbance" is indicated as being "Low", "Medium", or "High", which represent generalized rankings for the purposes of comparison only and do not reflect impact significance determinations, which are discussed in the impact analysis for wilderness and recreation. Dispersed Recreation includes undeveloped areas such as open space and natural scenic vistas which are used for recreational purposes but are not regularly maintained by the Forest Service or other responsible agency. With regards to Dispersed Recreation, Alternative 2 is ranked as MED due to effects within the ANF, while Alternative 4 is ranked as HIGH due to effects within the CHSP as well as the ANF, and Alternative 6 is also ranked as HIGH because although this alternative would not affect the CHSP, its effects within the ANF would be more substantial. Please see the impact analysis for further discussion.

¹⁴ Unmanaged recreation refers to recreational activities that occur but are not authorized, such as OHV use in areas that are managed to be non-motorized. In the ANF, unmanaged recreation would be expected to occur in areas where roads are improved or installed, thus providing access to areas that otherwise were not easily accessible by the public. With regards to unmanaged recreation, Alternative 2 is ranked as MED because this alternative would include road improvements throughout the ANF, which would introduce the potential for unmanaged recreation in some areas. Alternative 6 is ranked as LOW because more transmission towers would be constructed via helicopter for Alternative 6 and therefore, fewer spur roads would need to be installed and/or improved, which is expected to result in less unmanaged recreation in the Forest, particularly in the form of unauthorized OHV use.

¹⁵ Wilderness Areas (WA) are officially designated by the U.S. Congress only if they have the following primary characteristics: natural and undisturbed landscape; solitude and unconfined recreation; 5,000 contiguous acres; features of natural value. Due to the Project's proximity to the San Gabriel WA, construction noise would have the potential to affect the "Solitude and Unconfined Recreation" characteristic of the San Gabriel WA. With regards to this WA characteristic, Alternative 2 is ranked as LOW with Alternative 6 ranked as MED because the greater extent of helicopter construction included under Alternative 6 increases noise-related disturbances in the Forest, particularly in sensitive or unique areas such as the San Gabriel WA. The use of helicopters may require flight paths to enter airspace over the San Gabriel WA, depending on wind and weather conditions. This construction-related degradation of the "Solitude and Unconfined Recreation" characteristic of the San Gabriel WA would be temporary.

¹⁶ The proposed Project and each of the identified alternatives would traverse the Pacific Crest National Scenic Trail (PCT) in three locations: once in the North Region and twice in the Central Region. Transmission lines that would be replaced by the Project currently exist at each of the proposed crossings of the PCT. As such, under current conditions, hikers on the PCT pass under transmission lines at each location, and hikers may be exposed to operation and maintenance activities at each of these locations. Therefore, the presence of transmission lines would not dramatically change existing conditions; however, the size of infrastructure included under the proposed Project and alternatives is larger than existing infrastructure, and would be visible from a greater distance away on the PCT. During the construction period, the implementation of "maximum helicopter construction" under Alternative 6 would cause greater disturbance to the "backcountry experience" on the PCT due to the noise, aesthetics, and air quality affects associated with helicopter use. In addition, Alternative 6 includes a helicopter staging area (Alt. 6 #4) located within 0.1 mile of the PCT in an area where the trail would not be traversed by the transmission line or otherwise disturbed by construction activities, whereas Alternative 2 includes a helicopter staging area (SCE #1) that is located within 0.3 mile of the PCT in an area where the trail is traversed by existing transmission lines as well as Project transmission lines and would therefore already be disturbed by construction activities.

¹⁷ Construction activities that occur during designated hunting season(s) in Hunting Zone D-11 would affect recreational hunting activities through road closures that restrict hunters' movement through the Forest, and/or through the introduction of construction noise and aesthetics that may affect wildlife presence and/or movement. The use of helicopters during construction would have a greater affect on hunting activities, primarily as a result of noise and, therefore, Alternative 6 would have a greater affect on hunting than Alternative 2. Impacts to fishing opportunities along the West Fork San Gabriel would not occur under Alternative 6 because construction traffic would not use Forest Road 2N25.1; other impacts to fishing opportunities would be the same for all alternatives.

Table 3. Summary Comparison of Environmental Issues							
Environmental Issue	Alternative 1 (No Project/Action)	Alternative 2 (SCE's Proposed Project)	Alternative 3 (West Lancaster)	Alternative 4 (Chino Hills Routes)	Alternative 5 (Partial Underground)	Alternative 6 (Max. Helicopter Construction in ANF)	Alternative 7 (66-kV Subtransmission)
WILDFIRE PREVENTION AND SUPPRESSION							
Construction and/or maintenance activities would reduce the effectiveness of firefighting.	Construction of a T/L in place of TRTP could interfere with emergency response vehicles during the construction phase through wildland areas with high-risk fuels.	Interference with emergency response vehicles during the construction phase through the ANF and Puente Hills Landfill Natural Habitat Preservation Authority (PHLNHPA) lands.	Same as Alternative 2.	Increased number of narrow, unpaved wildland access roads that would be potentially obstructed by emergency service vehicles in the event of a wildfire in CHSP.	Same as Alternative 2.	Same as Alternative 2.	Same as Alternative 2.
Presence of new or higher overhead transmission line would reduce the effectiveness of firefighting.	Presence of a T/L in place of TRTP in a new corridor could substantially increase the obstruction to firefighting operations.	Increased height of transmission structures in existing corridors along several segments, creating a marginal increased burden on aerial firefighting operations.	Same as Alternative 2.	Increased height of transmission structures in existing corridors along several segments, and increased length of new linear firefighting obstacles on the landscape, creating an increased burden on aerial firefighting operations.	Same as Alternative 2.	Same as Alternative 2.	Same as Alternative 2.
Construction and/or maintenance activities would increase the risk of wildfire.	Construction of a T/L in place of TRTP in a new corridor could substantially increase the risk of ignitions.	Wildfire ignition risks during the construction phase through wildland areas with high-risk fuels.	Same as Alternative 2.	Increased T/Ls through the high-risk Tehachapi Fireshed would increase potential for construction and O&M ignitions. Mileage of T/L increase: Alternative 4A – 2.3 miles; Alternative 4B – 4.5-miles; Alternative 4C – 5.6-miles; Alternative 4D – 5.2 miles. Alternative 4D would also add new linear element to a high-risk fuel-laden landscape that, in combination with other T/Ls, would create an indefensible space of approx. 2,000 acres. Increased potential for interference with fire suppression.	Same as Alternative 2.	Reduced construction-related ignitions compared with Alternative 2.	Same as Alternative 2.
Construction and/or maintenance activities would increase the risk of personnel injury or death in the event of fire.	Construction and maintenance of a T/L in place of TRTP would have a similar risk of personnel injury or death if constructed through wildland areas with high-risk fuels and limited ingress/egress.	Increased risk of personnel injury or death due to presence of personnel in access-limited wildlands that are highly susceptible to wildfire.	Same as Alternative 2.	Same as Alternative 2.	Same as Alternative 2.	Same as Alternative 2 after implementation of additional mitigation measures.	Same as Alternative 2.
Presence of the overhead transmission line would increase the risk of wildfire.	Presence of a T/L in place of TRTP would have a similar risk of long-term ignitions if constructed through high-risk fuels for a similar length.	Same risk of igniting fire in fire-prone areas of route as the existing T/L the Project would replace.	Same as Alternative 2.	Would incrementally increase risk of igniting wildfire in Chino Hills and CHSP.	Same as Alternative 2.	Same as Alternative 2.	Same as Alternative 2.
Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread.	Construction of a T/L in place of TRTP through wildland areas could have similar effects on fire behavior resulting from the introduction of non-native plants.	Introduces non-native plants, which would contribute to a change in fuel characteristics and fire behavior that could worsen the effects of fire.	Same as Alternative 2.	Introduces incrementally more non-native plants than Alternative 2, which would contribute to a change in fuel characteristics and fire behavior that could worsen the effects of fire.	Same as Alternative 2.	Introduces incrementally fewer non-native plants than Alternative 2 as a result of fewer roads (approx. 42 miles less) being constructed.	Same as Alternative 2.
ELECTRICAL INTERFERENCE AND HAZARDS ¹⁸							
Interferes with radio/television/communications/electronic equipment.	Interference would be generated by building or upgrading other transmission infrastructure in lieu of the Project.	No substantial interference with implementation of mitigation.	Interference would occur over a slightly longer line route than Alternative 2.	Interference would occur over the shortest routes.	Same as Alternative 2, except underground portion in Segment 8 would not generate interference.	Same as Alternative 2.	Same as Alternative 2, except underground portion in Segment 7 (66-kV) would not generate interference.
Causes induced currents or shock hazards.	Induced currents or shock hazards would be generated by building or upgrading other transmission infrastructure in lieu of the Project.	No substantial induced currents or shock hazards would occur with implementation of mitigation.	Induced currents or shock hazards would occur over a slightly longer line route than Alternative 2.	Induced currents or shock hazards would occur over the shortest routes.	Same as Alternative 2, except underground portion in Segment 8 would not result in induced currents or shock hazards.	Same as Alternative 2.	Same Alternative 2, except underground portion in Segment 7 (66-kV) would not result in induced currents or shock hazards.

¹⁸ In Decision D.06-01-042, dated January 26, 2006, the CPUC was “unable to determine whether there is a significant verifiable relationship between EMF exposure and negative health consequences.” In the absence of any defined standards for determining health risks from EMF, a comparison of health impacts between the alternatives cannot be made and is not presented in this table.

Table 3. Summary Comparison of Environmental Issues							
Environmental Issue	Alternative 1 (No Project/Action)	Alternative 2 (SCE's Proposed Project)	Alternative 3 (West Lancaster)	Alternative 4 (Chino Hills Routes)	Alternative 5 (Partial Underground)	Alternative 6 (Max. Helicopter Construction in ANF)	Alternative 7 (66-kV Subtransmission)
Introduces hazards related to wind or earthquake.	Hazards would be introduced by building or upgrading other transmission infrastructure in lieu of the Project.	No substantial hazards related to wind or earthquake would occur, as structures would be designed such that failure related to wind conditions would be highly unlikely and with dynamic loading under variable wind conditions that generally exceed earthquake loads.	Same as Alternative 2.	Same as Alternative 2, except that hazards would occur over the shortest line routes.	Same as Alternative 2, except underground portion in Segment 8 would not result in wind or earthquake hazards.	Same as Alternative 2.	Same as Alternative 2, except underground portion in Segment 7 (66-kV) would not result in wind or earthquake hazards.

5.2 Air Quality

Based on the analyses of the Air Quality impacts of the proposed Project and alternatives, as presented in Section 3.3 of the EIR/EIS, 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 (urban areas vs. rural areas), and ability to mitigate the emissions due to the differences in construction methods for the alternatives.

As discussed in Section 3.3 of the EIR/EIS and shown in Table 3, all of the Project alternatives would exceed regional emission thresholds for the SCAQMD, AVAQMD, and the 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 construction emissions for VOC and CO due to the substantial increase in helicopter use.

The 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 increased inspection and maintenance requirements for the underground lines and due to the substantial increase in SF₆ gas use, which is required to insulate the underground transmission lines.

5.3 Biological Resources

Based on the analyses of the Biological Resources impacts of the proposed Project and alternatives, as presented in Section 3.4 of the EIR/EIS, distinguishing characteristics of the alternatives have been highlighted in order to evaluate the overall effect of each alternative. For Biological Resources, the differentiators used to compare the alternatives included such considerations as total land disturbance, sensitive vegetation communities affected, designated critical habitat lost or disturbed, and numbers of listed and special-status species affected.

As shown in Table 3 and detailed in Section 3.4 of the EIR/EIS, although Alternative 2 (SCE's Proposed Project) and Alternative 6 (Maximum Helicopter Construction in the ANF) would result in direct and indirect impacts to biological resources, impacts associated with these alternatives would be lower in size and magnitude than the remaining alternatives. Alternative 2 would result in more land disturbance than Alternative 6 due to the extent of road improvements and construction. Alternative 6 follows the same route as the other alternatives through the ANF, impacting identical habitats and species, but it would comprise a net decrease in the size and magnitude of direct and indirect long-term impacts as a result of the construction of the majority of the transmission line on the ANF by helicopter. However, short-term

impacts associated with helicopter construction, such as noise, rotor wash, and general disturbance to wildlife, would be greater under this alternative as compared to Alternative 2.

Alternative 3 (West Lancaster), Alternative 5 (Partial Underground), and Alternative 7 (66-kV Subtransmission) would result in incrementally greater impacts to biological resources as compared to Alternative 2. The re-routed portion of Alternative 3 would incrementally increase impacts to California annual grassland, native wildflower field, and desert wash habitats as compared to Alternative 2, while the implementation of Alternative 5 would result in additional incremental impacts to disturbed/developed areas and California annual grassland. The rerouted 66-kV lines associated with Alternative 7 would incrementally increase impacts to sensitive riparian vegetation, as well as coastal sage scrub, ruderal grassland, nonnative woodland, and barren/developed areas.

Although Alternative 4 (Chino Hills Routes) would construct less miles of new transmission line than the other alternatives, it would result in a net increase to disturbance of unique vegetation communities as the re-routes (A through D) traverse primarily natural habitats including CHSP, as opposed to the remaining Project alternatives which traverse primarily barren/developed and agricultural habitats in this area of the Project (Segment 8). While there are slight differences in the routing options of Alternative 4, no individual route would result in a substantial increase or decrease of impacts to biological resources.

5.4 Cultural Resources

Based on the analyses of the Cultural Resources impacts of the proposed Project and alternatives, as presented in Section 3.5 of the EIR/EIS, distinguishing characteristics of the alternatives have been highlighted in order to evaluate the overall effect of each alternative. For Cultural Resources, the differentiators used to compare the alternatives included total land surface and subsurface disturbance; nature and extent of physical impacts; amount of new ROW required; extent to which cultural resource inventories have been completed; the location, distribution, and nature of known cultural resources affected; and the potential for unanticipated discoveries of cultural resources during construction.

As described in Table 3, there are approximately 100 identified cultural resources within the study areas for Alternative 2 (SCE's Proposed Project), Alternative 3 (West Lancaster), and Alternative 5 (Partial Underground). Compared to the other Project alternatives, Alternative 6 (Maximum Helicopter Construction in the ANF) would likely have fewer cultural resource impacts due to the substantial reduction in the number of miles of new, reconstructed, or upgraded access and spur roads in Segments 6 and 11 (approximately 42 miles with a $\pm 15\%$ range of 49 to 36 miles), which may serve to eliminate impacts on more NRHP- or CRHR-eligible cultural resources than would be added by proposed helicopter staging areas and landing zones (e.g., support yards and landing pads).

With the exception of Alternative 4 (Chino Hills Routes), Alternative 7 (66-kV Subtransmission) has the greatest potential among the Project alternatives for direct and indirect impacts on cultural resources because of the greater number of known resources, higher archaeological sensitivity, and enhanced potential for buried archaeological remains, including human remains. The Alternative 4 alignments for Routes A through D have not yet been surveyed for cultural resources, so it is possible that the number of affected resources along the alternative route could be greater than the number along Segment 8A for the other Project alternatives. One previously identified cultural resource is located along Alternative 4B and others may be identified when intensive pedestrian surveys are completed.

5.5 Environmental Contamination and Hazards

Based on the analyses of the Environmental Contamination and Hazards impacts of the proposed Project and alternatives, as presented in Section 3.6 of the EIR/EIS, distinguishing characteristics of the alternatives have been highlighted in order to evaluate the overall effect of each alternative. For Environmental Contamination and Hazards, the differentiators used to compare the alternatives included proximity to known and suspected areas of soil and groundwater contamination, proximity to oil fields and landfills where methane and toxic gases may be present, potential for previously unanticipated contamination in Project areas due to past land use activities, and the potential for construction-related contamination based on the relative amount of construction work (length of each alternative, number of new structures to be constructed, number of existing structures to be removed).

All four routes under Alternative 4 (Chino Hills Routes) are between approximately 10 miles (Route C) to 16 miles (Route A) shorter than the other Project alternatives and avoid 10 miles of commercial/industrial areas with many known environmental contamination sites. The shorter Project length incrementally reduces the potential for impacts related to environmental contamination to occur during construction and during operation and maintenance of the proposed transmission line.

Alternative 2 (SCE's Proposed Project) includes approximately 16 miles of transmission line within commercial and industrial areas along Segment 8A with numerous known environmental contamination sites. Alternative 3 (West Lancaster) and Alternative 5 (Partial Underground) would have potential environmental contamination impacts that would be the same as or similar to Alternative 2.

Alternative 7 (66-kV Subtransmission) and Alternative 6 (Maximum Helicopter Construction in the ANF) would increase the potential for spills and leaks of fuel, lubricants and other chemicals to occur during construction compared to the other Project alternatives. Potential spills and leaks from Alternative 7 may result from the increase in construction effort required for underground construction of 66-kV subtransmission lines, while spills and leaks from Alternative 6 may result from the extensive use of helicopters to support construction along Segments 6 and 11 in the ANF.

5.6 Geology, Soils, and Paleontology

Based on the analyses of the Geology, Soils, and Paleontology impacts of the proposed Project and alternatives, as presented in Section 3.7 of the EIR/EIS, distinguishing characteristics of the alternatives have been highlighted in order to evaluate the overall effect of each alternative. For Geology, Soils, and Paleontology, the differentiators used to compare the alternatives included such considerations as erosion potential (based on soil characteristics and total land disturbance), potential for damage from slope instability or other ground failures both during construction and operation, potential for damage from seismic events (i.e., fault rupture, liquefaction, or seismically induced landslides), and potential to disturb and or destroy unique paleontologic resources.

As described in Table 3, Alternative 2 (SCE's Proposed Project) would involve the construction of access roads, helicopter and other associated construction staging areas, and a total of 853 new towers. Land disturbance consisting of grading and excavation would be required through approximately 77 miles of hillside and mountain areas with known landslides and unstable slopes, resulting in the potential for impacts from construction triggered slope failures, seismically induced slope failures, and slope failures during Project operation. Slope stability impacts associated with Alternative 3 (West Lancaster), Alternative 5 (Partial Underground), and Alternative 7 (66-kV Subtransmission) would be similar to Alternative 2, as these alternatives would have similar construction through the same hillside and

mountain areas for the same distance. Compared to Alternative 2, impacts related to construction triggered landslides under Alternative 6 (Maximum Helicopter Construction in the ANF) are expected to decrease due to the reduction in land disturbance from grading of fewer access and spur roads (approximately 45 acres versus 105 acres) required in the hillside and mountain areas with maximum helicopter construction. Of all the Project alternatives, Alternative 4 (Chino Hills Routes) would have the greatest increase in the amount of construction-related land disturbance in hillside areas with known landslides and slope stability issues and earthquake induced slope failure hazards.

Compared to Alternative 2, construction-related erosion is expected to increase under Alternative 5 (Partial Underground) and Alternative 7 (66-kV Subtransmission) due to increased ground disturbance from underground construction activities, as well as under Alternative 4 (Chino Hills Routes) due to the increased amount of grading required for access roads and new spur roads. Of all the Project alternatives, erosion related impacts would have the greatest decrease under Alternative 6 (Maximum Helicopter Construction in the ANF) due to the reduction in the number of new and upgraded access and spur roads (approximately 42 miles with a $\pm 15\%$ range of 49 to 36 miles), resulting in less ground disturbance in areas with potential erosion issues.

In comparison with the other Project alternatives, Alternative 4 (Routes B and D) and Alternative 5 would result in slightly increased potential for damage from surface fault rupture. Under Routes 4B and 4D, a switching station would be located adjacent to or on the mapped trace of the Alquist-Priolo zoned Chino Fault, while the underground portion of the Alternative 5 alignment would cross the projected trend of the Chino fault.

Compared to the other Project alternatives, the potential to damage or destroy paleontologic resources during construction is expected to increase for Alternative 4 (Chino Hills Routes) and Alternative 7 (66-kV Subtransmission). Alternative 4 would increase ground disturbance in the paleontologically sensitive Puente Formation, while Alternative 7 would cause a slight increase in ground disturbance from underground construction and new 66-kV poles in young alluvium with moderate paleontologic sensitivity.

Of all the Project alternatives, only Alternative 5 (Partial Underground) would create a potential impact from ground subsidence/settlement during and after construction of the tunnel that could result in damage to overlying structures.

5.7 Hydrology and Water Quality

Based on the analyses of the Hydrology and Water Quality impacts of the proposed Project and alternatives, as presented in Section 3.8 of the EIR/EIS, distinguishing characteristics of the alternatives have been highlighted in order to evaluate the overall effect of each alternative. For Hydrology and Water Quality, the differentiators used to compare the alternatives included such considerations as the number of streams that would be crossed, the water quality and level of surrounding development of the streams that would be crossed, the number of miles of Project structures within a Flood Hazard Area, and the potential for underlying groundwater to be contaminated by Project construction activities. A quantitative comparison of the alternatives was conducted for criteria where adequate data are available.

As a result of constructing 143 transmission towers in the ANF by helicopters, Alternative 6 (Maximum Helicopter Construction in the ANF) would include the least amount of new or upgraded access and spur roads, in comparison with the proposed Project and other alternatives. Therefore, the amount of erosion and sedimentation that would occur under Alternative 6 would be lower and the subsequent impacts to surface and groundwater quality would also be diminished. Alternative 3 (West Lancaster) would follow

the same route as the proposed Project except for a short distance in the North Region where the transmission line would traverse two additional unnamed streams (in comparison with the proposed Project). Alternative 4 (Chino Hills Routes), Route D, would cross fewer streams and overlies one fewer groundwater basin than the proposed Project, Alternative 3, or Alternative 6, but would affect high quality, natural streams within CHSP that would not be affected by the aforementioned alternatives. Alternative 4, Route A, would cross one more stream than Alternative 4, Route D; Alternative 4, Route B, would cross four additional streams; and Alternative 4, Route C, would cross six additional streams (in comparison with Alternative 4, Route D). Alternative 5 (Partial Underground) would avoid several stream crossings that would occur under the proposed Project; however, this alternative would have greater potential to come in direct contact with groundwater resources as a result of the 3.5-mile underground segment included in the South Region (Segment 8). Alternative 7 (66-kV Subtransmission) would also introduce the potential to come into contact with groundwater resources as a result of the undergrounded portions of 66-kV subtransmission line in the South Region (Segments 7 and 8).

5.8 Land Use

Based on the analyses of the Land Use impacts of the proposed Project and its alternatives, as presented in Section 3.9 of the EIR/EIS, distinguishing characteristics of the alternatives have been highlighted in order to evaluate the overall effect of each alternative. For Land Use, the differentiators used to compare the alternatives included such considerations as total land disturbance, the duration of potential short- and long-term impacts, and the ability to avoid or minimize the types of land uses affected.

As shown in Table 3, construction-related disruptions, displacements and preclusions to residential and non-residential land uses would be temporary in nature for all Project alternatives and can be mitigated to a level of less than significant. Alternative 5 (Partial Underground) would result in the permanent loss of non-residential (commercial) land uses along Segment 8A near MP 25.3. In comparison to Alternative 5, implementation of the remaining Project alternatives would not result in any permanent disruptions, displacements or preclusions of any residential or non-residential land uses.

Under Alternative 4 (Chino Hills Routes), there would be a very substantial reduction in the short- and long-term disruptions of both residential and non-residential land uses east of Segment 8A MP 19.2 and along Segments 8B and 8C in comparison to all other alternatives. However, Alternative 4 would result in both short- and long-term conflicts with existing land uses and maintenance and operational activities within Chino Hills State Park (CHSP), as well as with the park's General Plan. No other Project alternative would conflict with an applicable federal, State, or local land use plan, goal, or policy.

5.9 Noise

Based on the analysis conducted for Noise impacts of the proposed Project and alternatives, as presented in Section 3.10 of the EIR/EIS, distinguishing characteristics of the alternatives have been highlighted. Based on the analyses of the Electrical Interference and Hazards impacts of the proposed Project and alternatives, as presented in Section 3.17 of the EIR/EIS, distinguishing characteristics of the alternatives have been highlighted in order to evaluate the overall effect of each alternative. For Electrical Interference and Hazards, the differentiators used to compare the alternatives included such considerations as the transmission line length, as Electrical Interference and Hazards impacts are directly related to the length of the line, and whether the transmission line would be located overhead or placed underground. Please note that potential health risks associated with EMF are not considered in this evaluation because there is no consensus in the scientific community regarding health risks associated with EMF exposure and, therefore, conclusions regarding this concern cannot be reached in this report.

As shown in Table 3, Alternative 4 (Chino Hills Routes) would result in the shortest overall line length compared to the other alternatives, and therefore would have the fewest miles where Electrical Interference and Hazards impacts could occur. Similarly, placement of the proposed transmission line (double-circuit 500-kV) underground as part of Alternative 5 (Partial Underground) and the 66-kV subtransmission lines as part of Alternative 7 (66-kV Subtransmission) would reduce potential impacts, as underground portions would not have any Electrical Interference and Hazards impacts. Alternative 2 (SCE's Proposed Project), Alternative 6 (Maximum Helicopter Construction in the ANF), and Alternative 3 (West Lancaster) would result in similar Electrical Interference and Hazards impacts as these alternatives are of relatively the same length and have the same or extremely similar (in the instance of Alternative 3) proposed overhead and underground transmission and subtransmission infrastructure.

in order to evaluate the overall effect of each alternative. For Noise, the differentiators used to compare the alternatives included such considerations as duration and intensity of construction noise, operational corona noise levels, and numbers of sensitive receptors affected by construction and operational noise.

Alternative 2 (SCE's Proposed Project) would have significant unavoidable construction and operational noise impacts to sensitive receptors. Impacts would be similar for the other Project alternatives, although the number of affected sensitive receptors would be lower under Alternatives 3 (West Lancaster) and 4 (Chino Hills Routes). Alternative 5 (Partial Underground) would also subject fewer sensitive receptors to both construction and operational corona noise, as it would avoid both construction and permanent corona noise impacts to a number of residences along the 3.5-mile underground segment of transmission line within the City of Chino Hills.

Although Alternative 6 (Maximum Helicopter Construction in the ANF) and Alternative 7 (66-kV Subtransmission) would have nearly identical operational noise impacts to sensitive receptors as Alternative 2, construction noise impacts would be greater than Alternative 2. Alternative 6 would expose the highest number of sensitive receptors to high volume helicopter noise, while Alternative 7 would result in an increase in the amount of construction equipment and the intensity of construction for the underground placement of the 66 kV subtransmission line.

5.10 Public Services and Utilities

Based on the analysis of the Public Services and Utilities impacts for the proposed Project and alternatives, as presented in Section 3.11 of the EIR/EIS, distinguishing characteristics of the alternatives have been highlighted in order to evaluate the overall effect of each alternative. For Public Services and Utilities, the differentiators used to compare the alternatives included the potential interference with or an increased need for public services and utility systems.

For each of the Project alternatives, construction activities would potentially interfere with emergency services as well as Los Angeles County Public Works maintenance yards and waste management services. In addition, construction of each alternative would potentially increase the need for utility systems, such as water resources, and could temporarily disrupt the flow of utility systems. However, these impacts would be less-than-significant with implementation of the mitigation measures discussed in Section 3.11.

Compared to the other Project alternatives, Alternative 4 (Chino Hills Routes) includes four routing options (A through D) that would terminate the Project before it would reach the cities of Chino or Ontario, which would avoid interference with public service and utilities systems in both of these cities while potentially introducing new impacts in the City of Chino Hills and CHSP. Alternative 5 (Partial Underground) also differs from the other Project alternatives, in that it would include potential rolling black-outs if system failure were to occur with the Gas Insulated Line. Reliability considerations are

primarily related to the lack of precedence in installing GIL systems of the length and voltage proposed under Alternative 5, and the likelihood of system failure for the system is unknown at this time. As a result, construction of Alternative 5 could interfere with the flow of utility systems in the vicinity of the proposed 3.5-mile underground portion of Segment 8.

5.11 Socioeconomics

Based on the analysis of the Socioeconomic impacts for the proposed Project and alternatives, as presented in Section 3.12 of the EIR/EIS, distinguishing characteristics of the alternatives have been highlighted in order to evaluate the overall effect of each alternative. For Socioeconomics, the six identified Issues of Concern were used as differentiators to compare the alternatives. These Issues of Concern included the following: Population and Housing, Quality of Life, Employment, Private Property Value, Local Business Revenue, and Public Revenue.

As shown in Table 3, each of the Project alternatives would have the potential to result in decreased agricultural business revenue in the North Region, particularly during the construction period. Each of the alternatives would also have the potential to affect private property value as a result of Project infrastructure, particularly in the South Region. Compared to the other Project alternatives, Alternative 4 (Chino Hills Routes) would avoid potential property value impacts along approximately 16 miles of the transmission line route that is proposed under the remaining alternatives. Alternative 5 (Partial Underground) would differ from the other Project alternatives in that it could possibly have a temporary effect on local business revenue in proximity to the transition stations, specifically the eastern transition station, as a result of the extended construction schedule affecting access of customers to business establishments. In comparison with the other Project alternatives, Alternative 6 (Maximum Helicopter Construction in the ANF) could have a greater effect on the “quality of life” Issue of Concern during the construction period, particularly for visitors on lands in the ANF, because certain factors that are considered to contribute to an individual’s perception of quality of life (such as noise, aesthetics, and air quality) would be temporarily degraded due to this alternative’s increased use of helicopter construction.

5.12 Traffic and Transportation

Based on the analyses of the Traffic and Transportation impacts of the proposed Project and alternatives, as presented in Section 3.13 of the EIR/EIS, distinguishing characteristics of the alternatives have been highlighted in order to evaluate the overall effect of each alternative. For Traffic and Transportation, the differentiators used to compare the alternatives primarily included the total number of roadways crossed, roadway congestion, number of transit and pedestrian routes crossed, and overall construction duration.

As shown in Table 3, implementation of Alternative 2 (SCE’s Proposed Project), Alternative 3 (West Lancaster), Alternative 6 (Maximum Helicopter Construction in the ANF), and Alternative 7 (66-kV Subtransmission) would result in overhead crossings of approximately 420 roadways, while Alternative 5 (Partial Underground) and Alternative 4 (Chino Hills Routes) would result in overhead crossings of approximately 409 and 350 roadways, respectively. Trenching required for construction of Alternative 7 would result in temporary closure of roadways that would not be required for any other alternative. Underground construction activities required for Alternative 5 would result in a substantially longer duration of construction activities with considerable truck trips associated with removal of dirt and import of concrete to form the proposed tunnel, and consequently a longer duration and more extensive Traffic and Transportation impacts than the other alternatives.

5.13 Visual Resources

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 5.14 Wilderness and Recreation

Based on the analysis of the Wilderness and Recreation impacts of the proposed Project and alternatives, as presented in Section 3.15 of the EIR/EIS, distinguishing characteristics of the alternatives have been highlighted in order to evaluate the overall effect of each alternative. For Wilderness and Recreation, the differentiators used to compare the alternatives included such considerations as the level of temporary and permanent disturbance that would affect recreational resources and opportunities in the Project Area. Particular consideration was given to potential disturbance of unique or sensitive recreational resources, such as the Pacific Crest National Scenic Trail (PCT), designated Wilderness Areas (WA) in the ANF, the Duck Farm Project, CHSP, and others.

All of the Project alternatives are routed through the ANF, and would introduce temporary impacts to recreational resources and opportunities on NFS lands as a result of construction activities. Under Alternative 6 (Maximum Helicopter Construction in the ANF), 143 transmission towers in the Forest would be constructed using helicopters, as opposed to 33 helicopter-constructed towers associated with each of the remaining Project alternatives. Therefore, temporary construction impacts to recreational resources and opportunities that would occur as a result of helicopter use, particularly as a result of noise disturbance, would be greater under Alternative 6. Unique recreational resources in the Forest, including the PCT and the San Gabriel WA, are especially susceptible to helicopter disturbance along the transmission line route and helicopter flight paths, as well as in proximity to helicopter staging areas. During operation and maintenance of the transmission line, effects to recreational resources and opportunities would be extremely similar among all Project alternatives, which would also be similar to existing conditions. However, compared to the other Project alternatives, it is expected that unmanaged recreation related to new or improved access and spur roads in the ANF would be less under Alternative 6

because access and spur roads to helicopter-constructed towers would not be improved or installed and would therefore not provide access to unauthorized areas for unmanaged recreation.

In comparison to the other Project alternatives, Alternative 7 (66-kV Subtransmission) would minimize recreation impacts at the Duck Farm Project site by undergrounding the 66-kV subtransmission line in this area, thereby avoiding permanent disruption to the approved site plan. In contrast, Alternative 4 (Chino Hills Routes) would introduce permanent wilderness and recreation impacts to areas of CHSP that would be avoided under the other Project alternatives.

5.14 Wilderness and Recreation

Based on the analysis of the Wilderness and Recreation impacts of the proposed Project and alternatives, as presented in Section 3.15 of the EIR/EIS, distinguishing characteristics of the alternatives have been highlighted in order to evaluate the overall effect of each alternative. For Wilderness and Recreation, the differentiators used to compare the alternatives included such considerations as the level of temporary and permanent disturbance that would affect recreational resources and opportunities in the Project Area. Particular consideration was given to potential disturbance of unique or sensitive recreational resources, such as the Pacific Crest National Scenic Trail (PCT), designated Wilderness Areas (WA) in the ANF, the Duck Farm Project, CHSP, and others.

All of the Project alternatives are routed through the ANF, and would introduce temporary impacts to recreational resources and opportunities on NFS lands as a result of construction activities. Under Alternative 6 (Maximum Helicopter Construction in the ANF), 143 transmission towers in the Forest would be constructed using helicopters, as opposed to 33 helicopter-constructed towers associated with each of the remaining Project alternatives. Therefore, temporary construction impacts to recreational resources and opportunities that would occur as a result of helicopter use, particularly as a result of noise disturbance, would be greater under Alternative 6. Unique recreational resources in the Forest, including the PCT and the San Gabriel WA, are especially susceptible to helicopter disturbance along the transmission line route and helicopter flight paths, as well as in proximity to helicopter staging areas. During operation and maintenance of the transmission line, effects to recreational resources and opportunities would be extremely similar among all Project alternatives, which would also be similar to existing conditions. However, compared to the other Project alternatives, it is expected that unmanaged recreation related to new or improved access and spur roads in the ANF would be less under Alternative 6 because access and spur roads to helicopter-constructed towers would not be improved or installed and would therefore not provide access to unauthorized areas for unmanaged recreation.

In comparison to the other Project alternatives, Alternative 7 (66-kV Subtransmission) would minimize recreation impacts at the Duck Farm Project site by undergrounding the 66-kV subtransmission line in this area, thereby avoiding permanent disruption to the approved site plan. In contrast, Alternative 4 (Chino Hills Routes) would introduce permanent wilderness and recreation impacts to areas of CHSP that would be avoided under the other Project alternatives.

5.15 Wildfire Prevention and Suppression

Based on the analyses of the Wildfire Prevention and Suppression impacts of the proposed Project and alternatives, as presented in Section 3.16 of the EIR/EIS, distinguishing characteristics of the alternatives have been highlighted in order to evaluate the overall effect of each alternative. For Wildfire Prevention and Suppression, the differentiators used to compare the alternatives included such considerations as the number of significant, unavoidable (Class I) impacts, the number of miles of new transmission lines that

would be constructed through wildland areas with high-risk fuels, and whether indefensible spaces would be created by siting transmission lines in new corridors resulting in conflicts with firefighting operations.

All of the Project alternatives would pose wildfire ignition risks during the construction phase. Compared to the other Project alternatives, Alternative 6 (Maximum Helicopter Construction in the ANF) would require the construction of fewer roads within the ANF, which would slightly reduce the number of potential ignitions during construction and slightly reduce the potential introduction of non-native weeds that provide fuel for wildfires.

Alternative 4 (Routes A through D) would reduce the total mileage of new transmission line and upgrades, in comparison with the other Project alternatives, by between 10 miles (Route C) and 16 miles (Route A). However, the mileage of new transmission line through the high-risk Tehachapi Fireshed would increase with the implementation of Alternative 4, thereby increasing the potential for construction and operational ignitions in high-risk fuels. In addition, Route D would introduce a new linear element to a high-risk fuel laden landscape in a new 5.3-mile length of ROW and create an indefensible space of approximately 2,000 acres in combination with existing transmission lines, thereby increasing the potential for interference with fire suppression efforts.

5.16 Electrical Interference and Hazards

Based on the analyses of the Electrical Interference and Hazards impacts of the proposed Project and alternatives, as presented in Section 3.17 of the EIR/EIS, distinguishing characteristics of the alternatives have been highlighted in order to evaluate the overall effect of each alternative. For Electrical Interference and Hazards, the differentiators used to compare the alternatives included such considerations as the transmission line length, as Electrical Interference and Hazards impacts are directly related to the length of the line, and whether the transmission line would be located overhead or placed underground. Please note that potential health risks associated with EMF are not considered in this evaluation because there is no consensus in the scientific community regarding health risks associated with EMF exposure and, therefore, conclusions regarding this concern cannot be reached in this report.

As shown in Table 3, Alternative 4 (Chino Hills Routes) would result in the shortest overall line length compared to the other alternatives, and therefore would have the fewest miles where Electrical Interference and Hazards impacts could occur. Similarly, placement of the proposed transmission line (double-circuit 500-kV) underground as part of Alternative 5 (Partial Underground) and the 66-kV subtransmission lines as part of Alternative 7 (66-kV Subtransmission) would reduce potential impacts, as underground portions would not have any Electrical Interference and Hazards impacts. Alternative 2 (SCE's Proposed Project), Alternative 6 (Maximum Helicopter Construction in the ANF), and Alternative 3 (West Lancaster) would result in similar Electrical Interference and Hazards impacts as these alternatives are of relatively the same length and have the same or extremely similar (in the instance of Alternative 3) proposed overhead and underground transmission and subtransmission infrastructure.