6. Alternative 2 (SCE's Proposed Project): Impacts and Mitigation Measures

6.1 Direct and Indirect Effects Analysis

Regional Emission Thresholds (Criterion AIR1)

Impact AQ-1: Construction emissions would exceed the SCAQMD, AVAQMD, and/or KCAPCD regional emission thresholds.

Construction of the proposed Project would result in short-term impacts to ambient air quality. Construction is tentatively scheduled for November 2009 to December 2014. Temporary construction emissions would result from on-site activities, such as surface clearing, excavation, tower foundation construction, tower steel construction, power cable stringing, substation upgrades, etc.; and from off-site activities such as construction related haul trips, construction worker commuting, and helicopters used for tower construction. Pollutant emissions would vary from day to day depending on the level of activity, the specific operations, and the prevailing weather.

Construction equipment would include machinery such as water trucks, compactors, dump trucks, graders, bulldozers, loaders, cranes, diggers, tension machines, and several types of helicopters (SCE, 2007, 2008). Tables 2.2-11 to 2.2-25 provide the general construction durations, the list of the types of equipment used for each construction activity, and the construction crew requirements for each activity anticipated for the proposed Project. More detailed construction schedule, equipment use, and vehicle trip assumptions are provided in Appendix A (Air Pollutant Emissions Calculations). A considerable number of the off-site truck trips are associated with importing concrete and structural steel and exporting wastes from tower demolition.

Air emissions for the proposed Project were calculated using the latest standard calculation methodologies accepted by such agencies as the SCAQMD and incorporating applicant proposed measures, and additional appropriate mitigation measures, such as fugitive dust controls. For on-road and off-road vehicles (except helicopters), SCAQMD CEQA website emission factors for the year 2009 through 2013 (SCAQMD, 2008) were used. Fugitive dust emissions were calculated using the USEPA's AP-42 emission factors (USEPA, 2008) and various SCAQMD CEQA Handbook (SCAQMD, 1993) guideline parameters (e.g., silt content, precipitation, etc.) were used as inputs into the USEPA emission factor calculations. Helicopter emission factors are based on values from the FAEED database (FAA, 2001).

Maximum daily and annual emissions are determined by analysis of the Project schedule, and the maximum daily and annual construction emission calculations and assumptions are presented in Appendix A, and a comparison of those emissions with the SCAQMD, AVAQMD, and KCAPCD significance criteria are presented in Table 6-1.

Table 6-1. Alternative 2 Construction Emission/Air District Regional Emission Threshold Comparison

		Emissions (daily – lbs/day, annual - tons/year)					
Jurisdiction		NOx	VOC	CO	PM10	PM2.5	SO_2
SoCAB	Maximum Daily Emissions	1,465	333	1,315	574	188	10
	Significance Threshold	100	75	550	150	55	150
	Exceeds (YES/NO)	YES	YES	YES	YES	YES	NO

Table 6-1. Alternative 2 Construction Emission/Air District Regional Emission Threshold Comparison							
		Emissions (daily – lbs/day, annual - tons/year)					
AVAQMD	Maximum Daily Emissions	1,669	405	1,506	365	138	12
	Significance Threshold	137	137	548	82	--	137
	Exceeds (YES/NO)	YES	YES	YES	YES	YES	NO
KCAPCD	2010 Annual Emissions	33.15	5.26	25.93	35.72	9.49	0.05
	Significance Threshold	25	25	--	15	--	27
	Exceeds (YES/NO)	YES	NO	--	YES	--	NO

Based on the data provided in Table 6-1, daily construction emissions would be expected to exceed the Air District Regional planning thresholds for significance for NOx, VOC, CO, PM10, and PM2.5 in the SoCAB and AVAQMD, and in 2010, prior to equipment mitigation, would exceed the annual NOx and PM10 KCAPCD significance criteria.

For the SCAQMD and AVAQMD the major source of the maximum daily NOx, CO, and VOC emissions are from the off-road equipment tailpipe emissions, particularly from the large helicopters required for helicopter based tower construction. The majority of the maximum daily PM10 emissions are from the paved and unpaved road dust emissions due to the long round trip travel distances required to reach the more remote tower construction and helicopter staging area sites. The VOC and CO exceedances in SCAQMD and AVAQMD are directly related to the helicopter construction of towers. Days that would not have helicopter construction activities would not exceed the VOC and CO regional significance thresholds. The NOx and PM emission thresholds would be exceeded for a large portion of the time that major construction activities occur in these two jurisdictions due to the large ground-based vehicles exhaust and fugitive dust emissions for these two pollutants.

For the KCAPCD the major source of emissions during 2010 are the paved and unpaved road travel for PM10 and the off-road equipment, primarily ground based, for NOx.

Implementation of recommended Mitigation Measures AQ-1a through AQ-1j would reduce construction impacts to air quality to the maximum degree feasible but would not eliminate all significant impacts. Mitigation measure AQ-1a will reduce fugitive dust through the reduction of the creation of emissions by stabilizing unpaved road surfaces and using water to bind active soil handling activities among other measures. The most important of the recommended dust mitigation measures is the use of CARB approved or equivalent soil-binders on unpaved roads, parking areas, and staging areas that will provide an estimated 84 percent control of PM10 emissions. The 84 percent value is taken from the CARB website (www.arb.ca.gov/eqpr/mainlist.htm) using the lower value of the fugitive dust control values noted for the two certified dust suppressants. Mitigation measures AQ-1b to AQ-1j would reduce the on-road and off-road construction equipment exhaust emissions to the extent feasible.

Mitigation Measures for Impact AQ-1

AQ-1a **Implement Construction Fugitive Dust Control Plan.** SCE shall develop a Fugitive Dust Emission Control Plan (FDECP) for construction work. The plan shall be completed prior to construction and approved by the CPUC and FS. This Plan is in addition to any fugitive dust control plan required by SCAQMD. Measures to be incorporated into the plan shall include, but are not limited to the following:

- Non-toxic soil binders, equivalent or better in efficiencies than the CARB approved soil binders, shall be applied per manufacturer recommendations to active unpaved roadways, unpaved staging areas, and unpaved parking area(s) throughout construction to reduce fugitive dust emissions. On NFS lands, SCE shall obtain FS approval of any soil binders to be used.

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

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

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

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

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

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

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

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

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

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

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

As noted the emission estimates include the recommended fugitive dust mitigation measures, but the off-road equipment emissions assume fleet average emissions for the SCAQMD off-road fleet. The implementation of Mitigation Measure AQ-1b would reduce the off-road equipment engine emissions; however, the exact amount cannot be easily calculated as the final extent of the use of higher Tier engines cannot be reasonably estimated. However, an analysis of the 2009 SCAQMD off-road emission factors indicates that the fleet average engine for the equipment types assumed to be used for this project would be just better than Tier 1 on average. SCAQMD's CEQA website provides assumptions for the mitigation potential for the use of higher tier off-road engines, which are as follows:

Percentage Reduction From Tier 1 to Tiers 2, 3, & 4

Engine	Tier 1 to Tier 2			Tier 1 to Tier 3			Tier 1 to Tier 4		
Size (hp)	NOx	ROG	PM	NOx	ROG	PM	NOx	ROG	PM
75 - 99	23%	76%	46%	52%	85%	46%	64%	88%	97%
100 - 174	33%	70%	28%	59%	82%	28%	64%	83%	95%
175 - 299	33%	76%	63%	59%	85%	63%	78%	86%	96%
300 - 600	34%	76%	63%	59%	85%	63%	78%	86%	96%

Source: SCAQMD 2008
Note: Reductions in Reactive Organic Gases (ROG) would be relatively comparable to reductions in Volatile Organic Compounds (VOC).

While significant reductions in off-road ground-based emissions may occur with the implementation of recommended Mitigation Measure AQ-1b, those reduction are still not enough to change the regional emissions significance findings, due to the significant helicopter and fugitive dust emissions contributions that remain after mitigation, with the exception of NOx emissions within the KCAPCD jurisdiction that should be reduced below the 25 tons per year significance threshold with the implementation of the recommended mitigation measures (specifically AQ-1b).

The use of emission offsets to further mitigate the significant maximum daily construction emissions in SCAQMD and AVAQMD and the 2010 PM10 emissions in KCAPCD are not considered feasible, due to lack of availability of such offsets and their prohibitive cost.

CEQA Significance Conclusion

The proposed Project's NOx, CO, VOC, PM10 and PM2.5 emissions, even after implementation of all feasible mitigation measures listed above, will remain above the SCAQMD and AVAQMD daily significance thresholds and the proposed Project's PM10 emissions will remain above the KCAPCD annual significance threshold values. Therefore, the daily regional and annual emissions from the proposed Project would cause significant and unavoidable impacts (Class I) in these three jurisdictions,

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

Operation and maintenance of the proposed Project would result in short-term direct and indirect impacts to ambient air quality. The Project's direct operating emissions are comprised of increased inspection and maintenance activities. Recently regulated increases in inspection and maintenance actions that are not directly related to the Project are not considered Project incremental operations. The incremental operations assumptions due to the Project and the resulting emission estimates are provided Appendix A.

Direct operating emissions for the proposed Project were calculated using the latest standard calculation methodologies accepted by such agencies as the SCAQMD. For on-road and off-road vehicles, SCAQMD CEQA website emission factors for the year 2013 (SCAQMD, 2008) were used. Fugitive dust emissions were calculated using the USEPA's AP-42 emission factors (USEPA, 2008) and various SCAQMD CEQA Handbook (SCAQMD, 1993) guideline parameters (e.g., silt content, precipitation, etc.) were used as inputs into the USEPA emission factor calculations. Helicopter emission factors are based on values from the FAEED database (FAA, 2001).

A comparison of the incremental direct operating emissions with the SCAQMD, AVAQMD, and KCAPCD significance criteria are presented in Table 6-2.

The emissions caused directly by operation, maintenance, and inspection of the proposed Project are shown in Table 6-2 to be below all applicable regional daily and annual emission thresholds. The emissions show that the proposed Project would not result in significant direct operational emissions within any jurisdiction. Therefore, direct operational impacts of the proposed Project would not conflict with any air quality management plan.

Table 6-2. Alternative 2 Operating Emission/Air District Regional Emission Threshold Comparison							
Jurisdiction		Emissions (daily – lbs/day, annual - tons/year)					
		NOx	VOC	CO	PM10	PM2.5	SO_2
SCAQMD	Maximum Daily Emissions	48	7	27	61	19	0.1
	Significance Threshold	55	55	550	150	55	150
	Exceeds (YES/NO)	NO	NO	NO	NO	NO	NO
AVAQMD	Maximum Daily Emissions	46	7	24	57	21	0.1
	Significance Threshold	137	137	548	82	--	137
	Exceeds (YES/NO)	NO	NO	NO	NO	NO	NO
KCAPCD	2013 Annual Emissions	0.42	0.06	0.25	0.67	0.23	0.00
	Significance Threshold	25	25	--	15	--	27
	Exceeds (YES/NO)	NO	NO	--	NO	--	NO

Project indirect emissions are comprised of the Project's impact on the transmission grid and operation of existing and forecast power plants. The indirect emissions for the proposed Project have not been calculated by CAISO, but it is assumed that the indirect emission reductions from the displacement of fossil-fuel fired power plant emissions are higher than the maximum daily direct emission increases and much higher than the annual direct emission increase from the limited inspection and maintenance activities required to maintain the new transmission lines and associated facilities.

CEQA Significance Conclusion

The Project's direct operating emissions are minor and would therefore not conflict with any air quality management plans and would have a less-than-significant impact (Class III) in all jurisdictions. Additionally, the proposed Project's transmission of renewable energy is assumed to help facilitate an indirect emission decrease and an overall emissions decrease. Therefore, the operations of the proposed Project would provide a beneficial operating emissions impact (Class IV).

SCAQMD Localized Significance Thresholds (Criterion AIR2)

Impact AQ-3: Construction of the Project would expose sensitive receptors to substantial pollutant concentrations.

Most of the construction routes traveling through the MDAB south through the SoCAB to the ANF southern border are in fairly remote areas that would not affect substantial numbers of sensitive receptors. The portion of the route within the MDAB, with the exception of the Quartz Hills and Desert View Highlands areas, has a very low residential population and there are no schools or other known sensitive receptors located near (within 500 meters) any of the construction sites within the MDAB. The closest residences to the Antelope Valley Substation are more than 150 meters (492 feet) away. Due to the lack of sensitive receptors, their distance from each construction site, the mitigation measures recommended under Impact AQ-1, and the relatively low amount of emissions that would occur at each tower construction site at any given time, and the lower background concentrations (i.e. better air quality than SoCAB), the impacts to sensitive receptors located in the MDAB are determined to be less than significant.

The construction route for the proposed Project traverses SCAQMD Source Receptor Areas (SRAs) 8, 9, 10, 11, 15, 16, and 33. Most of the tower construction sites within SRA 15 are remote; however, there are many areas of the construction route or substation construction that will be located near residences, schools, or other sensitive receptors. The SCAQMD Localized Significance Thresholds (LSTs) in lbs/day are provided in Table

4-3 for conservative Project area sizes and distances to receptors for each of the SRAs crossed by the proposed Project.

To be conservative it is assumed that the route is within 25 meters of residences for all of the SRAs except SRA 15 where the closest residence is located within 100 meters. For substations within the SoCAB undergoing construction for this Project the distance to nearest sensitive receptor are as follows: Mira Loma SRA 33 within 100 meters (residences – new development north of the substation); Mesa SRA 11 within 300 meters (residences); Rio Hondo SRA 9 500 meters (park); Gould SRA 8 within 100 meters (residences). For marshalling areas, to be conservative due the locations of these areas being currently unknown, it is assumed sensitive receptors are located within 25 meters. Table 6-3 compares the worst-case daily on-site emissions from the marshalling yards, tower construction, and substation construction sites to the emission thresholds presented in Table 4-3. It is assumed that the marshalling areas and the tower construction sites are two acres and one acre, respectively, are therefore comparable with the two acre and one acre site LST thresholds (conservative assumption), while the substation improvement work is limited to small areas on each substation assumed to be one acre.

Table 6-3. Alternative 2 Localized Impact Emissions Comparison

	NOx	PM10	PM2.5
Marshalling Area Construction Emissions (2-acres)	5	1	0.5
Localized Significance Threshold (25 meters)	98	6	4
Exceeds (YES/NO)	NO	NO	NO
Tower Construction Emissions (1-acre)	47	6.5	3.5
Localized Significance Threshold (25 meters)	69	4	3
Exceeds (YES/NO)	NO	YES	YES
Substation Construction Emissions (1-acre)	14	1	1
Localized Significance Threshold (50 meters)	69	11	4
Exceeds (YES/NO)	NO	NO	NO

The PM emission estimates shown in Table 6-3 are limited to the on-site emission sources only and do not include all of the unpaved road travel needed to get to personnel and materials to the tower sites and do not include the road construction emissions which do not occur at a single site but rather over a one-half mile stretch of road per day. Additionally, helicopter emissions are not included as they are not ground level emissions, with the exception of the helicopter construction staging areas that are not separately evaluated as they are not known to be located within 500 meters of any sensitive receptors.

As can be seen in Table 6-3, site specific construction emissions of PM10 and PM2.5 emissions would have the potential to exceed the localized significance criteria during tower construction activities when those towers are located 25 meters, but less than 50 meters from a receptor (please see Table 4.3 that shows that the 50 meter LST values are not exceeded).

The onsite construction emissions are estimated, after implementation of Mitigation Measures AQ-1a for fugitive dust control, but do not explicitly include all of the control gained for measures AQ-1b to AQ-1j, as appropriate, to control off-road and on-road equipment emissions to mitigate Impact AQ-1 to the maximum feasible extent. The mitigation measures for Impact AQ-1 mitigate construction emissions to the maximum feasible extent, so no additional mitigation is recommended for this impact.

CEQA Significance Conclusion

Construction of the Project would cause localized emissions above the SCAQMD LST thresholds even after mitigating to the maximum feasible extent; therefore, the Project operation would have a significant and

unavoidable impact (Class I) to local sensitive receptors that are located within 50 meters of a new tower construction site.

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

Operations of the proposed Project would result in short-term direct and indirect impacts to ambient air quality. The Project direct operating emissions are comprised of increased inspection and maintenance activities. As shown in Table 6-2 the direct maximum daily operating emissions are minimal and the Project is assumed to create an indirect emission reduction. Additionally, the operating emissions occur over a large area as a result of non-stationary activities such as line inspection and road maintenance so that a significant amount of normal operating emissions would not occur in any single location in quantities that could approach the SCAQMD LST thresholds.

CEQA Significance Conclusion

Operation of the Project would not cause localized emissions above the SCAQMD LST thresholds; therefore, the Project operation would have a less-than-significant impact (Class III) to local sensitive receptors.

Air Toxic Contaminant Emissions (Criterion AIR3)

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

While the construction of the proposed Project would generate large quantities of criteria pollutant emissions as shown in Table 6-1 and Appendix A, the Project covers a very large area and does not generate large quantities of emissions at any one site, such as a major stationary source, nor does it generate large quantities of toxic air contaminants, with the potential exception of diesel particulate matter (DPM). Additionally, the Project's construction occurs over a limited period of time that would further reduce the long term chronic exposures (carcinogenic and non-carcinogenic exposures) to DPM and other air toxic contaminants. Therefore, the risk from Project construction at any given receptor area would be well below the SCAQMD significance thresholds. Operation emissions of toxic air contaminants are negligible and as noted previously the Project would result in an indirect net emission decrease that would lower risk from toxic air contaminants.

CEQA Significance Conclusion

In summary, the proposed Project's toxic air contaminant emissions would not exceed SCAQMD risk thresholds so the Project would have less-than-significant (Class III) health risk impacts.

Federal General Conformity Rule (Criterion AIR4)

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

The proposed Project would result in significant impacts if the Project were to cause annual emissions that exceed the General Conformity de minimus thresholds and the Project cannot be shown to conform to the SIP. Based on the current proposed Project schedule, the Project's maximum annual ANF related construction emissions would occur in 2010 or 2011 in the South Coast Air Basin, and in 2012 in the AVAQMD portion of the Mojave Desert Air Basin. The project's maximum annual construction related emissions within USACE land would occur in 2011 in the South Coast Air Basin. The estimated annual ANF and USACE related

emissions in the SoCAB and the ANF related emissions in the AVAQMD portions of the MDAB compared to the respective General Conformity de minimus thresholds are provided in Table 6-4.

Table 6-4 shows that the proposed Project's estimated construction emissions are less than the General Conformity applicability thresholds for the AVAQMD portion of the MDAB and over the thresholds for NOx for the SoCAB. The annual emissions calculations and assumptions are provided in Appendix A. The proposed Project's emission estimate considers the implementation of Mitigation Measures AQ-1a, but do not fully consider implementation of Mitigation Measures AQ-1b through AQ-1j. However, the level of the exceedance of these thresholds indicates that full implementation of these mitigation measures would not mitigate emissions below the NOx General Conformity applicability thresholds during 2010 and 2011. A complete conformity analysis is only required for projects that exceed the General Conformity applicability thresholds. The proposed Project's estimated emissions have been determined to be above the General Conformity applicability thresholds; therefore, a complete conformity analysis on the selected Project alternative will be performed as required by statute and approved before the Record of Decision (ROD) is approved for this Project.

Table 6-4. Alternative 2 Emissions/General Conformity Emissions Threshold Comparison

		Emissions (Tons/year)					
Air Basin		NOx	VOC	CO	PM10	PM2.5	SO_2
SoCAB	Angeles National Forest – 2009	0.8	0.1	0.7	1.6	0.4	0.0
	USACE – 2009	---	---	---	---	---	---
	Total Federal Land 2009	0.8	0.1	0.7	1.6	0.4	0.0
	Angeles National Forest – 2010	20.0	3.1	15.2	15.0	4.1	0.1
	USACE – 2010	3.8	0.6	2.6	2.5	0.7	0.0
	Total Federal Land 2010	23.8	3.7	17.8	17.5	4.8	0.1
	Angeles National Forest – 2011	18.7	3.1	15.3	21.0	5.0	0.1
	USACE – 2011	4.6	0.8	3.7	2.6	0.7	0.0
	Total Federal Land 2011	23.3	3.9	19.0	23.6	5.7	0.1
	Angeles National Forest – 2012	10.8	2.0	9.1	12.7	3.2	0.0
	USACE – 2012	2.2	0.4	1.9	1.2	0.3	0.0
	Total Federal Land 2012	13.0	2.4	11.0	13.9	3.5	0.0
	Angeles National Forest – 2013	0.1	0.0	0.1	0.0	0.0	0.0
	USACE – 2013	---	---	---	---	---	---
	Total Federal Land 2013	0.1	0.0	0.1	0.0	0.0	0.0
	Applicability Trigger	25 [a]	25	100	70	100	100
	Exceeds (YES/NO)	NO	NO	NO	NO	NO	NO
MDAB AVAQMD	2009 Emissions	0.6	0.1				
	2010 Emissions	3.9	0.6				
	2011 Emissions	3.3	0.6				
	2012 Emissions	14.0	2.6				
	2013 Emissions	0.0	0.0				
	Applicability Trigger [b]	100	100				
	Exceeds (YES/NO)	NO	NO				

Table Notes:
- a- NOx emission trigger as a PM2.5 precursor is 100 tons/year.
- b- Antelope Valley portion of the MDAB.

Table 6-4 shows that the proposed Project's estimated construction emissions are less than the General Conformity applicability thresholds for the SoCAB and the AVAQMD portion of the MDAB. The annual emissions calculations and assumptions are provided in Appendix C. The proposed Project's emission estimate

considers the implementation of Mitigation Measures AQ-1a, but are conservative as they do not fully consider implementation of Mitigation Measures AQ-1b through AQ-1j. A complete conformity analysis is only required for projects that exceed the General Conformity applicability thresholds.

CEQA Significance Conclusion

The proposed project's annual emissions would be below the General Conformity de minimus limits and are well below the 10 percent of the non-attainment area annual emission inventories; therefore, the proposed Project would have less-than-significant (Class III) impacts for Impact AQ-6.

Odors (Criterion AIR5)

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

Construction equipment and equipment used during construction operations, such as the potential for small areas of asphalt paving (minor hot or cold mix patching); and the operations maintenance/inspection equipment may create mildly objectionable odors. The specific potential minor odor sources during construction would include equipment exhaust, asphalt patching, and portable toilet facilities for workers. During operations maintenance/ inspection the minor odors sources would generally be limited to vehicle exhausts. These odors would be temporary and would not affect a substantial number of people. No mitigation measures for odor reduction are necessary for this Project.

CEQA Significance Conclusion

The odor impacts from the proposed Project's construction and operation would be less than significant (Class III).

Angeles National Forest Strategy Conformance (Criterion AIR6)

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

The Angeles National Forest Strategy does not include any air quality strategies that would be significantly impacted by the construction or operation of the proposed Project. The Angeles National Forest air quality strategies are limited to the following:

- AIR 1: Minimize Smoke and Dust
- AIR 2: Forest Air Quality Emissions

The Angeles National Forest strategy AIR 1 is very general and is directed to "Control and reduce fugitive dust to protect human health, improve safety and moderate or eliminate environmental impacts." The only action item of this of this strategy is to "Incorporate visibility requirements into project plans." The proposed Project construction smoke and dust would be reduced through conformance with SCAQMD and AVAQMD fugitive dust rules and additionally mitigated to the extent feasible by the additional mitigation measures listed for Impact AQ-1, including the requirement for a construction fugitive emission control plan (Mitigation Measure AQ-1a).

The Angeles National Forest air quality strategy AIR 2 relates to providing an air quality inventory for prescribed burns and wildfires and therefore does not directly relate to the proposed Project's construction and operation emissions. The proposed Project's fire safety requirements are addressed in the EIR/EIS, Section 3.16 (Wildfire Prevention and Suppression).

CEQA Significance Conclusion

With the incorporation of the air quality Mitigation Measures AQ-1a through AQ-1j, the air quality strategy would be compliant with ANF air quality strategies and the Project impacts would be less than significant (Class II).

Conformance with Applicable Air Quality Management Plans (Criterion AIR7)

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

The proposed Project and all alternatives would be constructed in compliance with applicable federal, State, and local requirements. Additionally, the Project construction mitigation measures (AQ-1a through AQ-1j) required to mitigate regional emission impacts to the extent feasible were developed after consulting SCAQMD personnel to confirm mitigation measures that would be consistent with SCAQMD approved Air Quality Management Plans. The operating emissions would be comprised of minimal inspection and maintenance activities that would not significantly impact air quality and the Project would not directly or indirectly cause any population growth that is not considered in the current approved air quality plan. The mitigation measures specifically required to comply with the SCAQMD AQMP proposed emission reduction measures are as follows: AQ-1a (Implement Construction Fugitive Dust Control Plan), AQ-1b (Off-road Diesel-fueled Equipment Standards), and AQ-1d (Heavy Duty Diesel Haul Vehicle On-road Equipment Standards).

CEQA Significance Conclusion

After mitigation the Project would be consistent with the currently approved Air Quality Management Plans and would have a less-than-significant impact (Class II).

Climate Change Impacts (Criterion AIR8)

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

The proposed Project would cause greenhouse gas (GHG) emissions during the short-term duration of Project construction. The GHG emissions are estimated using a California Climate Action Registry General Reporting Protocol emission factors for fuel use (CCAR 2007). The emission estimate includes the truck transport emissions to the site from the last major shipping terminal (port, rail yard, etc.) but does not include rail or ship transport of cable, steel, electrical equipment etc.

The GHG emissions estimated for construction activities are provided in Table 6-5 with the calculations and assumptions provided in Appendix A.

Table 6-5. Alternative 2 Construction GHG Emission Estimate

Emission Source	CO_2e Emissions (tonnes/year)
Construction Equipment	33,206
SF_6 Leaks	21,597
Total	54,803

During operation of the Project, minor quantities of direct long-term greenhouse gas emissions, in the form of additional SF_6 equipment leak emissions would occur from the proposed Project. Inspection and maintenance activities would also cause a small increase in GHG emissions.

The indirect GHG emissions decrease that would result from the Project has been calculated, using an SCE estimate of the renewable energy enabled by the Project, to be approximately 3,200,000 tonnes per year and

the eGRID estimate (USEPA 2007) of CO_2e emissions per MWh in the SCE service area (see Appendix A). This shows that the Project's construction and operating GHG emission increases would be more than offset by the Project providing greater renewable energy transmission and providing improved transmission effectiveness and efficiency.

The estimated annual direct and indirect operational GHG emissions are provided in Table 6-6 with the calculations and assumptions for the direct operating emissions provided in Appendix A.

Table 6-6. Alternative 2 Direct and Indirect Operating GHG Emission Estimate

Activity	CO_2e Emissions (tonnes/year)
SF_6 Leaks	8,639
Inspection/Maintenance	86
Total Direct	8,725
Indirect Emissions	(-3,175,570)
Total Direct and Indirect Emissions	(-3,166,845)

Demand for electricity would not change as a result of the proposed Project, and power generated by power plants (renewable, fossil-fueled, large hydro, etc.) in response to the demand would occur at some location regardless of whether the proposed Project is approved or disapproved. In this way, by increasing the use of renewable energy and improving the distribution efficiency of the California transmission grid, the proposed Project would partially implement one of the IPCC key strategies for mitigating climate change.

CEQA Significance Conclusion

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

6.2 Cumulative Effects Analysis

6.2.1 Geographic Extent

For Air Quality, the potential geographic extent of the cumulative impact area covers two air basins, two counties, and three local air quality jurisdictions. Cumulative impacts could extend over the entire Project route. However, the identification of cumulative projects for air quality generally ranges from within one mile of a proposed Project to as far as six miles or more from a proposed Project. The effect of downwind dispersion eliminates the potential for Project level significant cumulative air quality impacts over areas larger than a few miles.

Since the proposed Project has very minor direct operating emissions and a net decrease considering direct and indirect emissions, the cumulative impact discussion is focused on construction impacts. Construction impacts are localized and of short duration. Therefore, only projects within one mile of the Project route, as well as projects that could impact traffic during the Project construction are considered projects that could, with the proposed Project, cause cumulative impacts. Additionally, only projects that are scheduled concurrently in the same area as the proposed Project are considered as projects that could contribute to cumulative impacts.

6.2.2 Existing Cumulative Conditions

The proposed Project area covers three air quality jurisdictions that have varying pollutant attainment/ nonattainment classifications, as provided in Section 2. Long-term trends in reduced emissions of most criteria pollutants have generally reduced criteria pollutant concentrations; however, those trends have flattened in recent years and over the past ten years only one significant change in attainment status has occurred (SoCAB attained State and Federal CO standards). Therefore, any increase in emissions of nonattainment pollutants and precursors would cause an adverse Air Quality impact.

6.2.3 Reasonably Foreseeable Future Projects and Changes

Potential cumulative projects include only those projects that are listed in the EIR/EIS, Section 2.7 (Cumulative Projects), which have been identified within one mile of the proposed Project and that have the potential for temporally overlapping emissions with the proposed Project. There are a large number of projects listed in the EIR/EIS that are within one mile of the Project route. However, the construction schedule of many of these projects is uncertain, so there is the potential that a number of these projects will not have construction periods coincident with that of the proposed Project.

6.2.4 Cumulative Impact Analysis

Since the proposed Project would have very minor operating emissions, the cumulative impact analysis focuses on construction impacts, which are localized and of short duration. Therefore, only projects within one mile of the Project route, as well as projects that could impact traffic during construction of the proposed Project are considered for analysis of cumulative impacts. Additionally, only new projects with construction or operating emissions that would occur at the same time as the proposed Project's construction are considered as part of this cumulative impact analysis; existing emission sources are considered part of the existing ambient background cumulative condition. A large number of projects within one mile of the proposed or alternative Project routes are listed in Section 2.7 of the EIR/EIS; however, the construction schedules of many of these projects is uncertain, making it possible that construction of many of these projects would not occur coincident with and within one mile of the construction of the proposed Project. Should construction activities from related projects within one mile of the proposed transmission route occur concurrent with construction of the proposed Project, cumulative Air Quality impacts could occur.

- **Construction emissions would exceed the SCAQMD, AVAQMD, and/or KCAPCD regional emission thresholds (Impact AQ-1).** Construction activities associated with the proposed Project would result in air emissions that exceed the SCAQMD, AVAQMD, and KCAPCD regional emission thresholds for selected pollutants (see Table 6-1). For cumulative assessment purposes the potential existence of nearby concurrent cumulative projects would only add to these significant emission totals. The cumulative project list (EIR/EIS Section 2.7) shows four projects within one mile of the proposed Project route in KCAPCD jurisdiction, shows five projects within one mile of the proposed Project route in AVAQMD jurisdiction, and shows eighteen projects within one mile of the proposed Project route in SCAQMD jurisdiction. Given the assumption that any of these projects would be constructed concurrently with TRTP in the SCAQMD, AVAQMD, and KCAPCD jurisdictions then the proposed Project would have cumulatively significant impacts in those jurisdictions. Therefore, the combined effect of construction emissions from the proposed Project and construction of other projects and/or operating emissions would be cumulatively significant at various times during construction (Class I).
- **Operating emissions would exceed the SCAQMD, AVAQMD, and/or KCAPCD regional emission thresholds (Impact AQ-2).** Direct operating emissions for the Project are very minimal and would occur over a large area and would not cumulatively have the potential to exceed SCAQMD, AVAQMD, and KCAPCD emission significance thresholds (see Table 6-2). Indirectly the Project would reduce operating emissions. Therefore, the Project's operation would have a less-than-significant cumulative regional impact (Class III).

- **Construction of the Project would expose sensitive receptors to substantial pollutant concentrations (Impact AQ-3).** Construction activities associated with the Project would expose sensitive receptors in the populated areas along the construction route. The SCAQMD Localized Significance Threshold (LST) lookup tables used to determine Project significance do not apply to cumulative project evaluation; however, the significance criteria is based on downwind pollutant concentrations causing a new exceedance (NOx and CO) of an air quality standard, substantially increasing current exceedances (PM10 and PM2.5) of an air quality standard, and these general criteria are applicable standards for localized impact cumulative project analysis. For the emissions of any two projects to have the potential for significant cumulative downwind concentrations, they must both be in close proximity to limit the downwind dispersion from one site to the other and generally one of the projects must be able to cause an air quality standard exceedance on its own (conservation of mass principles dictate that two exhaust plumes of stable criteria pollutants do not add concentration, they mix concentration with the plume of highest concentration being diluted by the plume with the lower concentration). Therefore, it can be assumed that the potential for cumulative impacts to sensitive receptors is the same as the Project impacts to sensitive receptors, so the proposed Project would have cumulative significant impacts to sensitive receptors after mitigation (Class I).
- **Operation of the Project would expose sensitive receptors to substantial pollutant concentrations (Impact AQ-4).** Direct operating emissions for the Project are minimal and not very localized, and indirectly the Project would reduce operating emissions. Since the proposed Project's operation will have minimum direct localized operating emissions and the project will help create an overall net emission decrease, it will have a less-than-significant cumulative localized impact to sensitive receptors (Class III).
- **Construction or operation of the Project would generate toxic air contaminant emissions that would exceed SCAQMD risk thresholds (Impact AQ-5).** Construction activities associated with the Project do not have large amounts of toxic air contaminant emissions, are of short duration, and do not have significant emissions in any single area that could create a significant risk to local populations. Similarly, the cumulative projects construction would not be expected to have significant emissions of toxic air contaminants, would be and would not have the potential to cumulatively exceed SCAQMD risk thresholds. Given the temporary nature and low toxic air contaminant emission level for the proposed Project's and cumulative projects, the proposed Project would not have a less-than-significant cumulative health risk (Class III).
- **The Project would not conform to Federal General Conformity Rules (Impact AQ-6).** This impact is strictly applicable to single project evaluation. Therefore, cumulative impacts do not apply.
- **The Project would create objectionable odors (Impact AQ-7).** Construction equipment and operations, such as asphalt paving, may create temporary and mildly objectionable odors. Such odors would not significantly affect a substantial number of people. To have the potential to combine with odors from the Project, odor-generating activities from other current and proposed Projects would have to occur concurrently, occur in very close proximity with the odor-generating activities of the Project, and result in a cumulatively worse odor condition. Given the temporary nature and relative mildness of the Project's construction odors, odor impacts related to the proposed Project would be adverse but not cumulatively significant (Class III).
- **The Project would not conform to Angeles National Forest air quality strategies (Impact AQ-8).** This impact is strictly applicable to single project evaluation. Therefore, cumulative impacts do not apply.
- **The Project would not conform with applicable Air Quality Management Plans (Impact AQ-9).** This impact is strictly applicable to single project evaluation. Therefore, cumulative impacts do not apply.
- **Emissions would contribute to climate change (Impact AQ-10).** This impact is already evaluated in a globally cumulative context. Therefore, cumulative impacts do not apply.

6.2.5 Mitigation to Reduce the Project's Contribution to Significant Cumulative Effects

There are no additional feasible mitigation measures that could be imposed on the proposed Project to further reduce its contribution to cumulative air quality effects. All feasible construction emission mitigation measures have been recommended to mitigate Impacts AQ-1 and AQ-3.