D.10 Air Quality

This section provides an evaluation of air quality issues associated with the Project. This section includes a description of existing ambient air quality conditions, a quantification of air pollutant emissions associated with project construction and ongoing operational activities, and a summary of applicable federal, state, and local air quality regulations. Climate change and the emissions of greenhouse gases (GHGs) from project-related activities are also addressed in this section. Potential impacts on ambient air quality and climate change due to air pollutant emissions from the Project are identified and discussed. This section also summarizes the mitigation measures intended to address potential impacts.

D.10.1 Environmental Setting

Air quality is not only dependant on the quantities of air pollutants emitted from man-made and natural sources but also on surface topography and prevailing meteorological conditions. California is divided into 15 air basins that were established by grouping counties or portions of counties with similar geographic and/or meteorological features. The Project would be located in southwestern Riverside County with the proposed subtransmission line traversing the Cities of Perris and Lake Elsinore as well as the Glen Ivy/Corona Lake area. This section of Riverside County is part of the South Coast Air Basin, which is comprised of Orange County and the non-desert portions of Los Angeles, San Bernardino, and Riverside Counties.

Both climate change and global warming are discussed in this section. Climate change refers to any significant change in measures of climate (e.g., temperature, precipitation, or wind) that lasts for an extended period (e.g., decades or longer). Climate change may result for a variety of reasons. Natural factors, such as changes in the sun's intensity or Earth's orbit around the sun, can affect climate change. In addition, natural processes within the climate system (e.g., changes in ocean circulation) and human activities that change the atmosphere's composition (e.g., burning fossil fuels) and the land surface (e.g., deforestation, reforestation, urbanization, and desertification) can affect change.

Global warming is an average increase in the temperature of the atmosphere near the Earth's surface and in the troposphere, which can contribute to changes in global climate patterns. Global warming can occur from a variety of causes, both natural and human. In common usage, "global warming" often refers to warming that may occur as a result of increased GHG emissions due to human activities.

D.10.1.1 Climate and Meteorology

Climatic conditions for the project area are typical of inland areas of Southern California. Summers are routinely hot and dry, while winters are cool with occasional thunderstorms and gusty winds. Temperatures reported for the project region fluctuate substantially with the season. Average daily high temperatures in the summer routinely reach well above 90 degrees Fahrenheit (°F), with average summertime lows ranging from 55 to 65 °F. Average high temperatures in the winter typically range from 60 to 70 °F while low temperatures usually range from 30 to 40 °F.

The region surrounding the project area does not receive large amounts of precipitation. Approximately 85 percent of the annual rainfall occurs from November through March. Average annual precipitation is 10.7 inches with record low and high rainfalls set of 5.3 inches and 21.4 inches, respectively. Rainfall at the proposed Fogarty Substation site averages 11.6 inches per year but can vary markedly from one year

to the next. Light winter snow can occur in the area at higher elevations, but snowfall is not common (WRCC 2008).

Average humidity is generally high in the area, ranging from 53 to 82 percent depending on time of day, with mornings bringing the highest humidity (WRCC 2008). Winds originate in the west and southwest and are typically brisk and persistent throughout the project area, with gusty winds occurring during the spring and summer. Wind speeds average approximately seven miles per hour (mph) (City Data 2006).

D.10.1.2 Existing Air Quality

The South Coast Air Basin is surrounded by mountains on three sides and the Pacific Ocean on the fourth side. The mountains often serve as a barrier when regional winds are weak. Under these conditions, air pollutants are not transported out of the basin, and pollutant concentrations build up. Prevailing wind patterns off the ocean carry pollutants eastward across the basin, enabling continual photochemical reactions to occur as new emissions are added to existing pollutant concentrations. Intense sunlight, present at the latitude of the basin, provides the ultraviolet light necessary to fuel the photochemical reactions that produce ozone. Compared with other urban areas in the United States, metropolitan Los Angeles has a low average wind speed. Mild sea breezes slowly carry pollutants inland. In the summer, temperature changes are stronger than the winter, which prevents ozone and other pollutants from escaping upward and dispersing. In the winter, a ground-level or surface inversion commonly forms during the night and traps vehicle emissions (SCAQMD 1993).

Criteria Air Pollutants

The Clean Air Act (CAA) requires the United States Environmental Protection Agency (USEPA) to set National Ambient Air Quality Standards (NAAQS) for widespread pollutants that come from numerous and diverse sources and are considered harmful to public health and the environment. The CAA established two types of national air quality standards: primary and secondary. Primary standards set limits to protect public health including the health of "sensitive" populations—asthmatics, children, and the elderly. Secondary standards set limits to protect public welfare including protection against visual impairment and damage to animals, crops, vegetation, and buildings. The CAA requires periodic review of the science upon which the standards are based and the standards themselves. USEPA has set NAAQS for the following seven principal pollutants, which are called "criteria" pollutants:

1. Carbon monoxide (CO);
2. Lead;
3. Nitrogen dioxide (NO_2);
4. Ozone;
5. Particulate matter less than or equal to ten microns in diameter (PM_{10});
6. Particulate matter less than or equal to 2.5 microns in diameter ($PM_{2.5}$); and
7. Sulfur dioxide (SO_2).

Ozone is not emitted directly from emission sources but is created at levels near the ground by a chemical reaction between nitrogen oxides (NO_x) and volatile organic compounds (VOCs) in the presence of sunlight. As a result, NO_x and VOCs are often referred to as ozone precursors and are regulated as a means to prevent ground-level ozone formation.

The State of California has established additional and more stringent ambient air quality standards for some criteria pollutants as well as ambient air quality standards for sulfates, hydrogen sulfide (H_2S), vinyl chloride, and visibility-reducing particles. NAAQS and California Ambient Air Quality Standards (CAAQS) are summarized in Table D.10-1.

Table D.10-1 Summary of National and California Ambient Air Quality Standards

Pollutant	Averaging Time	NAAQS		CAAQS
		Primary	Secondary	
CO	8-hour	9 ppm[1]	-	9 ppm
	1-hour	35 ppm[1]	-	20 ppm
Lead	3-month (rolling average)	0.15 µg/m^3	0.15 µg/m^3	-
	30-day	-	-	1.5 µg/m^3
NO_2	Annual	0.053 ppm	0.053 ppm	0.030 ppm
	1-hour	-	-	0.18 ppm
Ozone	8-hour[2]	0.075 ppm (0.08 ppm[3])	0.075 ppm (0.08 ppm[3])	0.070 ppm
	1-hour[4]	0.12 ppm	-	0.09 ppm
PM_{10}	Annual	-	-	20 µg/m^3
	24-hour	150 µg/m^3 (5)	150 µg/m^3 (5)	50 µg/m^3
$PM_{2.5}$	Annual	15.0 µg/m^3 (6)	15.0 µg/m^3 (6)	12 µg/m^3
	24-hour	35 µg/m^3 (7)	35 µg/m^3 (7)	-
SO_2	Annual	0.03 ppm	-	-
	24-hour	0.14 ppm[1]	-	0.04 ppm
	3-hour	-	0.5 ppm[1]	-
	1-hour	-	-	0.25 ppm
Sulfates	24-hour	-	-	25 µg/m^3
H_2S	1-hour	-	-	0.03 ppm
Vinyl chloride	24-hour	-	-	0.01 ppm
Visibility reducing particles	8-hour	-	-	Extinction coefficient of 0.23 per km visibility of 10 miles or more due to particles when relative humidity is less than 70 percent.

Sources: 40 CFR Part 50; 17 CCR § 70200.

Key:

µg/m^3 = micrograms per cubic meter

ppm = parts per million

Notes:

[1] Not to be exceeded more than once per year.

[2] To attain this standard, the 3-year average of the fourth highest daily maximum 8-hour average concentration over year must not exceed the standard.

[3] 1997 standard. The implementation rules for this standard will remain in place for implementation purposes as USEPA undertakes rulemaking to address the transition from the 1997 ozone standard to the 2008 ozone standard.

[4] As of June 15, 2005, 1-hour ozone NAAQS revoked in all areas except the fourteen 8-hour ozone nonattainment Early Action Compact (EAC) Areas.

[5] Not to be exceeded more than once per year on average over 3 years.

[6] The 3-year average of the 98th percentile of 24-hour concentrations within an area must not exceed the standard.

[7] To attain this standard, the 3-year average of the 98th percentile must not exceed the standard.

Criteria air pollutants originate from a wide variety of man-made and natural sources. Air pollution can directly impact the health of human beings, animals, and plants; reduce visibility; and cause distress to

structures and buildings. A summary of the sources of criteria air pollutants and the associated health effects is presented in Table D.10-2.

Table D.10-2 Criteria Air Pollutant Descriptions and Health Effects

Pollutant	Sources and Health Effects
CO	CO is formed through the incomplete combustion of different types of fuel. The majority of CO emissions come from cars, trucks, and non-road engines (e.g., boats and construction equipment). CO can cause harmful health effects by reducing oxygen delivery to the body's organs and tissues. People who breathe high levels of CO can develop vision problems, reduced ability to work or learn, reduced manual dexterity, and difficulty performing complex tasks. CO can also contribute to the formation of smog.
Lead	Lead is a metal found naturally in the environment as well as in manufactured products. Primary sources of lead emissions include metals processing, waste incinerators, utilities, and lead-acid battery manufacturers. Lead causes damage to the kidneys, liver, brain and nerves, and other organs.
NO_x	Oxides of nitrogen (NO_x) are a group of gases including NO_2, nitrogen oxide (NO), and nitrous oxide (N_2O). NO_x is formed when fuels are burned at high temperatures, as in a combustion process. The primary man-made sources of NO_x are motor vehicles, electric utilities, and industrial, commercial, and residential combustion equipment. NO_2 acts as an irritant affecting the eyes, nose, throat, and respiratory tract. Extremely high-dose exposure to NO_2 may result in lung injury. NO_2 can often be seen as a reddish-brown layer over many urban areas. NO_x can react with VOCs in the presence of sunlight to form ground-level ozone (i.e., smog). NOx can also react with other substances in the air to form acid rain and that reduces visibility in urban areas.
Ozone	Ozone is not emitted directly into the air but is created at ground-level through a chemical reaction between NO_x and VOCs in the presence of sunlight. Motor vehicles, utilities, and a variety of industrial, commercial and residential sources emit NO_x and VOC. Ground-level ozone is the primary constituent of smog. Sunlight and hot weather promote the formation and build up of ground-level ozone. Breathing ozone can trigger a variety of health problems including chest pain, wheezing, coughing, throat irritation, and congestion. Ozone can worsen lung diseases and reduce lung function. Ozone can also interfere with the ability of sensitive plants to produce and store food, damage the leaves of plants, and reduce crop yields and forest growth.
PM_{10} and $PM_{2.5}$	PM is a mixture of particles and liquid droplets, including acids, organic chemicals, metals, and soil/dust particles. PM is emitted from a variety of man-made sources including motor vehicles, diesel trucks, construction sites, unpaved roads, agricultural fields, utilities, and fuel combustion equipment. PM is also formed in the atmosphere via complicated intermediate reactions. Exposure to PM can lead to a variety of health problems, such as irritation of the airways, coughing, or difficulty breathing; decreased lung function; aggravated asthma; development of chronic bronchitis; irregular heartbeat; nonfatal heart attacks; and premature death. Small “inhalable coarse particles” (PM_{10}) and “fine particles” ($PM_{2.5}$) represent the most significant health concern. Fine particles are the major cause of reduced visibility (haze) in many parts of the U.S.
SO_2	SO_2 is formed when fuel containing sulfur, such as coal and oil, is burned; when gasoline or other petroleum products are extracted from crude oil; or when metals are extracted from ore. The primary man-made sources of SO_2 are electric utilities, especially those that burn coal; petroleum refineries; and metal processing facilities. Locomotives, large marine vessels, and some non-road diesel equipment can also generate large quantities of SO_2 emissions. SO_2 can cause temporary breathing difficulty for particularly sensitive groups. Long-term exposure to high levels of SO_2 can cause respiratory illness and aggravate existing heart disease. SO_2 can also react with other substances in the air to form acid rain.

The South Coast Air Quality Management District (SCAQMD) operates numerous air monitoring stations throughout the South Coast Air Basin. Violations of NAAQS and CAAQS for ozone, particulate matter (PM), and CO have occurred historically in the project area. Since the early 1970s, substantial progress has been made toward controlling emissions and reducing ambient concentrations of these air pollutants. Although improvements have occurred, violations of ambient air quality standards for ozone, PM_{10}, and $PM_{2.5}$ persist in Southern California. The historical frequency of violations and the air quality reported at air monitoring stations in the vicinity of the Project are summarized in Table D.10-3.

Table D.10-3 Local Ambient Air Quality Monitoring Data

Pollutant	Averaging Period	Monitoring Location	Number of Days Exceeding Standards CAAQS / NAAQS					Maximum Concentration[1]				
			2003	2004	2005	2006	2007	2003	2004	2005	2006	2007
Ozone	1 hr	Lake Elsinore	50 / 7	41 / 2	37 / 4	40 / 3	26 / 3	0.154	0.130	0.149	0.14	0.130
		Perris Valley	80 / 18	37 / 2	11 / 1	76 / 12	66 / 4	0.155	0.128	0.126	0.17	0.139
	8 hr	Lake Elsinore	- / 35	51 / 21	46 / 15	58 / 24	55 / 35	0.137	0.116	0.119	0.109	0.108
		Perris Valley	- / 62	47 / 19	18 / 3	84 / 53	88 / 73	0.140	0.103	0.103	0.122	0.116
CO	1 hr	Lake Elsinore	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	4	2	2	1	2
	8 hr	Lake Elsinore	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	1.3	0.9	1.0	1.0	1.4
NO_2	1 hr	Lake Elsinore	0 / -	0 / -	0 / -	0 / -	0 / -	0.08	0.06	0.07	0.07	0.06
	Annual	Lake Elsinore	-	-	-	-	-	0.0182	0.0151	0.0142	0.0151	0.0174
SO_2	1 hr	Metro Riverside	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0.02	0.02	0.02	0.01	0.02
	24 hr	Metro Riverside	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0.012	0.015	0.011	0.004	0.002
	Annual	Metro Riverside	-	-	-	-	-	-	-	-	0.0013	0.0017
PM_{10}	24 hr	Perris Valley	19 / 0	15 / 0	19 / 0	19 / 0	32 / 0	142	83	80	125	120
	Annual	Perris Valley	-	-	-	-	-	43.9	41.4	39.2	45.0	54.8
$PM_{2.5}$	24 hr	Metro Riverside	- / 8	- / 5	- / 4	- / 32	- / 33	104.3	91.7	98.7	68.5	75.7
	Annual	Metro Riverside	-	-	-	-	-	24.9	22.1	21.0	19.0	19.1
Lead	30 day	Metro Riverside	-	-	-	-	-	0.02	0.02	0.02	0.01	0.02
	Quarter	Metro Riverside	-	-	-	-	-	0.02	0.01	0.02	0.01	0.01
Sulfates	24 hr	Metro Riverside	0 / -	0 / -	0 / -	0 / -	0 / -	10.1	9.8	10.3	10.8	13.0

Source: SCAQMD 2003 to 2007 Monitoring Data Tables (SCAQMD 2009).

Notes:

[1] Concentrations for ozone, CO, NO_2, and SO_2 are reported in units of ppm. Concentrations for PM_{10}, $PM_{2.5}$, lead, and sulfates reported in units of $\mu g/m^3$.

The USEPA compares ambient air criteria pollutant measurements with NAAQS to assess the status of air quality of regions within the states with respect to criteria air pollutants. Similarly, the California Air Resources Board (CARB) compares air pollutant measurements in California to CAAQS. Based on these comparisons, regions within the states, including California, are designated as one of the following categories:

- **Attainment**: A region is designated as attainment if monitoring shows ambient concentrations of a specific pollutant are less than or equal to NAAQS or CAAQS.

- **Nonattainment**: If the NAAQS or CAAQS is exceeded for a pollutant, then the region is designated as nonattainment for that pollutant. Nonattainment areas are further classified based on the severity that the area exceeds the relevant standard.
- **Unclassifiable**: An area is designated as unclassifiable if the ambient air monitoring data are incomplete and do not support a designation of attainment or nonattainment.

In addition, areas where designation has been changed from nonattainment to attainment are classified as "maintenance areas" for a 10-year period to ensure that air quality improvements are sustained.

With respect to NAAQS, the South Coast Air Basin is considered attainment/unclassified for CO, lead, NO_2, and SO_2. The basin is designated "severe nonattainment" for ozone, "serious nonattainment" for PM_{10}, and nonattainment for $PM_{2.5}$. The basin is also classified as a CO- and NO_2-maintenance area due to previous nonattainment designations.

With respect to CAAQS, the South Coast Air Basin is considered attainment/unclassified for CO, H_2S, lead, NO_2, SO_2, sulfate, and visibility-reducing particles. The basin is designated as "extreme nonattainment" for ozone and nonattainment for PM_{10} and $PM_{2.5}$.

Toxic Air Contaminants

Toxic air contaminants (TACs) are air pollutants suspected or known to cause cancer, birth defects, neurological damage, or death. Except for lead, there are no established ambient air quality standards for TACs. Instead, the compounds are managed on a case-by-case basis, depending on the quantity and type of emissions and proximity of potential receptors. Statewide and local programs identify industrial and commercial emitters of TACs and require reduction in these emissions. There are also federal programs that require the control of certain categories of TACs. The CARB recently identified diesel PM as a TAC. In October 2000, the CARB released the *Risk Reduction Plan to Reduce Particulate Matter Emission from Diesel-Fueled Engines and Vehicles.* This plan identifies diesel PM as the predominant TAC in California and proposed various methods for reducing diesel emissions.

Diesel engines emit a complex mix of pollutants, the most visible of which are very small carbon particles, or "soot," known as diesel PM. Diesel exhaust also contains more than 40 cancer-causing substances, most of which are readily adsorbed by soot particles. In 1998, California identified diesel PM as a toxic air contaminant based on its potential to cause cancer, premature death, and other health problems.

Greenhouse Gases (GHGs)

Most scientists believe climate change is caused by GHGs that trap heat in the atmosphere. This process has been compared to how greenhouses retain heat. Common GHGs include water vapor, carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), chlorofluorocarbons, hydrofluorocarbons, perfluoro-carbons, and sulfur hexafluoride (SF_6). Natural processes and human activities both emit GHGs. The accumulation of GHGs in the atmosphere regulates the earth's temperature. However, it is believed that GHG emissions from human activities, such as electricity production and vehicle use, have elevated the concentration of GHGs in the atmosphere beyond levels that occur naturally.

Biogenic emissions of CO_2 are largely due to the combustion of fossil fuels. The major categories of fossil fuel combustion sources include residential, commercial, industrial, transportation, and electricity generation. Emissions of CH_4 and N_2O are emitted from a wide variety of source types and occur in much smaller quantities than CO_2 emissions. The use of SF_6 in power transformers and circuit breakers at power plants and along transmission lines poses a concern because the pollutant can slowly escape from

equipment. The primary GHGs that would be emitted from project activities, however, are CO_2, CH_4, and SF_6.

Emissions of GHGs are typically expressed in terms of CO_2 equivalents (CO_2e), where the potential of each gas to increase heating in the atmosphere is expressed as a multiple of the heating potential of CO_2. Converting all GHG source emissions into equivalent units allows for a comparison between all emission sources based on their global warming potential (GWP). The GWPs of CO_2, CH_4, and SF_6 are 1, 23, and 23000, respectively. Therefore, a pound of CH_4 emitted to the atmosphere has 23 times the relative impact as a pound of CO_2; SF_6 is one of the most potent GHGs yet discovered and one pound emitted has the same relative impact as 23,000 pounds of CO_2 (or over ten metric tonnes).

The California Energy Commission (CEC) reports that California's GHG emissions are the second largest in the United States and twelfth to sixteenth largest in the world. In 2004, California produced 492 million gross metric tons of CO_{2e} GHG emissions. This figure includes imported electricity but excludes the combustion of international fuels and carbon sinks and storage (CEC 2006).

D.10.2 Applicable Regulations, Plans, and Standards

Ambient air quality and air pollutant emissions from stationary and mobile sources are managed under a framework of federal, state, and local rules and regulations. The USEPA is the principal administrator responsible for overseeing enforcement of CAA statues and regulations. The CARB is the primary administrator for state air pollution and air quality management rules and regulations. SCAQMD is the administrator of air pollution rules for the South Coast Air Basin. Project-related activities would be subject to all pertinent federal and state regulations as well to applicable SCAQMD air pollution rules.

D.10.2.1 Federal

The CAA directs local air quality management agencies to implement programs that lead to attainment and maintenance of NAAQS. The USEPA establishes NAAQS and revises the plans and regulations developed by local agencies to meet NAAQS. The USEPA also oversees the implementation of federal programs for permitting new and modified stationary sources, controlling toxic air contaminants, and reducing emissions from motor vehicles and other mobile sources.

In April 2009, the USEPA issued the "Proposed Endangerment and Cause or Contribute Findings for Greenhouse Gases Under Section 202(a) of the Clean Air Act" stating that GHGs pose a danger to public health and welfare. That finding requires USEPA to propose regulations for controlling GHG emissions, although no regulations or thresholds have yet been codified.

D.10.2.2 State

The CARB is responsible for implementing the CAA (AB 2595) and for regulating emissions from consumer products and motor vehicles.

California Global Warming Solutions Act of 2006 (AB32)

The California State Legislature adopted the California Global Warming Solutions Act of 2006 (Assembly Bill 32 [AB32]) in September 2006. AB32 establishes a cap on statewide GHG emissions and sets forth the regulatory framework to achieve the corresponding reduction in statewide emission levels. Under AB32, CARB is required to:

- Adopt early action measures to reduce GHG;

- Establish a statewide Year 2020 GHG emissions cap based on Year 1990 emissions;
- Adopt mandatory reporting rules for significant sources of GHGs;
- Adopt a scoping plan indicating how emission reductions would be achieved through regulations, market mechanisms, and other actions; and
- Adopt regulations needed to achieve the maximum technologically feasible and cost-effective reductions in GHGs.

A scoping plan, approved by the CARB Board December 12, 2008, provides the outline for actions to reduce California's GHG emissions. The scoping plan requires CARB and other state agencies to adopt regulations and other initiatives to reduce GHGs.

At this time, there are no mandatory GHG regulations or finalized agency guidelines that would apply to this project. The California Public Utilities Commission (CPUC) is taking a case-by-case approach to determining significance thresholds for GHG emissions. For this particular project, a "net zero" threshold has been adopted by the CPUC; this means that any activity resulting in any GHG emissions from the construction, or operation and maintenance of this project is to be considered significant.

Senate Bill 97

Senate Bill 97 (Chapter 185, 2007) requires the California Governor's Office of Planning and Research (OPR) to develop draft CEQA guidelines "for the mitigation of greenhouse gas emissions or the effects of greenhouse gas emissions" (OPR 2009). OPR is required to prepare, develop, and transmit the guidelines to the Resources Agency on or before July 1, 2009, and the California Resources Agency must certify and adopt the guidelines on or before January 1, 2010.

In the absence of established State regulations addressing mitigation of impacts related to GHG emissions, OPR and the California Attorney General's Office (Department of Justice) have issued guidance to agencies wishing to reduce global warming impacts at the local level, as identified in CEQA evaluations (OPR 2008, California Department of Justice 2008). With regards to determining appropriate project mitigation measures to be included in CEQA documents, the OPR guidance document makes the following suggestions:

- Mitigation measures will vary with the type of project being contemplated, but may include measures that reduce vehicle miles traveled (VMT) by fossil-fueled vehicles, measures that contribute to established regional or programmatic mitigation strategies, and measures that sequester carbon to offset the emissions from the project.

- Agencies are encouraged to develop standard GHG emission reduction or mitigation measures that can be applied on a project-by-project basis. (OPR 2008)

With regards to carbon offsets proposed as CEQA mitigation, California Department of Justice guidance recommends that lead agencies consider the following issues:

- The location of the off-site mitigation. (If the off-site mitigation is far from the project, any additional non-climate related benefits of the mitigation will be lost to the local community), and

- Whether the emissions reductions from off-site mitigation can be quantified and verified. (California Department of Justice 2008)

Examples of carbon offsets that may be developed by a project applicant as part of an internal carbon reduction program include implementation of a quantifiable carpooling program above and beyond what

is currently in place, using low or zero-emission construction vehicles, or fuel switching (which refers to the practice of changing from a fuel source with a higher GHG emission intensity to one with a lower GHG emission intensity, such as switching from diesel backup generators to natural gas, or replacing a propane-powered forklift with an electric forklift).

Methods of guaranteeing that carbon offsets purchased from a third-party or developed by a project applicant are quantifiable and verifiable include ensuring that such offsets are either registered or follow a protocol provided by an established organization such as The Climate Action Reserve, the Voluntary Carbon Standard, and the Chicago Climate Exchange. These three organizations are recognized as providing a reasonable level of assurance that GHG reductions formulated under their respective procedures are real, additional, permanent, and verifiable. Further details of these organizations are provided below.

- The Climate Action Reserve: The Climate Action Reserve is a national offsets program working to ensure integrity, transparency and financial value in the U.S. carbon market. It does this by establishing regulatory-quality standards for the development, quantification and verification of GHG emissions reduction projects in North America; issuing carbon offset credits generated from such projects; and tracking the transaction of credits over time in a transparent, publicly-accessible system.

- The Voluntary Carbon Standard (VCS): The VCS Program undertakes a variety of activities, including, but not limited to, accreditation rules for GHG validators and verifiers operating under the VCS, the approval process for recognition of other GHG Programs, supervision of the VCS Project Database, and the conditions for approval of VCS Registries.

- Chicago Climate Exchange: Reductions are achieved through Chicago Climate Exchange by a legally binding compliance regime, providing independent, third-party verification. Chicago Climate Exchange emitting members make a voluntary but legally binding commitment to meet annual GHG emission reduction targets. Those who reduce below the targets have surplus allowances to sell or bank; those who emit above the targets comply by purchasing Chicago Climate Exchange contracts.

Independent verification of an applicant's GHG reductions for a smaller construction project (such as the Project) is not yet required by federal, state, or local regulation, but such verification does allow such an applicant to participate in certain emissions trading programs, and improves the credibility, transparency, and reliability of an applicant's business practices. A typical independent verification process would proceed as follows:

1. A first-party applicant quantifies the amount of CO_2 and other GHG emissions expected to be generated by a project, using state-of-the-art technical resources (which may include a variety of modeling tools). The applicant then prepares a project carbon offset statement (GHG reductions assertion), which, for example, could include purchase of offsets or development of internal measures that will offset the emissions, or a combination of the two.

2. The applicant hires an independent, third-party validator/verifier to review the GHG reductions assertion per the requirements of the International Organization for Standardization (ISO) Standard 14065:2007 (Requirements for greenhouse gas validation and verification bodies for use in accreditation or other forms of recognition) or an equivalent standard. For California projects, independent verifiers are generally accredited with the California Climate Action Registry,

Chicago Climate Exchange, American National Standards Institute (ANSI), or the California Air Resources Board, as a matter of best business practice.

3. The independent verification process concludes with a formal written declaration (independent verification opinion statement) of the verifier's conclusion on the GHG assertion, which describes the level of assurance of the validation/verification statement, any qualifications or limitations, and a confirmation that the statements made in the first-party GHG assertion are free of material errors, omissions, or misstatements.

A key element of ensuring the validity of a carbon offset project is a process known as additionality testing. The United Nations Framework Convention on Climate Change has developed an additionality testing tool which can be applied to a carbon offset project to determine if the project goes above and beyond business as usual. If a project is determined to satisfy requirements related to the tests below then it can be said to contribute to additional GHG removals from the atmosphere. The four principle aspects of additionality testing are:

- Legal and Regulatory Additionality: The project may not be implemented to meet regulatory or industry mandates.
- Investment Test: A GHG reduction project must prove that revenue from the sale of carbon credits is a decisive factor in implementing the project.
- Barriers Test: A project overcomes significant barriers as compared to the business-as-usual alternative (e.g., non-financial implementation barriers such as institutional or public resistance or lack of operational know-how).
- Common Practice Test: A project may not be additional if it employs a commonly used approach or technology because it is likely that the carbon offset income does not play a decisive role in making the project viable.

Methodologies for reporting on annual emissions have been established by the California Climate Action Registry (which operates under the Climate Action Reserve, described above) and the World Resources Institute, and may be employed by an applicant for a project's operational phase.

Sulfur Content of Diesel Fuel

Pursuant to Title 13, Section 2281 of the Code of California Regulations (13 CCR 2281), the sulfur content of vehicular diesel fuel sold or supplied in California must not exceed 15 parts per million by weight (ppmw). As stipulated in 13 CCR 2299 and 17 CCR 93114, non-vehicular diesel fuel is also subject to the sulfur limits specified in 13 CCR 2281. Diesel supplied in California for project vehicles and equipment would be subject to this regulation and, therefore, must have a sulfur content less than or equal to 15 ppmw.

D.10.2.3 Regional and Local

SCAQMD is responsible for implementing measures and local air pollution rules in the South Coast Air Basin that ensure state and federal ambient air quality standards are achieved and maintained. The SCAQMD is required to update plans for improving air quality in the basin as needed or every three years. The 2007 Air Quality Management Plan is the latest iteration designed to satisfy requirements of both federal and state clean air laws. The plan outlines policies and practices intended to achieve attainment levels for criteria pollutants and avoid future levels that exceed applicable standards.

SCAQMD's "Draft Guidance Document – Interim CEQA Greenhouse Gas (GHG) Significance Threshold" ("SCAQMD Draft Guidance," October 2008) summarizes methodologies and presents rationale for an interim GHG significance threshold.

SCAQMD Rule 403: Fugitive Dust Regulations

The purpose of Rule 403 is to reduce PM in the ambient air as from man-made sources by requiring actions to prevent, reduce, or mitigate fugitive dust emissions. The rule prohibits construction activities from generating visible dust in the atmosphere beyond the property line of the emission source. The rule also requires construction activities to use the best available control measures to minimize fugitive dust emissions. The emissions come from a variety of construction activities including backfilling, clearing, earth-moving, stockpiling, and vehicle traffic.

D.10.3 Project Impacts and Mitigation

The Project has the potential for short-term air quality impacts due to construction and long-term impacts due to the ongoing operation and maintenance of the proposed subtransmission line and related substations.

Project construction is segmented into the following four areas:

1. New 25-mile Ivyglen 115-kV Subtransmission Line construction;
2. New Fogarty Substation construction;
3. Improvements to the existing Valley and Ivyglen Substations; and
4. Decommissioning and demolition of Dryden Substation.

Air pollutant emissions would be generated during various activities associated with these construction segments. Air pollutants would be emitted from engine exhaust of diesel and gasoline-fueled on-site construction equipment and on-road vehicles (i.e., delivery trucks and worker vehicles). On-site earthmoving activities and vehicle travel on access roads would also generate fugitive dust. Construction would be implemented over several phases. The primary phases include road work, grading, civil work (e.g., the construction of building or structure), electrical work, and restoration work. The linear nature of 115-kV subtransmission line construction would likely lead to some activities occurring at locations throughout the length of the line. These activities may occur simultaneously or at different times.

Air pollutant emissions would also be generated from the operation and maintenance of the transmission line and substations. Combustion products would be emitted from vehicles used during routine inspection and maintenance. It is also anticipated that small quantities of SF_6 could leak from transformers installed as part of the Project.

D.10.3.1 Significance Criteria

For the purposes of this document, the following criteria were used to determine if an impact pertaining to air quality would be considered significant:

- Conflict with or obstruct implementation of the applicable air quality plan;
- Violate any air quality standard or contribute substantially to an existing or projected air quality violation;

- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region reaches nonattainment levels according to applicable federal or state air quality standards. This includes emissions that exceed quantitative thresholds for ozone precursors;
- Expose sensitive receptors to substantial pollutant concentrations; or
- Create objectionable odors affecting a substantial number of people.

Although SCAQMD has interim criteria for assessing the significance of GHG emissions, as the lead agency, the CPUC bears the responsibility of setting the GHG thresholds to apply to this project. As stated in its interim policy, CPUC is taking a case-by–case approach to determining significance thresholds for GHG emissions. In this particular instance, a "net zero" threshold has been adopted by the CPUC; meaning that any activity resulting in GHG emissions from the construction, or operation and maintenance of this Project is to be considered significant.

- Activities associated with the Project would result in GHG emissions substantially exceeding baseline GHG emissions. Consistent with the aim of AB32 to provide GHG reductions, overall project GHG emissions would "substantially exceed" baseline emissions if the total effect of all project activities causes any net increase of GHG emissions over the baseline; or
- The Project would increase the delivery of power produced at levels exceeding the CPUC GHG emissions standard of 0.5 metric tons (1,100 lb) of CO_2 per megawatt hour.

Potential impacts are discussed according to the significance criteria above. Each impact is categorized according to the following classifications:

Class III – Less than significant impact without mitigation measures
Class II – Less than significant impact after mitigation measures are implemented
Class I – Significant impact and no feasible mitigation measures are available

SCAQMD has adopted thresholds of significance for construction and operational emissions. These thresholds are shown in Table D.10-4. In addition, SCAQMD has developed a Localized Significance Threshold (LST) methodology to assist lead agencies in analyzing localized impacts associated with project-specific activities. The LST methodology is applicable for emissions of NO_X, CO, PM_{10}, and $PM_{2.5}$.

Table D.10-4 SCAQMD Emissions Significance Thresholds

Threshold Category	Pollutant	Construction	Operations
Mass Daily Thresholds	NO_X	100 lbs/day	55 lbs/day
	VOC	75 lbs/day	55 lbs/day
	CO	550 lbs/day	550 lbs/day
	PM_{10}	150 lbs/day	150 lbs/day
	$PM_{2.5}$	55 lbs/day	55 lbs/day
	Lead	3 lbs/day	3 lbs/day
	SO_X	150 lbs/day	150 lbs/day
TAC and Odor Thresholds	TACs (including carcinogens and non-carcinogens)	Maximum Incremental Cancer Risk ≥ 10 in 1 million; Cancer Burden > 0.5 excess cancer cases (in areas ≥ 1 in 1 million); Hazard Index ≥ 1.0 (project increment)	
	Odor	Project creates an odor nuisance pursuant to SCAQMD Rule 402	

Table D.10-4 SCAQMD Emissions Significance Thresholds

Threshold Category	Pollutant	Construction	Operations
Ambient Air Quality Standards	NO_2[1]	0.18 ppm (1-hour average) 0.03 ppm (annual average)	
	PM10	10.4 µg/m³ (24-hour average) 1 µg/m³ (annual average)	2.5 µg/m³ (24-hour average) 1 µg/m³ (annual average)
	PM2.5	10.4 µg/m³ (24-hour average)	2.5 µg/m³ (24-hour average)
	Sulfate	1 µg/m³ (24-hour average)	
	CO[1]	20 ppm (1-hour average) 9.0 ppm (8-hour average)	

Source: SCAQMD Air Quality Significance Thresholds (SCAQMD 2009).

Notes: [1]SCAQMD is in attainment for NO_2 and CO. Project impacts would be significant if they cause or contribute to an exceedance of attainment standards

D.10.3.2 Applicant Proposed Emission Reduction Measures

In addition to using ultra-low sulfur diesel (as required by state law) and fugitive dust measures (as required under SCAQMD Rule 403), the Applicant has proposed the following measures to reduce the air pollutant emissions during construction activities:

AIR-SCE-1: All disturbed areas, including storage piles that are not actively being used, shall be effectively stabilized of dust emissions using water or a chemical stabilizer/suppressant; a tarp or other suitable cover; or vegetative ground cover.

AIR-SCE-2: Following the addition of materials to or the removal of materials from, the surface of outdoor storage piles shall be effectively stabilized using sufficient water or a chemical stabilizer/suppressant.

AIR-SCE-3: Where feasible, heavy-duty diesel powered construction equipment manufactured after 1996 would be used.

AIR-SCE-4: All on-site unpaved roads and off-site unpaved access roads shall be effectively stabilized using water or a chemical stabilizer/suppressant.

AIR-SCE-5: Construction workers would carpool when possible.

AIR-SCE-6: Vehicle idle time would be minimized.

AIR-SCE-7: Traffic on unpaved roads would be limited to 15 mph.

AIR-SCE-8: All off-road diesel engines not registered under CARB's Statewide Portable Equipment Registration Program with 50 horsepower (hp) or more shall meet, at minimum, Tier 2 California emission standards for off-road compression-ignition engines as specified in 13 CCR 2423(b)(1) unless a qualifying engine is not available for a certain type of equipment. If a Tier 2 engine is not available for an off-road engine larger than 100 hp, that engine shall be equipped with a Tier 1 engine. If a Tier 1 engine is not available for an off-road engine larger than 100 hp, that engine shall be equipped with a catalyzed diesel particulate filter, a soot filter, unless stated by the engine manufacturer that the use of such a device

is not practical for the engine. Equipment properly registered under and in compliance with CARB's Statewide Portable Equipment Registration Program is considered to comply with 13 CCR 2423(b)(1).

AIR-SCE-9: All on-road construction vehicles working within California shall meet all applicable California on-road emission standards and be licensed in the State of California. This does not apply to the personal vehicles of construction workers.

D.10.3.3 Impact Analysis

Impact AIR-1: Net Emission Increase of Criteria Pollutants from Construction Activities

Project construction activities are expected to generate air pollutant emissions, such as equipment/vehicle exhaust emissions and fugitive dust. As described above, construction for the various project segments would be separated into different phases. Maximum daily and total air pollutant emissions were calculated for each construction phase. A comparison of estimated maximum daily construction emissions to applicable SCAQMD significance thresholds is presented in Table D.10-5. A detailed summary of the calculations used to estimate constructions emissions is included in Appendix 3. The estimated emissions in this table are the peak values and would likely occur only during a small fraction of the construction timeframe. In addition, the emissions would be generated at numerous locations throughout the project area.

Table D.10-5 Comparison of Daily Construction Emissions to Daily Mass Significance Thresholds

Parameter		Pollutant (lbs/day)					
		CO	NO_X	VOC	SO_2	PM_{10}	$PM_{2.5}$
Maximum Daily Emissions by Construction Activity	Ivyglen 115kV Line	179	477	51	0.5	119	39
	Ivyglen & Valley Substations	16	19	3	0.02	18	4
	Fogarty Substation	89	153	22	0.1	136	29
	Dryden Substation	35	67	9	0.06	26	8
	Maximum[a]	284	649	76	0.6	273	72
SCAQMD Daily Mass Significance Thresholds		550	100	75	150	150	55
Significance Level		Not Significant	Significant	Significant	Not Significant	Significant	Significant

Note:

a. Emissions from demolition of Dryden Substation are not included in total as this demolition would occur after completion of the Fogarty Substation.

The estimated maximum daily emissions of NO_x, VOC, PM_{10}, and $PM_{2.5}$ during project construction activities are predicted to exceed corresponding SCAQMD mass daily significance thresholds. The majority of NO_x and VOC would be emitted from on-site construction equipment (e.g., drilling rigs, cranes, backhoes, and crawlers) used during installation of the subtransmission line and work at the Fogarty Substation. The majority of PM_{10}, and $PM_{2.5}$ would be emitted as fugitive dust during vehicle traffic on local roads and project access roads.

The following mitigation measures would be incorporated into the Project to reduce emissions:

MM AIR-1a: The following control measures shall be implemented to minimize impacts due to fugitive dust emissions:

- Stabilize unpaved roads with water or other stabilizing agents;
- Install wheel washers where vehicles enter and exit construction sites onto paved roads or wash off trucks and equipment leaving sites;
- Sweep streets at the end of the day if visible amounts of soil are carried onto adjacent public paved roads. Water sweepers with reclaimed water are recommended;
- Install wind breaks at construction areas if activities cause persistent visible PM emissions beyond the work area;
- Suspend excavation, trenching, grading, or other earthmoving activities if winds exceed 25 mph; and
- Use all required best available control measures as outlined in Table 1 of SCAQMD Rule 403.

MM AIR-1b: All construction equipment greater than 50 hp shall meet the cleanest off-road emission standard available but, at minimum, meet Tier 3 emission standards and be equipped with Level 2 or 3 CARB-verified diesel emission control technology.

MM AIR-1c: An equipment emission reduction plan shall be prepared for submission to the CPUC for review and approval at least 60 days prior to construction. The plan shall be incorporated into all contracts and contract specifications for construction work. The plan shall specify all project emission reduction measures and required mitigation measures related to construction equipment emission standards/controls as contractually required. The plan shall outline additional measures, as contractually required, to reduce or eliminate potential impacts associated with construction-related emissions of criteria air pollutants and toxic air contaminants. At minimum, the plan shall include the following additional measures:

- As feasible, reduce emissions of PM and other pollutants by using alternative clean fuel technology such as electric, hydrogen fuel cell, propane, or compressed natural gas-powered equipment with oxidation catalysts instead of gasoline- or diesel-powered engines.
- Ensure that all construction equipment is properly tuned and maintained and shut off when not in direct use.
- Prohibit engine tampering to increase horsepower.
- Locate engines, motors, and equipment as far as possible from residential areas and sensitive receptors, such as schools, daycare centers, and hospitals.
- Provide carpool shuttles and vans to transport construction workers to and from construction sites to minimize private vehicle use.
- Minimize construction-related transport of workers and equipment including trucks.
- Require that on-road vehicles be less than 10 years old.

MM AIR-1d: The Applicant shall designate a Construction Relations Officer to ensure the enforceability and efficacy of construction-related mitigation measures. Each construction site shall include clearly

visible signs with a phone number for the public to contact the Construction Relations Officer. The Construction Relations Officer shall be readily available to answer questions or field complaints regarding the Project.

MM AIR-1e: Prior to commencing construction, all personnel working on the Project shall be trained to minimize emissions and other air quality impacts during construction. Training would include procedures for:

- Stabilizing disturbed areas, including storage piles;
- Controlling dust emissions during land clearing, grubbing, scraping, excavation, land leveling, grading, cut and fill, and demolition activities;
- Transporting materials to minimize visible dust emissions;
- Stabilizing on-site unpaved roads and off-site unpaved roads; and
- Using transportation best practices such as carpooling, vehicle idling, and reduced speed.

Although application of prescribed mitigation measures would reduce net increases of criteria pollutants, the emissions are expected to remain greater than SCAQMD daily emission significance thresholds. Therefore, project construction emissions are assumed to contribute to short-term air quality impacts in the South Coast Air Basin. Though construction impacts are short-term and temporary in nature, the impact to air quality in the basin is classified as significant (Class I).

Impact AIR-2: Temporary Ambient Air Impacts Caused by Construction Activities

Emissions generated by construction activities are anticipated to cause temporary increases in ambient air pollutant concentrations. As indicated previously, SCAQMD has developed an LST methodology to analyze localized impacts associated with project activities. LST methodology was used to assess the significance of impacts caused by emissions of NO_X, CO, PM_{10}, and $PM_{2.5}$ during construction. Diesel engines emit a complex mix of pollutants, the most visible of which are very small carbon particles or "soot", also known as diesel PM, which are a subset of PM_{10}, and $PM_{2.5}$ emissions.

LST analyses were conducted using mass rate look-up tables provided in SCAQMD guidance. The tables can be used to concisely determine if daily emissions from the proposed construction activities could result in significant localized air quality impacts. An LST analysis was performed for each construction activity expected to have the highest level emission during 115-kV subtransmission line construction; construction of the new Fogarty Substation; and improvements to the existing Valley and Ivyglen Substations.

Since construction activities would occur at different locations throughout the length of the proposed 115-kV subtransmission line, LST analysis was performed for the activity most likely to cause the greatest amount of emissions at a single location. The activity identified was digging a hole for a large tubular steel pole (TSP). For construction activities, the equipment exhaust and fugitive dust emissions included in the LST analysis were limited to those generated on-site (i.e., emissions from off-site travel were not included as they occur at a different location). The results of the LST analyses are presented in Table D.10-6. A detailed summary of the calculations used to estimate construction emissions is included in Appendix 3. Air pollutant emissions for digging a TSP hole are detailed in Section 3d of the appendix. Estimated construction emissions are less than or equal to the corresponding LST threshold levels for each construction segment.

Most of the proposed subtransmission line route would be located in rural or suburban areas not in close proximity to sensitive receptors. Sensitive receptors include schools, residential areas, and parks. The proposed subtransmission line does not cross park or recreation facilities. No schools are located within 0.4 miles of the proposed subtransmission line, and no hospitals are located within 2 miles of the subtransmission line. The subtransmission line would be routed along roads within and nearby the Warm Springs Residential Community in Lake Elsinore. Given that construction activities would be transient and impact specific locations for only limited durations, long-term impacts are not anticipated.

Since construction emissions are estimated to be below LST threshold levels, significant impacts on air quality by criteria pollutants (Class III) are not anticipated. Even though localized impacts have been classified as insignificant, application of the mitigation measures outlined above (MM AIR-1a to MM AIR-1d) should reduce potential impacts.

Table D.10-6 Comparison of Daily On-Site Construction Emissions to LST Thresholds

Construction Segment	Maximum Daily On-Site Emissions (lb/day)				LST Emission Threshold for Construction (lb/day)			
	CO	NO_X	PM_{10}	$PM_{2.5}$	CO	NO_X	PM_{10}	$PM_{2.5}$
Ivyglen 115kV Line (TSP Pole Digging)[1]	13	44	2	2	602	147	4	3
Ivyglen and Valley Substations[2]	8	14	4	1	887	203	12	4
Fogarty Substation[3]	74	146	12	8	1732	371	13	8
Dryden Substation[2,4]	30	62	3.6	3.6	887	203	12	4

Notes:

[1] LST threshold based on 1-acre site and distance of 25 meters to receptor. Used the lowest value provided for Perris Valley and Lake Elsinore.

[2] LST threshold based on 1-acre site and distance of 50 meters to receptor. Used the lowest value provided for Perris Valley and Lake Elsinore.

[3] LST threshold based on 5-acre site and distance of 25 meters to receptor. Used the value provided for Lake Elsinore.

[4] Maximum daily emissions here are assumed to be conservative as not all equipment would operate on the same day.

Impact AIR-3: Net Increase in Criteria Pollutant Emissions During Maintenance and Inspection Activities

Ongoing operation of project components would result in minimal emissions of criteria air pollutants associated with periodic maintenance and inspection. The subtransmission line and substations would not be staffed during ongoing operation. Electrical equipment along the line and within the substation would be remotely monitored and controlled by a power management system. Applicant personnel would inspect project components as part routine maintenance. Inspection and maintenance would only require a few vehicles for short periods. It is anticipated that maintenance inspections of the 115 kV line and Fogarty Substation would occur approximately 50 weeks per year and three weeks per year, respectively. No maintenance in addition to what is currently performed is expected to be necessary at the Valley and Ivyglen Substations.

Criteria pollutant emissions would be generated from the vehicles used during periodic inspection, maintenance, and repair. No stationary emissions sources would be associated with the Project. A comparison of predicted criteria air pollutant emission increases to SCAQMD thresholds is presented in Table D.10-7. A detailed summary of the calculations used to estimate emissions is included in Appendix 3. Any impacts to current levels of criteria pollutants due to project activities is anticipated to be less than significant (Class III).

Impact AIR-4: Odor from Project Construction, Maintenance, and Inspections

Exhaust from construction vehicles may temporarily create odors due to the combustion of fuel. However, the level of emissions would not likely cause a perceptible odor to most people. Perceptible levels of odors would be temporary. Vehicle emissions during project operation would be minimal, and consequently, no objectionable odors are expected. Impacts associated with objectionable odors with the potential to affect a substantial number of people are anticipated to be less than significant (Class III).

Table D.10-7 Comparison of Net Increase in Daily Operational Emissions to Daily Mass Significance Thresholds

Parameter	Pollutant (lbs/day)					
	CO	NO_X	VOC	SO_2	PM_{10}	$PM_{2.5}$
Maximum Net Increase in Daily Project Emissions	3	3	0.4	0.003	0.1	0.1
SCAQMD Daily Mass Significance Thresholds	550	55	55	150	150	55
Significance Level	Not Significant	Not Significant	Not Significant	Not Significant	Not Significant	Not Significant

Impact AIR-5: Net Increase in GHG Emissions during Project Construction

During project construction, GHGs would be emitted from employee vehicles, light-duty vehicles (e.g., crew trucks, line trucks, and water trucks), and off-road equipment (e.g., bulldozers, graders, and backhoes). Estimates of GHG emissions from these sources were calculated for the entire construction period. Approximately 4,229 metric tons (tonnes) of CO_{2e} would be emitted during all construction activities (see Table D.10-8). The vast majority of GHG emissions would be CO_2 associated with the combustion of fuel in mobile equipment with minor associated amounts of CH_4 and N_2O. A detailed summary of the calculations used to estimate GHG emissions from construction activities is included in Appendix 3.

Table D.10-8 GHG Emissions from Construction

Construction Segment	GHG Emissions as CO_{2e} (metric tonnes)
Ivyglen 115kV Line	3,554
Ivyglen & Valley Substations	34
Fogarty Substation	626
Dryden Substation Decommissioning and Demolition	15
Total	4,229

The following mitigation measure shall be applied to mitigate GHG emissions resulting from project construction:

MM AIR-5a: The Applicant shall obtain and hold for the duration of project construction, sufficient carbon credits to fully offset construction-phase GHG emissions ("project carbon offsets"). At minimum, the Applicant shall obtain and hold carbon credits to offset at least 4,229 metric tons of CO_2e emissions for the first year of construction and prorated during the second year as required. Prior to completion of project construction, the Applicant shall prepare a detailed written summary of the project carbon offsets, including offset project type, location, calculation methodology protocol employed, and registration status. In addition, prior to completion of project construction, the Applicant shall provide to the CPUC an independent verification opinion statement(s), from a verification body registered with the California Climate Action Registry, Chicago Climate Exchange, ANSI, or the CARB, for the credits to be applied.

Offsets purchased from a third-party or developed by the Applicant must meet at least one of the following requirements:

1) Offset project is located within California;

2) Offset project is located in jurisdictions that hold current, specific agreements with California (such as the Climate Action Reserve), or exist in the context of an ISO-compliant regional trading system like that being developed in the Western Climate Initiative or other regional program; and/or

3) Offset project is an internally developed reduction measure following a recognized protocol (such as the Climate Action Reserve, the Voluntary Carbon Standard, or the Chicago Climate Exchange). Some potential offset projects of this type include:
    - Fuel switching in applicant-owned equipment;
    - Energy efficiency upgrades beyond business as usual;
    - Implementation of a quantifiable carpooling program above and beyond what is currently in place; and
    - Sequestration and/or destruction of GHG conducted in accordance with any protocol available at the time of construction from the Climate Action Reserve, the Voluntary Carbon Standard, or the Chicago Climate Exchange.

Any project carbon offset either purchased or developed by the Applicant through another entity must either be registered in, or developed in accordance with a protocol for, an established Carbon Reduction/Sequestration Project. Established projects and protocols would include those provided by recognized organizations, such as the Climate Action Reserve, the Voluntary Carbon Standard, or the Chicago Climate Exchange, that can provide a reasonable level of assurance that GHG reductions are real, additional, permanent, and verifiable.

Should the Applicant develop a project carbon offset without registering it with one of the above-referenced registration bodies, the Applicant is required to demonstrate to the CPUC that the offset satisfies the four additionality tests as outlined in the UNFCC Additionality Tool and must obtain an independent evaluation by a qualified third-party confirming that the offset meets additionality testing requirements.

With the implementation of MM AIR-5, the impact of the project would be reduced, but it would not be mitigated to a less than significant level and would remain a significant impact (Class I).

Impact AIR-6: GHG Emissions from Project Operations

Ongoing operation of project components would result in GHG emissions associated with periodic maintenance/inspection and unavoidable fugitive equipment leakage. Emissions from maintenance and inspection activities are described above under Impact AIR-3. Fugitive emissions of SF_6 would be emitted from circuit breakers installed at the Fogarty, Valley, and Ivyglen Substations. Five new 220-kV circuit breakers would be located at the Fogarty Substation. In addition one new 115-kV breaker will be installed at the Valley Substation and Ivyglen Substation. Each breaker would contain approximately 60 lbs of SF_6. The typical SF_6 leakage rate for new breakers is estimated at 0.5 percent per year.

Estimates of annual GHG emissions from these sources were calculated as approximately 34 tonnes of CO_2e. About two-thirds of the CO_2e emissions would be attributable to SF_6 used in circuit breakers and/or transformers. Due to the high global warming potential of SF_6, one tonne of SF_6 has the same global warming impact as 23,900 tonnes of CO_2. A detailed summary of the calculations used to estimate GHG operation emissions is included in Appendix 3.

Table D.10-9 Annual GHG Emissions from Project Operation

Emission Type	GHG Emissions as CO_{2e} (metric tonnes)
Vehicle Emissions	11
Breaker Leakage	23
Total	34

The following mitigation measure shall be applied to mitigate GHG emissions resulting from project operation:

MM AIR-6a: The Applicant shall obtain and hold for the life of the Project sufficient carbon credits to fully offset GHG emissions caused by transmission line operation, maintenance, and inspection activities. Within the first year of project operation, the Applicant shall purchase carbon offsets for at least 34 tonnes of CO_2e. To determine the quantity of carbon reductions that must occur each year after this initial year, the Applicant shall develop a complete GHG inventory annually. The Applicant shall follow established methodologies (such as the California Climate Action Registry or World Resources Institute protocols) to report GHG emissions associated with operation of the Project. All operational emissions, including SF6 leakage and vehicle travel, will be fully offset using one of the approaches outlined in **MM AIR-5a.** The Applicant shall report to the CPUC annually on the status of efforts to obtain these offsets and the quantity of GHG emissions offset.

With the implementation of MM AIR-6, the impact of the project would be reduced, but it would not be mitigated to a less than significant level and would remain a significant impact (Class I).

D.10.4 Cumulative Impacts

As discussed above in Impact AIR-1, total daily emissions of NO_x, VOC, PM_{10}, and $PM_{2.5}$ from construction activities exceed SCAQMD thresholds. The result is a cumulatively considerable net increase of criteria pollutants for which the region would be in nonattainment status under an applicable federal or state ambient air quality standard. As discussed above in Impacts AIR-5 and AIR-6, project construction and operational emissions would also exceed the "net zero" threshold for GHG; this would also result in significant cumulative impacts. Although these air quality impacts can be reduced, impacts would not be mitigated to less than significant. Therefore, the Project would contribute substantially to significant cumulative air quality impacts (Class I).