

TABLE OF CONTENTS

4.3 AIR QUALITY..... 4.3-1
 4.3.0 Introduction..... 4.3-1
 4.3.1 Methodology..... 4.3-1
 4.3.2 Existing Conditions..... 4.3-2
 4.3.3 Impacts..... 4.3-14
 4.3.4 Applicant-Proposed Measures 4.3-28
 4.3.5 References..... 4.3-29

LIST OF TABLES

Table 4.3-1: AAQS and SDAPCD Attainment Status..... 4.3-10
 Table 4.3-2: Estimated Ambient Exposure to DPM in California..... 4.3-11
 Table 4.3-3: Recent Air Quality Concentrations 4.3-12
 Table 4.3-4: Frequency of Air Quality Standard Violation 4.3-12
 Table 4.3-5: Air Quality Significance Thresholds – Construction Activities..... 4.3-14
 Table 4.3-6: ICAPCD Thresholds of Significance for Project Operations..... 4.3-15
 Table 4.3-7: ICAPCD Feasible PM₁₀ Control Measures for Construction Activities 4.3-16
 Table 4.3-8: ICAPCD Mitigation for Construction Combustion Equipment..... 4.3-17
 Table 4.3-9: ICAPCD Construction Thresholds of Significance for Tier II Projects..... 4.3-17
 Table 4.3-10: CAP Emissions from Construction 4.3-21
 Table 4.3-11: Peak Daily Construction Emissions 4.3-22
 Table 4.3-12: CAP Emissions from Operation and Maintenance..... 4.3-23
 Table 4.3-13: GHG Emissions from Construction 4.3-25
 Table 4.3-14: CO₂E GHG Emissions from Construction 4.3-25
 Table 4.3-14: GHG Emissions from Operation and Maintenance..... 4.3-26

LIST OF ATTACHMENTS

Attachment 4.3-A: Proposed Project Emissions Calculation Methodology

CHAPTER 4 – ENVIRONMENTAL IMPACT ASSESSMENT

4.3 AIR QUALITY

Would the project:	Potentially Significant Impact	Less-Than-Significant Impact with Mitigation	Less-Than-Significant Impact	No Impact
a) Conflict with or obstruct implementation of the applicable air quality plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Expose sensitive receptors to substantial pollutant concentrations?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Create objectionable odors affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

4.3.0 Introduction

This section describes the existing air quality within the San Diego Gas and Electric Company (SDG&E) East County (ECO) Substation Project (Proposed Project) area and evaluates the potential air quality impacts associated with construction and operation of the Proposed Project. Although some temporary impacts will result during construction, operation, and maintenance activities, with implementation of the minimization measures listed in Section 4.3.4 Applicant-Proposed Measures, the potential air quality impacts from the Proposed Project will be less than significant.

4.3.1 Methodology

The majority of the Proposed Project's air emissions were assessed by estimating emission rates from construction, operation, and maintenance activities and then comparing them to established significance criteria. In other cases, such as the odor and sensitive receptor analysis, the impact assessment was based on subjective criteria, including experience with similar projects. Air pollutant emission rates were estimated using the publicly available software, URBEMIS version 9.2.4 (URBEMIS). This computer model allows users to generate estimates of construction and operational emissions of various pollutants, including inhalable particulate matter (PM₁₀), fine particulate matter (PM_{2.5}), carbon monoxide (CO), reactive organic gases (ROG), sulfur oxides

(SO_x), oxides of nitrogen (NO_x), and carbon dioxide (CO₂). URBEMIS also allows users to input minimization measures and evaluate their effects on emission rates.

Diesel particulate matter (DPM) and other particulate matter (PM) will be the two pollutants of greatest concern during construction of the Proposed Project, primarily from on- and off-road construction vehicles and soil-disturbing activities. DPM emissions can be inferred from the PM_{2.5} modeling results. In URBEMIS, construction activities can be divided into the following seven components:

- Demolition
- Fine Site Grading
- Mass Site Grading
- Trenching
- Building Construction
- Architectural Coating
- Paving

The primary operation and maintenance emissions will result from the use of backup and emergency generators, worker commute traffic, and maintenance vehicle travel to and from the Proposed Project area. Similar to the construction phase, DPM and PM will be the two pollutants of primary concern.

4.3.2 Existing Conditions

This section describes the regulations and regulatory agencies that have jurisdiction over the Proposed Project, regional climate and meteorology, and existing air quality conditions in the area.

Regulatory Background

Federal

The 1970 federal Clean Air Act (CAA) established national ambient air quality standards (AAQS) for six pollutants: CO, ozone (O₃), PM₁₀, nitrogen dioxide (NO₂), sulfur dioxide (SO₂), and lead. These six criteria pollutants are known to have adverse impacts on human health and the environment. To protect human health and the environment, the United States (U.S.) Environmental Protection Agency (EPA) has set primary and secondary maximum ambient thresholds. The primary thresholds were set to protect human health, particularly children and the elderly, as well as individuals in the population that suffer from chronic lung conditions (e.g., asthma and emphysema). The secondary standards were set to protect the natural environment and prevent further deterioration of animals, crops, vegetation, and buildings. The combined primary and secondary standards are termed the National AAQS (NAAQS).

The 1977 CAA required each state to develop and maintain a State Implementation Plan (SIP) for each criteria pollutant that exceeds ambient air quality standards. The SIP serves as a tool to reduce pollutants that are known to cause impacts that exceed the ambient thresholds and to achieve compliance with the NAAQS. In 1990, the CAA was amended to strengthen regulation of both stationary and mobile emission sources for the criteria pollutants.

In July 1997, the U.S. EPA developed new health-based NAAQS for O₃ and PM₁₀. However, these standards were not fully implemented until 2001, after the resolution of several lawsuits. The new federal O₃ standard of 0.08 parts per million (ppm), established in 1997, was based on a longer averaging period (8-hour versus 1-hour), recognizing that prolonged exposure to O₃ is more damaging. In March 2008, the EPA further lowered the 8-hour O₃ standard from 0.08 ppm to 0.075 ppm. The new federal PM standard is based on finer particles (2.5 microns and smaller versus 10 microns and smaller), recognizing that finer particles may have a higher residence time in the lungs and contribute to greater respiratory illness. In February 2007, the NO₂ AAQS was amended to lower the existing 1-hour standard of 0.25 ppm to 0.18 ppm, not to be exceeded, and established a new annual standard of 0.030 ppm, not to be exceeded.

State

The California Clean Air Act (CCAA) of 1988 requires air districts to develop and implement strategies to attain California's Ambient Air Quality Standards (CAAQS). For some pollutants, the California standards are more stringent than the national standards. Regional air quality management districts, such as the San Diego Air Pollution Control District (SDAPCD), had to prepare an air quality plan specifying how federal and state standards would be met.

The California Air Resources Board (CARB) enforces the CAAQS and works with the state's Office of Environmental Health Hazard Assessment (OEHHA) in identifying toxic air contaminants (TACs) and enforcing rules related to TACs, including the Air Toxic Hot Spots Information and Assessment Act of 1987. Enacted to identify toxic air contaminant hot spots where emissions from specific sources may expose individuals to an elevated risk of adverse health effects, the act requires that a business or other establishment identified as a significant source of toxic emissions provide the affected population with information about health risks posed by the emissions.

The CARB also regulates mobile emission sources in California, such as construction equipment, trucks, and automobiles, and oversees the air districts. Relevant programs related to oversight of mobile source emissions include the Off-Road and On-Road Mobile Sources Reduction programs, the Portable Equipment Registration Program (PERP), and the Airborne Toxic Control Measure for DPM from Portable Engines. The Mobile Sources Emission Reduction programs are aimed at reductions of NO_x, volatile organic compounds (VOCs), CO, and PM₁₀. CARB has also adopted specific control measures for the reduction of DPM from off-road (in-use) diesel vehicles (rated at 25 horsepower or higher) such as backhoes, dozers, and earthmovers used in construction projects. Additional DPM control measures are also in place for heavy-duty on-road diesel trucks operated by public utilities and municipalities. The PERP and Airborne Toxic Control Measure for DPM (for portable engines) provide for state-wide registration and control of DPM from portable engines 50-rated horsepower and higher.

Local

The air districts are primarily responsible for regulating stationary emission sources at industrial and commercial facilities within their respective geographic areas and for preparing the air quality plans that are required under the federal and California CAAs. SDAPCD is the primary agency responsible for planning, implementing, and enforcing federal and state ambient

standards in San Diego County. The plans, rules, and regulations presented as follows apply to all sources in the jurisdiction of SDAPCD.

SDAPCD Air Quality Plans

The SDAPCD's air quality plans collectively provide an overview of the region's air quality and air pollution sources and identify the pollution-control measures needed to expeditiously attain and maintain air quality standards. The District's air quality plans include the San Diego Regional Air Quality Strategy (RAQS), addressing State requirements, and the San Diego portion of the California SIP, addressing federal requirements.

Ozone Air Quality Management Plan

The SDAPCD SIP predicts that local and state programs will allow San Diego County to reach attainment status for the previously applicable 0.08 ppm federal 8-hour O₃ AAQS by 2009 (per the SIP submitted to the EPA in June 2007). It is anticipated that the EPA will designate San Diego County as a nonattainment area for the new 0.075 ppm 8-hour O₃ standard in the future. The SDAPCD will have to submit an updated SIP to address the new stringent standard at that time.

The SDAPCD maintains the RAQS, which acts as a road map demonstrating how the district will eventually meet the state O₃ AAQS. The RAQS details the measures and regulations that focus on managing and reducing O₃ precursors, such as NO_x and VOCs. The RAQS control measures concentrate on stationary sources that are under the SDAPCD's jurisdiction; however, all emission sources and control measures, including any under the jurisdiction of the CARB (e.g., on-road motor vehicles, off-road vehicles and equipment, and consumer products) and U.S. EPA (e.g., aircraft, ships, trains, and pre-empted off-road equipment) are included.

Particulate Matter Air Quality Management Plan

The CCAA does not require local districts to establish an air quality management plan for state PM₁₀ nonattainment, but the SDAPCD has prepared a report entitled, Measures to Reduce Particulate Matter in San Diego County. The SDAPCD is considering rulemaking for source category-specific particulate matter control measures for emissions from residential wood combustion and from fugitive dust generated at construction sites and from unpaved roads.

SDAPCD Regulation IV – Prohibitions, Rule 50 – Visible Emissions

This rule prohibits any activity that will create air contaminant emissions darker than 20 percent opacity for more than an aggregate of three minutes in any consecutive 60-minute time period.

SDAPCD Regulation IV – Prohibitions, Rule 51 – Nuisance

This regulation prohibits any activity that will discharge air contaminants that cause or have a tendency to cause injury, detriment, nuisance, or annoyance to people and the public or damage to any business or property.

SDACPD Rule XV – Federal Conformity

The federal conformity rule prohibits any federal actions that may be inconsistent with SDAPCD efforts to achieve attainment with the NAAQS.

Climate Change Policies and Regulations

Many chemical compounds found in the earth's atmosphere act as "greenhouse gases" (GHG). These gases allow sunlight to enter the atmosphere freely but absorb heat radiated from the surface of the earth and trap the heat in the atmosphere. Many gases exhibit these "greenhouse" properties. Some of them occur in nature—such as water vapor, CO₂, methane (CH₄), and nitrous oxide (N₂O)—and some are man-made—such as gases used for aerosols. Over time, the amount of energy sent from the sun to the earth's surface should be about the same as the amount of energy radiated back into space, keeping the temperature of the earth's surface roughly constant. The generally accepted scientific understanding is that human-caused increases in GHG have and will continue to contribute to global warming; however, the scientific community is still in disagreement over the rate or magnitude of this warming.

Over the past decade, the issue of global warming has developed into a critical issue for consideration in land use planning. The public and political will to address this issue has resulted in recent legislation in California designed to curb emissions and mandate limits and reductions on GHG emissions. The California Climate Action Team's Report to the Governor, published in April, 2006, identifies initial strategies that the state should pursue for managing GHG emissions.

California Global Warming Solutions Act of 2006

In response to Executive Order S-3-05 (June 2005), which declared California's particular vulnerability to climate change, the California Global Warming Solutions Act of 2006, Assembly Bill 32 (AB32), was signed into effect on September 27, 2006. In enacting the bill, the California Legislature found that:

“Global warming poses a serious threat to the economic well-being, public health, natural resources, and the environment of California. The potential adverse impacts of global warming include the exacerbation of air quality problems, a reduction in the quality and supply of water to the state from the Sierra snowpack, a rise in sea levels resulting in the displacement of thousands of coastal businesses and residences, damage to marine ecosystems and the natural environment, and an increase in the incidences of infectious diseases, asthma, and other human health-related problems.”

This law requires the CARB to adopt a statewide GHG emissions limit equivalent to the levels in 1990 to be achieved by 2020. The following six compounds have been defined as GHGs under AB32: CO₂, CH₄, N₂O, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride (SF₆). To achieve this reduction goal, the CARB is required to adopt rules and regulations to achieve the maximum technologically feasible and cost-effective GHG-emission reductions. The CARB established the statewide emissions limit for 2020 at its meeting on December 6, 2007. At the same time, the CARB also adopted regulations that require mandatory GHG emissions reporting.

The California Public Utilities Commission (CPUC) and the California Energy Commission (CEC) concluded a lengthy proceeding in October 2008 to provide electricity and natural gas specific recommendations to the CARB for inclusion in its scoping plan and AB32 regulations and programs. The CARB adopted a comprehensive scoping plan in December 2008 that outlined programs designed to achieve the 2020 GHG reduction goal of 174 million metric tons of CO₂ equivalent (MMTCO₂E) emissions through regulations, market mechanisms, and other actions. For the electricity sector, the scoping plan adopted the fundamental recommendations of the CPUC for both investor-owned and publicly owned utilities to continue and increase the implementation of programs designed to reduce emissions including energy efficiency programs, increasing the use of electricity supplies obtained from renewable generation sources to 33 percent by 2020, and the adoption of a cap and trade system to ensure an overall reduction of emissions from electric generation. As stated in the Final Recommendations:

“The electricity and natural gas sectors will play a critical role in achieving this ambitious goal. Indeed, [C]ARB’s Climate Change Draft Scoping Plan envisions that the electricity sector will contribute at least 40% of the total statewide GHG reductions, even though the sector currently creates just 25% of California’s GHG emissions. This is before considering the additional emissions reductions that are projected to result from a GHG emissions allowance cap-and trade system, if such a system is adopted and implemented. The electricity sector is expected to reduce its emissions further due to its participation in such a market-based system.”

The CPUC/CEC Joint Recommendation Decision, adopted on October 16, 2008, details the planned GHG reductions. This document makes three important points. First, GHG emissions from the electricity sector have been essentially flat since 1990. Second, the "reference case" modeled by the CPUC’s consultants (the current 20 percent Renewable Portfolio Standard¹ [RPS] and existing energy efficiency programs) would result in continued compliance with the electricity sector’s 1990 proportional share of GHG emissions by 2020 despite population growth. Third, the "accelerated policy case" (33 percent RPS plus greater energy efficiency as proposed by the CPUC, CEC, and CARB) would produce about 30 MMTCO₂E of annual reductions or 27 percent below 1990 levels. This is without considering additional reductions expected from a cap and trade program.

Throughout 2009, CARB staff will draft rules to implement the AB32 Scoping Plan and hold public workshops on each measure, including market mechanisms. The CARB has identified “Discrete Early Actions” that can be implemented to reduce GHG emissions from the years 2007 to 2012. On January 29, 2009, the CARB also announced its regulatory schedule to adopt 74 separate regulations and other measures including the enhanced energy efficiency programs and 33 percent RPS standard recommended in the Final Recommendations and in the CARB Scoping Plan. Implementation of the CARB Scoping Plan was outlined at a workshop held by CARB staff on January 29, 2009.

¹ The requirement imposed on utilities to derive a specified percentage of their power from renewable sources is known as a Renewable Portfolio Standard (RPS).

AB32 – Early Action C17, 2-8: Reduce Sulfur Hexafluoride from Electrical Generation

Early Action C17 is directly applicable to the Proposed Project due to the use of SF₆ in substation equipment. The U.S. EPA estimates that the electric power industry can achieve cost-effective SF₆-emissions reductions through operational improvements and equipment upgrades. Options to reduce SF₆ emissions include leak detection and repair, SF₆ recycling, and employee education and training through a corporate policy of managing SF₆. CARB's staff is attempting to quantify the SF₆ emissions attributed to the California electric power industry and develop the most appropriate and effective emission-reduction equipment and practices. The CARB is tentatively scheduled to consider this item in 2009.

Executive Order S14-08

Senate Bill (SB) 1078, passed in 2002, initially required electricity providers to obtain 20 percent of their power from renewable sources by 2020. The current RPS requirement of 20 percent renewable electricity sources by 2010 was established by 2006 legislation (SB107). On November 17, 2008, Governor Schwarzenegger signed an Executive Order requiring California's investor and publicly owned utilities to obtain 33 percent of their electric power from renewable sources by 2020. The latest RPS is expected to be brought into legislation introduced during the upcoming legislative session.

California Public Utilities Commission GHG Emissions Performance Standard

The Electricity GHG Emission Standards Act (SB1368) was enacted in 2006. At the CPUC meeting on January 25, 2007, the CPUC adopted GHG requirements in the form of an emissions performance standard for any long-term power commitments made by the state's electrical utilities. Utilities are not allowed to enter into a long-term commitment to buy base-load power from power plants that emit more than 1,100 pounds of CO₂ (0.5 metric ton) per megawatt-hour. This standard is approximately the amount emitted by a combined-cycle turbine fueled with natural gas. The GHG emissions performance standard applies to new power plants, new investments in existing power plants, and new or renewed contracts with terms of five years or more, including contracts with power plants located outside of California. On May 23, 2007, the CEC also adopted a performance standard consistent with those of the CPUC.

Regional Climate and Meteorology

The Proposed Project will be located in San Diego County and under the jurisdiction of the SDAPCD within the San Diego Air Basin. San Diego County is split into two air sheds by the Laguna Mountain Range. This mountain range is located approximately 45 miles inland from the Pacific Ocean, and it bisects the county from north to south. The Proposed Project area is located east of this mountain range in a region with open space, agricultural lands, small towns, recreational areas, and public lands. Regional climatic conditions consist of dry, hot summers and cool, moderately wet winters. Average summertime high temperatures in Campo, near the Proposed Project area, are approximately 95 degrees Fahrenheit (°F), with record highs approaching 110°F. Average wintertime lows are approximately 35°F, with record lows approaching 10°F. Annual precipitation in Boulevard averages 12.7 inches per year but decreases to less than 5 inches in areas east of the proposed ECO Substation site.

The levels of O₃, PM, and other air quality constituents within the Proposed Project area are influenced by the climate in San Diego County, the Anzo-Borrego Desert, and the Imperial Valley. Throughout the summer, high levels of PM exist in the region, along with ground-level ozone. The typical sunny climate, warm temperatures, and westerly winds cause O₃ to be transported from San Diego's coastal urban airshed, leading to generally high O₃ levels in the vicinity of the Proposed Project area during the summer season.

Air Quality

Criteria Pollutants

O₃, CO, NO₂, SO₂, lead, PM₁₀, and PM_{2.5}, are all criteria air pollutants that are regulated in California. Nonmethane-ethane VOCs, also referred to as ROGs, are also regulated as precursors to the formation of O₃. These criteria pollutants and their effects on humans are discussed below.

Ozone

O₃ is a colorless gas that is not directly emitted as a pollutant, but is formed when hydrocarbons and NO_x react in the presence of sunlight. Low wind speeds or stagnant air mixed with warm temperatures typically provide optimum conditions for the formation of O₃. Because O₃ formation does not occur quickly, O₃ concentrations often peak downwind of the emission source. As a result, O₃ is of regional concern, impacting a larger area. When inhaled, O₃ irritates and damages the respiratory system.

Particulate Matter

PM—defined as particles suspended in a gas—is often a mixture of substances such as metals, nitrates, organic compounds, and complex mixtures such as diesel exhaust and soil. PM can be traced back to both man-made and natural sources. The most common sources of natural PM are dust and fires while the most common man-made source is the combustion of fossil fuels.

PM causes irritation to the human respiratory system when inhaled. The extent of the health risks due to PM exposure can be determined by the size of the particles. The smaller the particles, the deeper they can be deposited in the lungs. PM is often grouped into two categories: inhalable PM less than 10 microns in diameter (PM₁₀) and fine PM less than 2.5 microns in diameter (PM_{2.5}).

Carbon Monoxide

CO is a colorless, odorless, and tasteless gas that is directly emitted as a by-product of combustion. CO concentrations tend to be localized to the source with the highest concentrations being associated with cold, stagnant weather conditions. CO is readily absorbed through the lungs into the blood, where it reduces the ability of the blood to carry oxygen.

Nitrogen Oxides

NO_x is a generic name for the group of highly reactive gases which contain nitrogen and oxygen in varying amounts. Many of the NO_x are colorless and odorless. However, one common

pollutant, NO₂ along with particles in the air can often be seen as a reddish-brown layer over many urban areas.

NO_x form when fuel is burned at high temperatures. Typical manmade sources of NO_x include motor vehicles, fossil-fueled electricity generation utilities, and other industrial, commercial, and residential sources that burn fuels. NO_x can harm humans by affecting the respiratory system. Small particles can penetrate the sensitive parts of the lungs and can cause or worsen respiratory disease and can aggravate existing heart conditions.

As discussed previously, O₃ is formed when NO_x and VOCs react with sunlight.

Sulfur Oxides

SO_x are formed when sulfur-containing materials are processed or burned. SO₂ sources include industrial facilities—such as petroleum refineries and cement manufacturing and metal processing facilities—locomotives, large ships, and some non-road diesel equipment.

A wide variety of health and environmental impacts is associated with SO₂ because of the way it reacts with other substances in the air. People with asthma, children, the elderly, and people with heart or lung disease are particularly sensitive to SO_x emissions. When inhaled, these particles gather in the lungs and contribute to increased respiratory symptoms and disease, difficulty in breathing, and premature death.

Volatile Organic Compounds

VOCs (or ROGs) are a group of chemicals that react with NO_x and hydrocarbons in the presence of heat and sunlight to form O₃. Examples of VOCs include gasoline fumes and oil-based paints. This group of chemicals does not include CH₄ or other compounds determined by the U.S. EPA to have negligible photochemical reactivity.

Air Quality Designations

Three air quality designations can be given to an area for a particular pollutant:

- Nonattainment: This designation applies when air quality standards have not been consistently achieved.
- Attainment: This designation applies when air quality standards have been achieved.
- Unclassified: This designation applies when insufficient monitoring data exists to determine a nonattainment or attainment designation.

The current CAAQS, NAAQS, and SDAPCD attainment status is provided in Table 4.3-1: AAQS and SDAPCD Attainment Status. The SDAPCD is currently designated as a nonattainment area for O₃ and PM.

Table 4.3-1: AAQS and SDAPCD Attainment Status

Pollutant	Averaging Time	California Standards		Federal Standards	
		Concentration	Attainment Status	Concentration	Attainment Status
O ₃	1-hour	0.09 ppm	Serious	--	--
	8-hour	0.070 ppm	Nonattainment	0.075 ppm	Nonattainment
CO	1-hour	20 ppm	Attainment	35 ppm	Unclassified/
	8-hour	9 ppm		9 ppm	Attainment
NO ₂	1-hour	0.18 ppm	Attainment	--	Unclassified/
	Annual	0.030 ppm		0.053 ppm	Attainment
SO ₂	1-hour	0.25 ppm	Attainment	--	Attainment
	24-hour	0.04 ppm		0.14 ppm	
	Annual	--		0.03 ppm	
PM ₁₀	24-hour	50 µg/m ³	Nonattainment	150 µg/m ³	Unclassified
	Annual	20 µg/m ³		--	
PM _{2.5}	24-hour	--	Nonattainment	35 µg/m ³	Unclassified/
	Annual	12 µg/m ³		15 µg/m ³	Attainment

Note: µg/m³ = micrograms per cubic meter

Source: CARB, 2008d

Toxic Air Contaminants

TACs are the listed toxic pollutants as established by OEHHA. Under AB 1807, the CARB is required to use certain criteria in prioritizing, identifying, and controlling air toxics. In selecting substances for review, the CARB must consider pollutants that may pose a threat to human health or cause or contribute to serious illnesses or death. For many TACs, no threshold level exists below which adverse health impacts may not be expected to occur. This contrasts with the CAPs for which acceptable levels of exposure can be determined and for which the state and federal governments have set ambient air quality standards.

As mentioned previously, PM emissions generated by diesel combustion, or DPM, are of particular concern in California. In 1998, the California EPA OEHHA completed a 10-year comprehensive human health assessment of diesel exhaust. The results of this assessment formed the basis for the CARB to formally identify DPM as a TAC that poses a threat to human health. Because no established AAQS exist for TACs, they are managed on a case-by-case basis, depending on the quantity and type of emissions and the proximity of potential receptors. DPM emissions result from a wide variety of sources, including on-road and off-road vehicles and stationary and portable internal combustion engines. In California, diesel internal combustion engines were estimated to generate 28,000 tons of PM emissions in 2000. Table 4.3-2: Estimated Ambient Exposure to DPM in California presents estimated outdoor ambient DPM exposure, based on more strict regulation, and the associated potential inhalation cancer risks in a population of 1 million over a 70-year lifetime.

Table 4.3-2: Estimated Ambient Exposure to DPM in California

Year	Ambient Exposure Concentration and Potential Risk ($\mu\text{g}/\text{m}^3$)	Potential Inhalation Risk (excess cancers per million)
2000	1.8	540
2010	1.5	450
2020	1.2	360

Source: CARB, 2000

Ambient Air Quality

Violations of NAAQS and CAAQS for O₃, PM, and CO have occurred historically in the Proposed Project area. The frequency of violations and current air quality conditions at the three monitoring sites nearest² to the Proposed Project area are summarized for O₃, PM₁₀, and PM_{2.5} in Table 4.3-3: Recent Air Quality Concentrations and Table 4.3-4: Frequency of Air Quality Standard Violation. As shown in these tables, the air quality in the surrounding areas has been relatively stable over the past 5 years and has improved in some cases.

GHG Emissions Inventory

CO₂, CH₄, N₂O, hydrofluorocarbons, perfluorocarbons, and SF₆ are all GHGs that contribute to global climate change. Emissions of CO₂ occur largely from combustion of fossil fuels. The major categories of fossil fuel combustion sources can be broken into the following five sectors: residential, commercial, industrial, transportation, and electricity generation. GHG emissions, such as CH₄ and N₂O, which occur in smaller quantities, are also tracked by state inventories.

California is responsible for approximately 500 MMTCO₂E or more than one percent of the 49,000 MMTCO₂E emitted globally. Electricity generation within California is responsible for about 55 MMTCO₂E (depending on yearly variations) or 11 percent of the total statewide CO₂ emissions and about one percent of statewide CH₄ emissions.

The use of SF₆ in power transformers and circuit breakers at power plants also poses a concern because of its extremely high global warming potential (GWP) of 23,900.³ Within the electricity production industry, emissions of SF₆ generally occur from losses through poor gas handling practices during equipment installation, maintenance and decommissioning, and leakage from SF₆-containing equipment. Older equipment has been found to have a higher rate of SF₆ leakage, while newer equipment is often guaranteed minimal to zero leak rates by equipment manufacturers. In a recent EPA study, leak rates were established as a percentage of nameplate capacity and both a lower bound and an upper bound estimate of average circuit breaker leak rates were produced. All estimates are defined as the weighted average of circuit breaker annual

² The Alpine monitoring station is located approximately 35 miles west-northwest of the Proposed Project area. The El Cajon and Otay Mesa monitoring stations are located approximately 40 miles east of the Proposed Project area.

³ GWP is a measurement of how much a GHG will contribute to global warming. This relative scale compares the emission of any GHG to that of CO₂—which has a warming potential of one.

Table 4.3-3: Recent Air Quality Concentrations

Monitoring Site	Year	Ozone, Max 8-hour (parts per million)	PM ₁₀ , Max 24-hour (µg/m ³)	PM _{2.5} , Max 24-hour (µg/m ³)
Alpine	2008	0.110	--	37.3
	2007	0.092	--	40.5
	2006	0.100	--	--
	2005	0.090	--	--
El Cajon	2008	0.093	41	38.5
	2007	0.083	61	395.1
	2006	0.091	49	37.6
	2005	0.073	50	40.9
Otay Mesa	2008	0.089	158	--
	2007	0.072	392	--
	2006	0.069	134	--
	2005	0.069	154	--

Source: CARB, 2008a

Table 4.3-4: Frequency of Air Quality Standard Violation

Monitoring Site	Year	Number of Days in Exceedance of Standard				
		State 1-Hour Ozone	National 1-Hour Ozone	State 24-Hour PM ₁₀	National 24-Hour PM ₁₀	National 24-Hour PM _{2.5}
Alpine	2008	13	2	--	--	--
	2007	18	6	--	--	--
	2006	21	14	--	--	--
	2005	13	5	--	--	--
El Cajon	2008	3	0	0	0	--
	2007	3	0	--	--	--
	2006	2	1	0	0	--
	2005	0	0	0	0	0
Otay Mesa	2008	2	0	163	6.1	--
	2007	0	0	165	5	--
	2006	0	0	159	0	--
	2005	2	0	--	--	--

Notes: "--" = insufficient or unavailable data. Days over PM₁₀ CAAQS are based on monitoring every sixth day.

Source: CARB, 2008a

leak rates as a percentage of SF₆ nameplate capacity. For the lower bound estimate (best-case scenario), the weighted-average circuit breaker leak rate is approximately 0.2 percent per year. For the upper bound estimates (worst-case scenario), the weighted-average leak rate is estimated to be between 2.4 and 2.5 percent per year. The approximate annual leak rate provided by SDG&E for SF₆ is approximately 0.29 percent for circuit breakers and cylinders. SDG&E's circuit breaker annual leak rate corresponds with the lower bound leak rate estimate from the EPA study.

The California Climate Action Registry (CCAR) offers protocols to facilitate the preparation of inventories of GHG emissions. The registry is a non-profit public corporation that records GHG emissions inventories that California entities voluntarily report. SDG&E has been a CCAR member since 2003 and has provided voluntary reports of “entity-wide” GHG emissions since 2004.

SDG&E has been engaged in programs to increase energy efficiency for many years. They have also increased the portion of their electricity generation portfolio devoted to renewable sources of energy. SDG&E is required to submit long term procurement plans (LTPP) to the CPUC describing plans to meet forecasted load during the coming 10 years. These plans must be consistent with the Energy Action Plan prescribed “loading order” to first meet growth with conservation, then with renewable sources of electricity, and finally with new fossil fueled sources to the extent necessary. New generation sources must be consistent with the LTPP. SDG&E's LTPP was approved by the CPUC in September, 2008 and it provides for a substantial forecasted additional reduction in GHG emissions by 2016 through the following programs:

- Energy efficiency, which will reduce needed capacity by 487MW
- Demand response, which will reduce needed capacity by 249 MW
- Renewables, which will provide 318 MW in 2010 and 727 MW in 2016
- New peaker plants to back up intermittent renewables and support retirement of older plants

Forecasted reductions from these programs are greater than 1.5 MMTCO₂E per year. Approval by the CPUC will be required for future expenditures to implement these programs. These efforts will result in a carbon intensity reduction of one-third while accommodating continued population growth.

While SDG&E is not a member of the EPA SF₆ Emission Reduction Partnership for Electric Power Systems, SDG&E's SF₆ reporting procedure utilizes the industry standard, mass-balance approach also used by the partnership. SDG&E is also taking careful consideration of all technically and economically feasible options available as required by the partnership.

Sensitive Receptors

Some exposed population groups, including children, the elderly, and the ill, can be especially vulnerable to airborne chemicals and irritants and are termed “sensitive receptors.” Additionally, due to sustained exposure durations, all persons located within residential areas are considered to be sensitive receptors. There are many sensitive receptors located within proximity of the Proposed Project; more specifically, near the existing Boulevard Substation, the Boulevard

Substation rebuild site, and along the portion of the 138 kilovolt (kV) transmission line that parallels Tule Jim Lane. The existing Boulevard Substation is adjacent to three residences and will be rebuilt on a parcel containing one residence, which will be removed. There are approximately 21 residences located within 500 feet of the portion of the 138 kV transmission line that parallels Tule Jim Lane. The locations of these sensitive receptors have been included in Table 4.9-2: Existing Residences within 1,000 feet of the 138 kV Transmission Line in Section 4.9 Land Use. The closest sensitive receptors to the ECO Substation and White Star Communication Facility rebuild are located approximately 2,600 feet and 1,000 feet, respectively. Refer to Section 4.9 Land Use for more information about residences in close proximity to the Proposed Project components.

4.3.3 Impacts

Significance Criteria

San Diego Air Pollution Control District Thresholds

To determine whether a significant impact would occur during construction, the SDAPCD informally recommends quantifying construction emissions and comparing them to significance thresholds (pounds per day) found in the SDAPCD regulations for stationary sources (pursuant to Rule 20.1, *et seq.*) and shown in Table 4.3-5: Air Quality Significance Thresholds – Construction Activities. If emissions during Proposed Project construction would exceed the thresholds that apply to stationary sources, then construction activities would have the potential to violate air quality standards or contribute substantially to existing violations.

Table 4.3-5: Air Quality Significance Thresholds – Construction Activities

Pollutant	Pounds per day
PM _{2.5}	55
PM ₁₀	100
NO _x	250
SO _x	250
CO	550
VOCs	75

Note: In the absence of pounds per day VOC significance thresholds in the SDAPCDs rules, VOC thresholds were derived from the County of San Diego Land Use and Environment Group's *Draft Guidelines for Determining Significance and Report Format and Content Report Format and Content Guidance Requirements Air Quality, 2007*. Source: SDAPCD, 2008

Imperial County Air Pollution Control District

SDG&E may need to obtain some materials—water and fill material—from El Centro in Imperial County during the construction of the Proposed Project. As a result, these truck trips will be analyzed according to the Imperial County Air Pollution Control District's (ICAPCD) California Environmental Quality Act (CEQA) Air Quality Handbook. The ICAPCD requests that potential operational impacts be examined first to determine what level of environmental

analysis is required. The results of this preliminary operational impact assessment will identify the activity as a Tier I or Tier II project.

Operation

Table 4.3-6: ICAPCD Thresholds of Significance for Project Operations lists the operational thresholds of significance for both Tier I and Tier II projects.

Table 4.3-6: ICAPCD Thresholds of Significance for Project Operations

Pollutant	Tier I	Tier II
NO _x and ROGs	Less than 55 pounds per day	55 pounds per day and greater
PM ₁₀ and SO _x	Less than 150 pounds per day	150 pounds per day and greater
CO	Less than 550 pounds per day	550 pounds per day and greater

Source: ICAPCD, 2009a

Projects identified as Tier I are considered to have impacts that are less than significant when all feasible standard mitigation measures specified in the ICAPCD CEQA Air Quality Handbook are implemented. Projects labeled as Tier II are considered significant, require all feasible standard and discretionary mitigation measures to be implemented, and require a Comprehensive Air Quality Analysis Report to be prepared.

Construction

According to the ICAPCD CEQA Air Quality Handbook:

“it is not uncommon for construction related emissions, which are generally temporary in nature, to have a temporary adverse impact on air quality. Construction, by its very nature may produce a variety of emissions however particulate matter (PM10) is the pollutant of greatest concern. Past experience has shown that the emissions from construction can cause substantial increases in localized concentrations of PM10. The most common activities associated with construction involve site preparation, earthmoving activities and general construction. These activities include, but are not limited to: demolition, grading, excavation, cut and fill operations, trenching, soil compaction, land clearing, grubbing and the addition of improvements such as roadway surfaces, structures and facilities.”

Tier I Projects

The ICAPCD’s approach to CEQA analyses of construction impacts for Tier I projects is to emphasize implementation of mitigation measures rather than detailed quantification of emissions. The ICAPCD requires that all standard feasible mitigation measures for construction equipment and fugitive PM₁₀ be implemented, regardless of project size. Table 4.3-7: ICAPCD Feasible PM₁₀ Control Measures for Construction Activities lists the standard and discretionary PM₁₀ control mitigation measures for construction activities. Construction projects greater than five acres must also implement the feasible enhanced mitigation measures. These measures are listed in Table 4.3-8: ICAPCD Mitigation for Construction Combustion Equipment.

Table 4.3-7: ICAPCD Feasible PM₁₀ Control Measures for Construction Activities

Standard Mitigation Measures
<ul style="list-style-type: none"> • All disturbed areas, including Bulk Material storage which is not being actively utilized, shall be effectively stabilized and visible emissions shall be limited to no greater than 20 percent opacity for dust emissions by using water, chemical stabilizers, dust suppressants, tarps or other suitable material such as vegetative ground cover. • All on site and off site unpaved roads will be effectively stabilized and visible emissions shall be limited to no greater than 20 percent opacity for dust emissions by paving, chemical stabilizers, dust suppressants and/or watering. • All unpaved traffic areas 1 acre or more with 75 or more average vehicle trips per day will be effectively stabilized and visible emission shall be limited to no greater than 20 percent opacity for dust emissions by paving, chemical stabilizers, dust suppressants and/or watering. • The transport of Bulk Materials shall be completely covered unless six inches of freeboard space from the top of the container is maintained with no spillage and loss of Bulk Material. In addition, the cargo compartment of all Haul Trucks is to be cleaned and/or washed at delivery site after removal of Bulk Material. • All Track-Out or Carry-Out will be cleaned at the end of each workday or immediately when mud or dirt extends a cumulative distance of 50 linear feet or more onto a paved road within an urban area. • Movement of Bulk Material handling or transfer shall be stabilized prior to handling or at points of transfer with application of sufficient water, chemical stabilizers or by sheltering or enclosing the operation and transfer line. • The construction of any new Unpaved Road is prohibited within any area with a population of 500 or more unless the road meets the definition of a Temporary Unpaved Road. Any temporary unpaved road shall be effectively stabilized and visible emissions shall be limited to no greater than 20 percent opacity for dust emission by paving, chemical stabilizers, dust suppressants and/or watering.
Discretionary Measures
<ul style="list-style-type: none"> • Water exposed soil with adequate frequency for continued moist soil. • Replace ground cover in disturbed areas as quickly as possible. • Automatic sprinkler system installed on all soil piles. • Vehicle speed for all construction vehicles shall not exceed 15 miles per hour on any unpaved road. • Develop a trip reduction plan to achieve a 1.5 average vehicle ridership for construction employees. • Implement a shuttle service to and from retail services and food establishments during lunch hours.

Source: ICAPCD, 2009a

Table 4.3-8: ICAPCD Mitigation for Construction Combustion Equipment

Standard Mitigation Measures
<ul style="list-style-type: none"> • Use of alternative fueled or catalyst equipped diesel construction equipment, including all off-road and portable diesel powered equipment. • Minimize idling time either by shutting equipment off when not in use or reducing the time of idling to 5 minutes as a maximum. • Limit, to the extent feasible, the hours of operation of heavy duty equipment and/or the amount of equipment in use. • Replace fossil fueled equipment with electrically driven equivalents (provided they are not run via a portable generator set).
Enhanced Mitigation Measures
<ul style="list-style-type: none"> • Curtail construction during periods of high ambient pollutant concentrations; this may include ceasing of construction activity during the peak hour of vehicular traffic on adjacent roadways. • Implement activity management (e.g. rescheduling activities to reduce short-term impacts).

Source: ICAPCD, 2009a

Tier II Projects

The ICAPCD requires a Comprehensive Air Analysis Report for any projects labeled as Tier II. The air quality analysis performed as a component of this report must quantify the expected emission rates for PM₁₀, ROG, NO_x, and CO. The significance thresholds for these pollutants are listed in Table 4.3-9: ICAPCD Construction Thresholds of Significance for Tier II Projects.

Table 4.3-9: ICAPCD Construction Thresholds of Significance for Tier II Projects

Pollutant	Threshold (pounds per day)
PM ₁₀	150
ROG	75
NO _x	100
CO	550

Source: ICAPCD, 2009a

Special Conditions

The ICAPCD considers projects meeting the following criteria to be significant:

- Development projects located in close proximity to already existing industrial-type operations that have the potential to emit toxic or hazardous air pollutants.
- Development projects that have the potential to emit toxic or hazardous air pollutants and are located in close proximity to sensitive receptors.
- Any industrial or commercial project site located within 1,000 feet of a school.
- Development projects that have the potential to cause a nuisance problem impacting a considerable number of people.

For projects that fall under the thresholds listed in Table 4.3-9: ICAPCD Construction Thresholds of Significance for Tier II Projects, the implementation of standard mitigation measures for construction equipment and fugitive dust are required. Alternate mitigation measures may be suggested as well. For projects that exceed these thresholds, a health risk assessment must be performed and the standard, discretionary, and enhanced mitigation measures must be implemented.

CEQA Guidelines

In addition to the previously mentioned criteria, Appendix G of the CEQA Guidelines determines project impacts to be significant if they will:

- 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 is nonattainment under an applicable federal or state ambient air quality standard
- Expose sensitive receptors to substantial pollutant concentrations
- Create objectionable odors affecting a substantial number of people

GHG Significance Thresholds

Cumulative

GHG emissions do not affect the immediate area of the emissions but may affect the world inventory of emissions. Therefore, the emissions must be analyzed as potentially significant cumulative impacts. A lead agency's determination regarding whether an impact is significant is highly discretionary since it "calls for careful judgment on the part of the public agency involved, based to the extent possible on scientific and factual data" CEQA Guidelines § 15064(b). CEQA Guidelines § 15064(h)(1) further explains that "when assessing whether a cumulative effect requires an [Environmental Impact Report], the lead agency shall consider whether the cumulative impact is significant and [whether] the project's incremental effect, though individually limited, is 'cumulatively considerable.'" Applying this qualitative standard necessarily requires application of judgment based on the facts of a particular project subject to CEQA. Further, the significance of an impact may be weighed against the overall effect as both increases and decreases in impacts may balance one another. As noted in the CEQA Guidelines, "the mere existence of significant cumulative impacts caused by other projects alone shall not constitute substantial evidence that the proposed project's incremental effects are cumulatively considerable" (CEQA Guidelines § 15064(h)(4)). The lead agency must make the judgment whether the change in the environment which results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects is "cumulatively considerable" (CEQA Guidelines §15355(b)).

California Governor's Office of Planning and Research

The Office of Planning and Research (OPR) is the state-wide, comprehensive planning agency that is responsible for making policy recommendations and coordinating land use planning

efforts. The OPR also coordinates the state-level review of environmental documents pursuant to CEQA. Currently, the OPR’s stance on GHG significance thresholds has been to allow each lead agency to determine their own level of significance. OPR issued a Technical Advisory recommending an approach to evaluating greenhouse emissions in CEQA documents and is currently developing amendments to the CEQA Guidelines concerning GHG emission assessment. One of the principal elements of the proposed approach to determining significance of emissions in Code of Regulations, Section 15064.4 is that:

“(a) A lead agency should consider the following, where applicable, in assessing the significance of impacts from greenhouse gas emissions, if any, on the environment:

(1) The extent to which the project could help or hinder attainment of the state’s goals of reducing greenhouse gas emissions to 1990 levels by the year 2020 as stated in the Global Warming Solutions Act of 2006. A project may be considered to help attainment of the state’s goals by being consistent with an adopted statewide 2020 greenhouse gas emissions limit or the plans, programs, and regulations adopted to implement the Global Warming Solutions Act of 2006.”

On October 24, 2008, the CARB released their interim CEQA significance thresholds for GHG, stating that a zero threshold is not required. The guidance divides projects analyzed under CEQA into two categories—industrial and residential/commercial—and provides significance criteria for each. The Proposed Project qualifies as an industrial project and as a result will be considered less than significant if the following two conditions are met:

- The project meets minimum performance standards or include equivalent mitigation measures:
 - Construction – Meets an interim CARB performance standard for construction-related emissions
 - Transportation – Meets an interim CARB performance standard for transportation-related emissions
- The project with mitigation will emit no more than approximately 7,000 MMTCO₂E per year from operation of non-transportation-related GHG sources. These sources include:
 - Combustion-related components/equipment
 - Process losses
 - Purchased electricity

The CARB proposal is being further reviewed with an additional proposal expected in February 2009.

South Coast Air Quality Management District

The South Coast Air Quality Management District (SCAQMD) has also issued a proposed approach to evaluation of GHG emissions and suggested significance thresholds until a state-wide approach and thresholds are adopted. The SCAQMD proposal calls for a tiered approach to evaluation of emissions with one of the significance thresholds being that GHG emissions from

industrial project total less than 10,000 MTCO₂E per year. Construction emissions are evaluated by amortizing them over 30 years and adding them to the operational emissions.

Question 4.3a – Applicable Air Quality Plan Conflicts

Construction – Less-Than-Significant Impact

Emissions for the Proposed Project were simulated using the URBEMIS model using site-specific information to generate emission rates based on the Proposed Project's anticipated size, schedule, land use, construction methods, and operation and maintenance activities. Using this data, the model calculated the maximum daily and yearly emissions for a range of pollutants. A summary of the maximum daily and yearly emission rates for construction of the Proposed Project is presented in Table 4.3-10: CAP Emissions from Construction. URBEMIS model input and output are provided in Attachment 4.3-A: Proposed Project Emissions Calculation Methodology.

When compared to the significance criteria, PM and NO_x are the primary air pollutants resulting from construction activities; the site preparation and development activities associated with the construction of the ECO Substation will be the greatest source of emissions. The peak daily emission rates for the Proposed Project are provided in Table 4.3-11: Peak Daily Construction Emissions. The results of this simulation indicate that, with the implementation of appropriate dust control and minimization measures (as described in Section 4.3.4 Applicant Proposed Measures), emissions of all pollutants will remain below the SDAPCD's recommended threshold levels and will reduce the Proposed Project's impacts to a less-than-significant level.

Because all of the Proposed Project's operation and maintenance activities will take place within San Diego County, no criteria air pollutant emissions will occur due to operation and maintenance activities within Imperial County. As a result, the Proposed Project will be categorized as a Tier I project according to the ICAPCD. For a Tier I project to be considered less than significant, the applicable standard PM₁₀ control measures provided by the ICAPCD must be implemented. Because there will be no active construction site in Imperial County—the only construction-related activities occurring in Imperial County will be the use of trucks to import fill material and potentially deliver water to the ECO Substation site—the majority of the control measures provided in Table 4.3-7: ICAPCD Feasible PM₁₀ Control Measures for Construction Activities and Table 4.3-8: ICAPCD Mitigation for Construction Combustion Equipment do not apply. The control measures within these tables were reviewed for applicability to the import and export of materials to and from the ECO Substation site. The applicable measures from the ICAPCD have been used to assist with the development of APM-AIR-05, APM-AIR-06, APM-AIR-07, and APM-AIR-09 provided in Section 4.3.4 Applicant-Proposed Measures. These measures will reduce the construction-related impacts in Imperial County to a less-than-significant level.

Table 4.3-10: CAP Emissions from Construction

Project Component	Pollutant	Emission Rate (pounds per day)	
		San Diego County	Imperial County
ECO Substation	PM _{2.5}	26.92	4.61
	PM ₁₀	99.36	5.40
	NO _x	208.74	125.70
	SO _x	0.19	0.16
	CO	247.95	42.38
	VOC	38.69	--
SWPL Loop-In	PM _{2.5}	2.51	--
	PM ₁₀	4.50	--
	NO _x	76.55	--
	SO _x	0.01	--
	CO	33.49	--
	VOC	8.35	--
138 kV Transmission Line	PM _{2.5}	16.03	--
	PM ₁₀	67.96	--
	NO _x	240.24	--
	SO _x	0.18	--
	CO	178.55	--
	VOC	26.48	--
Boulevard Substation Rebuild	PM _{2.5}	10.79	--
	PM ₁₀	33.02	--
	NO _x	122.28	--
	SO _x	0.08	--
	CO	55.77	--
	VOC	11.87	--
White Star Communication Facility Rebuild	PM _{2.5}	3.77	--
	PM ₁₀	4.11	--
	NO _x	109.21	--
	SO _x	<0.01	--
	CO	39.68	--
	VOC	11.94	--

Table 4.3-11: Peak Daily Construction Emissions

Pollutant	San Diego County		Imperial County	
	Simulated Emission Rate	Significance Threshold	Simulated Emission Rate	Significance Threshold
PM _{2.5}	26.92	55	4.61	Not Applicable (NA)
PM ₁₀	99.36	100	5.40	NA
NO _x	240.24	250	125.70	NA
SO _x	0.19	250	0.16	NA
CO	247.95	550	42.38	NA
VOC	38.69	75	8.19	NA

Note: All numbers recorded in pounds per day. Peak emissions were selected from each of the Proposed Project components. The Proposed Project will be considered a Tier I project by the ICAPCD. As a result, there are no applicable significance thresholds with the implementation of applicable ICAPCD minimization measures.

Operation and Maintenance – No Impact

Operational emissions were simulated using the URBEMIS model, assuming default traffic estimates for the Proposed Project. In this scenario, traffic will be limited to periodic site visits for maintenance instead of the daily commuting assumed by the model. Therefore, the emission estimates presented in Table 4.3-12: CAP Emissions from Operation and Maintenance represent levels of emission that are unlikely to be approached by the Proposed Project. These increases in CAPs are significantly less than those projected for the construction phase and are well below the acceptable significance thresholds. As a result, CAP increases due to operation and maintenance will not conflict with any applicable air quality plans and no impact will occur.

Question 4.3b – Air Quality Standard Violations

Construction – Less-Than-Significant Impact

CAP Emissions

With implementation of the dust and vehicle minimization measures provided in Section 4.3.4 Applicant-Proposed Measures, the simulated emission levels that may result from construction of the Proposed Project remain below the significance thresholds recommended by the SDAPCD and ICAPCD. The peak emission levels for each Proposed Project component from the simulation are provided in Table 4.3-10: CAP Emissions from Construction. As demonstrated previously, construction of the Proposed Project will not exceed daily (pounds per day) significance thresholds and are therefore not expected to trigger any exceedances of the CAAQS or NAAQS. In addition, the emissions from construction will not contribute substantially to any existing air quality violations. As a result, impacts to existing air quality standards will be less than significant.

Table 4.3-12: CAP Emissions from Operation and Maintenance

Project Component	Pollutant	Emission Rate	
		pounds per day	tons per year
ECO Substation	PM _{2.5}	3.31	0.15
	PM ₁₀	3.55	0.19
	NO _x	56.45	4.27
	SO _x	2.50	0.03
	CO	1,445.97	13.19
	VOC	9.13	1.15
SWPL Loop-In	PM _{2.5}	0.03	0.01
	PM ₁₀	0.04	0.01
	NO _x	0.81	0.16
	SO _x	<0.01	0.00
	CO	2.83	0.52
	VOC	0.23	0.04
138 kV Transmission Line	PM _{2.5}	0.31	0.06
	PM ₁₀	0.41	0.07
	NO _x	8.40	1.69
	SO _x	0.03	0.01
	CO	30.88	5.71
	VOC	2.67	0.49
Boulevard Substation Rebuild	PM _{2.5}	0.03	0.01
	PM ₁₀	0.04	0.01
	NO _x	0.81	0.16
	SO _x	<0.01	<0.01
	CO	2.95	0.55
	VOC	0.25	0.05
White Star Communication Facility Rebuild	PM _{2.5}	0.01	<0.01
	PM ₁₀	0.01	<0.01
	NO _x	2.76	0.02
	SO _x	0.01	<0.01
	CO	0.22	0.22
	VOC	1.00	1.00

GHG Emissions

GHG emissions were simulated for the construction phase of all five of the Proposed Project's components. These GHG emissions will occur as a result of burning the fuel required to operate the on-site construction equipment and mobilize work crews to and from the Proposed Project site. Emissions of CO₂ were simulated using URBEMIS. The resulting CO₂ emissions were then used in conjunction with the methods from the CCAR GRP version 3.1 and data from the California Statewide GHG Inventory to develop estimated CH₄, N₂O emissions. Each chemical's GWP—CO₂, CH₄, and N₂O have GWPs of 1, 21, and 310, respectively—were multiplied by their emission rate to produce CO₂E emission rates. Table 4.3-13: GHG Emissions from Construction and Table 4.3-14: CO₂E GHG Emissions from Construction present the total CO₂, CH₄, N₂O, and CO₂E emissions from construction. A detailed description of the methodology used for this calculation is presented in Attachment 4.3-A: Proposed Project Emissions Calculation Methodology.

The construction-related GHG emissions will be below the SCAQMD interim threshold, and the Proposed Project will be consistent with the approved LTPP and Scoping Plan adopted by the CARB because it will support the delivery of additional renewable energy generation. Substantial system-wide reductions, including efficiency programs and RPS, are also being achieved by SDG&E. The implementation of applicant-proposed measures (APMs) will help further reduce the amount of GHG released during Proposed Project construction. These measures include encouraging carpooling to minimize individual commuter trips by construction personnel and minimizing engine idling time. A complete list of these measures is provided in Section 4.3.4 Applicant-Proposed Measures. It is anticipated that APM-AIR-09 and APM-AIR-11 will collectively reduce GHG emissions during construction by approximately 10 percent. As a result, the impact of GHG emissions due to construction will be less than significant.

Operation and Maintenance – Less-Than-Significant Impact

CAP Emissions

The simulated CAP emissions from the operation and maintenance of each of the Proposed Project components are included in Table 4.3-12: CAP Emissions from Operation and Maintenance. These emissions are all below the established SDAPCD thresholds and will not contribute to the violation of any existing air quality standards. As a result, there will be no impact.

GHG Emissions

Similar to the construction phase of the Proposed Project, GHG emissions during operation and maintenance will be the result of burning fuel during vehicle and equipment operation and electrical generation used to power the ECO Substation, Boulevard Substation, and White Star Communication Facility. In addition, fugitive emissions of SF₆—a potent GHG with a GWP of 23,900—will result from the operation of transmission-line equipment that will be installed at the ECO and Boulevard substations. GHG emissions from the operation and maintenance of the Proposed Project are presented in Table 4.3-15: GHG Emissions from Operation and Maintenance. A detailed description of the calculation methodology for these emissions is presented in Attachment 4.3-A: Proposed Project Emissions Calculation Methodology.

Table 4.3-13: GHG Emissions from Construction

Project Component	Emission Rate			
	CO ₂ (pounds per day)	CO ₂ (metric tons per year)	CH ₄ (metric tons per year)	N ₂ O (metric tons per year)
ECO Substation	42,169.26	5,691.65	0.207	0.171
SWPL Loop-In	11,678.67	98.92	0.005	0.003
138 kV Transmission Line	41,649.58	2,404.76	0.102	0.070
Boulevard Substation Rebuild	15,321.30	830.81	0.039	0.023
White Star Communication Facility Rebuild	13,481.48	280.23	0.016	0.007

Table 4.3-14: CO₂E GHG Emissions from Construction

Project Component	Emission Rate			
	CO ₂ (metric tons per year)	CH ₄ (CO ₂ E metric tons per year)	N ₂ O (CO ₂ E metric tons per year)	CO ₂ E (metric tons per year)
ECO Substation	5,691.65	4.35	53.07	5,749.08
SWPL Loop-In	98.92	0.11	0.81	99.84
138 kV Transmission Line	2,404.76	2.14	21.59	2,428.49
Boulevard Substation Rebuild	830.81	0.82	7.22	838.86
White Star Communication Facility Rebuild	280.23	0.33	2.24	282.80

Table 4.3-15: GHG Emissions from Operation and Maintenance

Project Component	Emission Rate					
	CO ₂ (pounds per day)	CO ₂ (metric tons per year)	CH ₄ (metric tons per year)	N ₂ O (metric tons per year)	SF ₆ (metric tons per year)	CO ₂ E (metric tons per year)
ECO Substation	8,015.03	1,326.98	6.66	1.81	0.03	2,800.64
SWPL Loop-In	290.74	48.14	0.02	0.02	--	53.50
138 kV Transmission Line	3,008.54	498.10	0.001	0.002	--	498.62
Boulevard Substation Rebuild	535.43	88.65	1.69	0.46	0.002	314.85
White Star Communication Facility Rebuild	81.33	13.46	0.51	0.14	--	66.26

To put the potential maximum GHG emissions and net increase from the Proposed Project into context, County of San Diego emissions of GHGs are estimated to be 38.7 MMTCO₂E per year. This value was derived by proportioning the 2004 State of California GHG emission inventory—approximately 479.7 MMTCO₂E per year for a population of approximately 36.5 million—to the approximate county population of 2.94 million.

The Proposed Project's operational emissions are below the CARB and SCAQMD interim significance thresholds. In addition, the project is consistent with the approved LTPP and Scoping Plan adopted by the CARB because it will support the delivery of additional renewable energy generation. Substantial system-wide reductions, including efficiency programs and RPS, are also being achieved by SDG&E. In order to avoid impacts from a potential release of SF₆, SDG&E will implement a SF₆ monitoring plan, which will include carefully measuring the level of SF₆ in its equipment, identifying and repairing or replacing leaky equipment in a timely fashion, training employees on the effects of SF₆, and including potential green design elements to reduce energy consumption. A more comprehensive list of measures that will be implemented to reduce these potential impacts to a less-than-significant level is provided in Section 4.3.4 Applicant-Proposed Measures. It is anticipated that APM-AIR-12 will reduce emissions of SF₆ by approximately 5 percent. APM-AIR-13 will reduce the auxiliary power requirements of the project by up to 17 percent.⁴ As a result, the impact of GHG emissions due to the operation and maintenance will be less than significant.

⁴ As discussed in Chapter 3 – Project Description, SDG&E is currently evaluating the installation of solar panels on the two control structures and storage structure. If installed, these solar panels are anticipated to generate up to 111,000 kilowatt hours of electricity annually.

Question 4.3c – Criteria Pollutant Increases***Construction – Less-Than-Significant Impact***

As shown previously in Table 4.3-10: CAP Emissions from Construction, the construction of the Proposed Project will lead to a small increase in criteria air pollutants. SDG&E will implement the minimization measures provided in Section 4.3.4 Applicant-Proposed Measures, including minimizing vehicle idling time and controls for dust emissions, to reduce the impacts of the construction. As a result, impacts due to criteria pollutant increases will be less than significant.

Operation and Maintenance – Less-Than-Significant Impact

Operational emissions were simulated using the URBEMIS model, assuming default traffic estimates for the Proposed Project. In this scenario, traffic will be limited to periodic site visits for maintenance instead of the daily commuting assumed by the model. Therefore, the emission estimates presented in Table 4.3-12: CAP Emissions from Operation and Maintenance represent levels of emission that are unlikely to be approached by the Proposed Project. These increases in CAPs are significantly less than those projected for the construction phase and are well below the acceptable significance thresholds. As a result, CAP increases due to operation and construction will have less-than-significant impacts.

Question 4.3d – Sensitive-Receptor Exposure***Construction – Less-Than-Significant Impact***

The majority of the Proposed Project components will be located in open space or public lands, away from sensitive receptors. As described previously, there are multiple sensitive receptors in the vicinity of the Proposed Project, which are likely to be affected by the PM and DPM emitted during the construction phase. These impacts will be reduced to a less-than-significant level with the implementation of the minimization measures, including limiting idling time and controlling dust emissions from earth-disturbing activities, listed in Section 4.3.4 Applicant-Proposed Measures.

Operation and Maintenance – Less-Than-Significant Impact

As described previously, operation and maintenance activities were simulated using URBEMIS. The emissions estimates presented in Table 4.3-12: CAP Emissions from Operation and Maintenance are all well below significant thresholds. As described previously, most of the Proposed Project components will be located in open space or public lands, away from sensitive receptors. As described in Chapter 3 – Project Description, operation of the Boulevard Substation will not change as a result of the proposed rebuild. While pollutant emissions will occur during Proposed Project operations, these activities will be periodic and short-term and will not likely expose receptors for more than brief periods of time (up to approximately one or two days per site). As a result, impacts to sensitive receptors due to operation and maintenance activities will be less than significant.

Question 4.3e – Odor – Less-Than-Significant Impact

Due to the nature of the Proposed Project, odor impacts are unlikely. Typical odor nuisances include hydrogen sulfide, ammonia, chlorine, and other sulfide-related emissions. No significant sources of these pollutants will exist during construction, operation, or maintenance. An

additional potential source of Proposed Project-related odor is diesel engine emissions. Diesel-powered equipment idling times will be limited to five minutes in order to reduce any potential impact. As described previously, multiple sensitive receptors are located in the vicinity of the existing Boulevard Substation, the proposed Boulevard Substation rebuild site, and the portion of the 138 kV transmission line that runs parallel to Tule Jim Lane. Construction activities will be scheduled to last approximately 15 months at the Boulevard Substation rebuild site. Construction activities along the 138 kV transmission line will be localized to each transmission structure and will be short-term in proximity to residences due to the linear nature of this Proposed Project component. Because there will be few sources of odor in close proximity to the Proposed Project components and construction will be short-term and localized near sensitive receptors along the 138 kV transmission line route, impacts due to odor will be less than significant.

4.3.4 Applicant-Proposed Measures

The following APMs will be implemented to reduce any potential impacts to a less-than-significant level. The APMs have been developed by reviewing the applicable control measures included in the ICAPCD CEQA Air Quality Handbook, the CPUC's Working Draft Proponent's Environmental Assessment Checklist for Transmission Line and Substation Projects, and the results from URBEMIS model simulations. In addition, many of the APMs presented below represent a business-as-usual approach for SDG&E's construction activities.

- APM-AIR-01: Rock aprons or rattle plates will be installed, as needed, at the intersection of dirt access roads and paved public roadways to clean the tires of equipment prior to leaving the site.
- APM-AIR-02: All active construction areas, unpaved access roads, parking areas, and staging areas will be watered or stabilized with non-toxic soil stabilizers as needed to control fugitive dust.
- APM-AIR-03: All public streets will be swept or cleaned with mechanical sweepers if visible soil material is carried onto them by construction activities or vehicles.
- APM-AIR-04: Exposed stockpiles (e.g., dirt, sand, etc.) will be covered and/or watered or stabilized with non-toxic soil binders as needed to control emissions.
- APM-AIR-05: Trucks transporting bulk materials will be completely covered unless two feet of freeboard space from the top of the container is maintained with no spillage and loss of material. In addition, the cargo compartment of all haul trucks will be cleaned and/or washed at the delivery site after removal of the bulk material.
- APM-AIR-06: Movement of bulk material handling or transfer will be stabilized prior to handling or at a point of transfer with application of sufficient water, chemical stabilizers, or by sheltering or enclosing the operation and transfer line.
- APM-AIR-07: Traffic speeds on unpaved roads and the ROW will be limited to 15 mph.

- APM-AIR-08: SDG&E will limit actively graded areas to a cumulative total of 12.8 acres per day. The total area of disturbance can exceed this acreage so long as the actively graded portion is below this threshold.
- APM-AIR-09: Vehicle idling time will be limited to a maximum of five minutes for vehicles and construction equipment, except where idling is required for the equipment to perform its task.
- APM-AIR-10: Road graders used during site development activities at the ECO Substation will be equipped with a California Air Resources Board-verified Level 2 diesel emission control strategy or a comparable diesel-control technology that will reduce PM₁₀ emissions by 50 percent or more.
- APM-AIR-11: If suitable park-and-ride facilities are available in the Project vicinity, construction workers will be encouraged to carpool to the job site to the extent feasible. The ability to develop an effective carpool program for the Project would depend upon the proximity of carpool facilities to the job site, the geographical commute departure points of construction workers, and the extent to which carpooling would not adversely affect worker show-up time and the Project's construction schedule.
- APM-AIR-12: Routine inspections and preventative maintenance will be performed on all SF₆ equipment according to the manufacturer's recommendations. SF₆ density will be monitored at all equipment and any changes exceeding the manufacturer's recommendations will be reported immediately to SDG&E. These activities will be tracked in SDG&E's substation maintenance software and reported to the CCAR and the AB32 mandatory reporting regulation in compliance with the EPA's mass-balance equation reporting and tracking method. Substation crews will be trained on these tracking procedures and the significance of SF₆ as a GHG.
- APM-AIR-13: During final design, SDG&E will consider the feasibility of using rooftop photovoltaic panels on the control shelters to help support operating load at the ECO Substation. SDG&E will also investigate utilizing solar tubes for lighting in the control shelters. SDG&E's Project team will work closely with SDG&E's Sustainable Communities team to implement green building practices at the ECO Substation.

4.3.5 References

Agency of Toxic Substances & Disease Registry. Agency of Toxic Substances & Disease Registry. Online. <http://www.atsdr.cdc.gov/>. Site visited June 3, 2008.

CalEPA. 2006. *Climate Action Team Report to Governor Schwarzenegger and the Legislature*.

CARB. Air Monitoring Site Information. Online. <http://www.arb.ca.gov/qaweb/site.php>. Site visited June 3, 2008a.

CARB. Almanac Emission Projection Data. Online. <http://www.arb.ca.gov/app/emsmv/emssumcat.php>. Site visited June 3, 2008b.

- CARB. Annual Toxics Summaries. Online. <http://www.arb.ca.gov/adam/toxics/toxics.html>. Site visited June 3, 2008c.
- CARB. Archive: Climate Change Scoping Plan Workshops. Online. <http://www.arb.ca.gov/cc/scopingplan/meetings/archive-scopingmtgs.htm>. Site visited February 5, 2009.
- CARB. California Ambient Air Quality Standards (CAAQS) – CARB. Online. <http://www.arb.ca.gov/research/aaqs/caaqs/caaqs.htm>. Site visited June 3, 2008d.
- CARB. California’s Greenhouse Gas Emissions Inventory. Online. <http://www.arb.ca.gov/cc/inventory/data/data.htm>. Site visited June 3, 2008e.
- CARB. Climate Change. Online. <http://www.arb.ca.gov/cc/cc.htm>. Site visited June 3, 2008f.
- CARB. 2000. *Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel Fueled Engines and Vehicles.*
- CARB. 2007a. *California 1990 Greenhouse Gas Emissions Level and 2020 Emissions Limit.*
- CARB. 2007b. *Expanded List of Early Action Measures to Reduce Greenhouse Gas Emissions in California Recommended for Board Consideration.*
- CCAR. Online. <http://www.climateregistry.org/CARROT/>. Site visited June 3, 2008.
- CEC. AB32 Implementation: Greenhouse Gas Emission Standards, Docket # 07-OIIP-1. Online. http://www.energy.ca.gov/ghg_emissions/index.html. Site visited February 4, 2009.
- CEC. 2007 Integrated Energy Policy Report. Online. http://www.energy.ca.gov/2007_energypolicy/index.html. Site visited February 4, 2009.
- CPUC. D0712052 Opinion Adopting PG&E, SCE’s and SDG&E’s Long-Term Procurement Plans. Online. http://docs.cpuc.ca.gov/published/FINAL_DECISION/76979.htm. Site visited February 2, 2009.
- CPUC. D0810037 Final Opinion on Greenhouse Gas Regulatory Strategies. Online. http://docs.cpuc.ca.gov/published/FINAL_DECISION/92591.htm. Site visited February 2, 2009.
- Governor’s OPR. Governor’s Office of Planning and Research. Online. <http://www.opr.ca.gov/index.php?a=ceqa/index.html>. Site visited January 15, 2009.
- ICAPCD. Imperial County Air Pollution Control District CEQA Air Quality Handbook. Online. <http://imperialcounty.net/ag/Departments/Air%20Pollution/CEQA%20Handbk%20Nov%202007.pdf>. Site visited January 20, 2009a.

- ICAPCD. Imperial County Air Pollution Control District Rules and Regulations. Online. <http://www.imperialcounty.net/ag/Departments/Air%20Pollution/APCD%20Rules%20September%2026%202007.pdf>. Site visited January 20, 2009b.
- IPCC. 2007. *Working Group III Contribution to the Intergovernmental Panel on Climate Change Fourth Assessment Report, Climate Change 2007: Mitigation of Climate Change*.
- IPCC. 1995. *Climate Change 1995: The Science of Climate Change*.
- San Diego County. 2007. *Department of Planning and Land Use, Guidelines for Determining Significance and Report Format and Content Requirements, Air Quality*.
- SDAPCD. Air Pollution Control District, APCD-SD. Online. <http://www.sdapcd.org/rules/rules/randr.html>. Site visited June 3, 2008.
- SDAPCD. 2005. *Measure to Reduce Particulate Matter in San Diego*.
- SDAPCD. 2007. *Eight-Hour Ozone Attainment Plan for San Diego County*.
- SCAQMD. 1993. *CEQA Air Quality Handbook*.
- SCAQMD. 2007. *Software Users Guide: URBEMIS2007 for Windows*.
- SCAQMD. BOARD MEETING DATE: December 5, 2008 AGENDA NO. 31. Online. <http://www.aqmd.gov/hb/2008/December/081231a.htm>. Site visited February 2, 2009.
- U.S. Census Bureau. San Diego County Quick Facts from the US Census Bureau. Online. <http://quickfacts.census.gov/qfd/states/06/06073.html>. Site visited December 21, 2008.
- U.S. EPA. SF₆ Emission Reduction Partnership for Electric Power Systems. Online. <http://www.epa.gov/electricpower-sf6/>. Site visited June 3, 2008.
- U.S. EPA. 2002. *Health Assessment Document for Diesel Engine Exhaust*.
- U.S. EPA. SF₆ Leak Rates from High Voltage Circuit Breakers – U.S. EPA Investigates Potential Greenhouse Gas Emissions. Online. http://www.epa.gov/electricpower-sf6/documents/leakrates_circuitbreakers.pdf. Site visited December 18, 2008.

