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5.3 AIR QUALITY

Would the Project:		Potentially Significant Impact	Potentially Significant Unless APMs Incorporated	Less than Significant Impact	No Impact
a.	Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☐	☑
b.	Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☐	☐	☑	☐
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 which exceed quantitative thresholds for ozone precursors)?	☐	☐	☑	☐
d.	Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☑	☐
e.	Create objectionable odors affecting a substantial number of people?	☐	☐	☑	☐

5.3.1 Introduction

This section describes existing air quality resources in the vicinity of the Proposed Project and assesses potential air quality impacts that would occur as a result of the Proposed Project, for short-term construction activities and long-term operations. In addition, this section evaluates the Proposed Project for air quality impacts in relation to applicable air quality plans and ambient air quality standards (AAQS).

For the purpose of the air quality analysis, all of the components of the Proposed Project are treated as a single project. These components include expansion of the existing Artesian Substation, reconductoring of the existing double circuit 69kV power line located between the Artesian and Bernardo Substations, construction of new underground 69kV power- line getaways outside the existing Artesian and Bernardo Substations, and minor modifications at the existing Bernardo and Rancho Carmel Substations. Because the entire Proposed Project would be located within the San Diego Air Basin, and because emissions from all Proposed Project components have the potential to affect air quality within the San Diego Air Basin, it is appropriate to analyze total impacts from the entire Proposed Project rather than to separate out the analysis by component.

5.3.2 Methodology

Federal, state, and regional regulations and policies were consulted to determine the Proposed Project's level of compliance with, and potential impacts to, applicable air quality plans and/or standards. Information for this section was obtained from Internet searches of federal, state, and regional authority websites.

This analysis of air quality impacts used the latest version of the California Emissions Estimation Model (CalEEMod), Version 2013.2.2. CalEEMod contains emissions factors from the California Air Resources Board (CARB)'s OFFROAD Model for heavy construction equipment and CARB's EMFAC2011 Model for on-road vehicles. This analysis also covers construction in the short term and operation and maintenance in the long term. Refer to Appendix 5.3-A, Air Quality Construction Emissions Calculations, for additional details.

5.3.3 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.

5.3.3.1 Air Quality Regulatory Background

Federal

National air quality policies are regulated through the Federal Clean Air Act (CAA) of 1970 and its 1977 and 1990 Amendments. Pursuant to the CAA, the U.S. Environmental Protection Agency (USEPA) has established National Ambient Air Quality Standards (NAAQS) for criteria air pollutants, which include ozone (O_3), carbon monoxide (CO), nitrogen dioxide (NO_2, which is a form of nitrogen oxides known as NO_X), sulfur dioxide (SO_2, which is a form of sulfur oxides known as SO_x), particulate matter less than 10 and 2.5 microns in diameter (PM_{10} and $PM_{2.5}$, respectively), and lead. These pollutants are referred to as criteria pollutants because USEPA has established numerical criteria that define acceptable levels of exposure for each pollutant. USEPA has revised the NAAQS several times since their original implementation, and is likely to continue to do so as the health effects of exposure to air pollution are better understood.

USEPA designates federal nonattainment areas for areas that have not achieved the NAAQS. Under the 1977 amendments to the CAA, states with air quality that did not achieve the NAAQS were required to develop and maintain state implementation plans (SIPs). These SIPs provide a federally enforceable definition of the state's approach and schedule for the attainment of the NAAQS. Air quality management areas were designated as attainment, nonattainment, or unclassified for individual pollutants, depending on whether they achieve the applicable NAAQS and California Ambient Air Quality Standards (CAAQS) for each pollutant. In addition, California can designate areas as transitional. Because the NAAQS and CAAQS differ in many cases, it is possible for an area to be designated attainment by USEPA (meets NAAQS) and nonattainment by California (does not meet CAAQS) for the same pollutant.

Nonattainment areas under different classifications have different deadlines to achieve the NAAQS. Extreme nonattainment areas are subject to a deadline of June 2024 to attain the NAAQS for O_3. Severe-15 nonattainment areas are subject to a deadline of June 2019 to attain the NAAQS for O_3. Serious nonattainment areas were subject to a deadline of June 2013 to attain the NAAQS

for O_3. There are no areas that are currently designated as "severe-17" nonattainment areas for the NAAQS for O_3. Areas that lack monitoring data are designated as unclassified areas. Unclassified areas are treated as attainment areas for regulatory purposes.

State

The CARB was created in 1967 by merging the California Motor Vehicle Pollution Control Board with the Bureau of Air Sanitation and its laboratory. Under the CAA, states may enact their own statewide air quality regulations and standards, provided that they are at least as stringent as the CAA. In 1988, the California Clean Air Act (CCAA) was enacted to regulate air quality within California. CARB, a department of the California Environmental Protection Agency (CalEPA), oversees air quality planning and control throughout California. Its responsibility lies with ensuring implementation of the CCAA, responding to requirements, and regulating pollutant emissions from motor vehicles sold in California. It also sets fuel specifications to further reduce vehicular emissions.

The CCAA established the CAAQS and a legal mandate to achieve these standards by the earliest practicable date. These standards apply to the same criteria pollutants as the NAAQS, but also include sulfate, visibility, hydrogen sulfide, and vinyl chloride.

Local

Because the CPUC has exclusive jurisdiction over the siting, design, and construction of the Proposed Project, the Proposed Project is not subject to local discretionary land use regulations. The following discussion of the local regulations relating to air quality is provided for informational purposes.

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. CARB designated San Diego County as a discrete air basin under the jurisdiction of the San Diego Air Pollution Control District (SDAPCD). The 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 the 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 Eight-Hour Ozone Attainment Plan specified control measures and emission reduction strategies that would allow San Diego County to reach attainment status for the previously applicable 0.08 ppm federal 8-hour O_3 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 O_3 standard in the future. The SDAPCD will then be required 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 O_3 AAQS. The RAQS details the measures and regulations that focus on managing and reducing O_3 precursors, such as NOx 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 USEPA (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 PM_{10} nonattainment, but the SDAPCD has prepared a report entitled "Measures to Reduce Particulate Matter in San Diego County." The SDAPCD is considering rulemaking for 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 II – Permits, Rules 20.2 and 20.3 – NSR – Non-Major Stationary Sources and NSR – Major Stationary Sources & PSD Stationary Sources. To evaluate the potential for stationary sources to cause or contribute to a violation of an air quality standard, SDAPCD established emissions thresholds in its Rules 20.2 and 20.3 on New Source Review. If emissions from a stationary source exceed the thresholds established in these rules, further evaluation must be conducted to assess whether the source would cause or contribute to a violation of an air quality standard. SDAPCD has not established rules for characterizing impacts from construction. However, SDAPCD informally recommends quantifying construction emissions and comparing them to significance thresholds found in the SDAPCD regulations for stationary sources (Rule 20.2 et seq.). If construction-phase emissions exceed these thresholds for a stationary-source air-quality-impact analysis, then construction has the potential to violate air quality standards or to contribute substantially to existing violations. Significance thresholds are discussed further in Section 5.3.4.

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 rule 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.

SDAPCD Regulation IV – Prohibitions, Rule 55 – Fugitive Dust Control. This regulation prohibits any activity that will discharge visible dust emissions into the atmosphere beyond the property line for more than three minutes during any 60 minute period. This regulation also prohibits visible roadway dust due to track-out or carry-out.

SDAPCD Regulation IV – Prohibitions, Rule 76.0.1. This rule limits VOC content in architectural coatings used in San Diego County.

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

5.3.3.2 Climate Conditions

San Diego Air Basin Characteristics

One of the main determinants of the San Diego Air Basin's climatology is the Pacific High, a semi-permanent high-pressure center over the Pacific Ocean. In the summer, this pressure center is located well to the north, directing storm tracks north of California. This high-pressure cell maintains clear skies for much of the year. When the Pacific High moves southward during the winter, this pattern changes, and low-pressure storms are brought into the region, causing widespread precipitation.

San Diego Air Basin Climate

The San Diego Air Basin's climate is characterized by warm, dry summers and mild, wet winters. The climate of San Diego, as with all of Southern California, is largely controlled by the strength and position of the Pacific High. This high-pressure ridge over the West Coast creates a repetitive pattern of frequent early morning cloudiness, hazy afternoon sunshine, daytime onshore breezes, and little temperature change throughout the year. Limited rainfall occurs in the winter when the oceanic high-pressure center is weakest and farthest south, as the fringes of mid-latitude storms occasionally move through the area. The average temperatures in January range from 48 degrees Fahrenheit (°F) at night to 65°F during the day. The warmest month is August, when the high temperatures average 76°F. The average annual rainfall is approximately 10 inches.

Temperature Inversion and Air Pollutant Concentrations

The onshore flow of marine air and nocturnal winds are accompanied by two characteristic temperature inversion conditions that control the rate of air pollution dispersal throughout the San Diego Air Basin. The daytime cool onshore flow is capped by a deep layer of warm air. Along the coastline, the marine air layer beneath the inversion cap is deep enough to accommodate any locally generated emissions. However, as the layer moves inland, pollution sources (especially automobiles) add pollutants from below without any dilution from above through the inversion interface. When this polluted layer approaches foothill communities east of coastal developments, it becomes shallower and exposes residents in those areas to concentrated pollution by-products from coastal area sources.

The same atmospheric conditions that create a desirable living climate combine to limit the atmosphere's ability to disperse air pollution generated by the large population attracted to the pleasant climate. Onshore winds across the coastline diminish quickly when they reach the foothill communities east of San Diego. The sinking air within the offshore high-pressure system forms a massive temperature inversion that traps air pollutants near the ground. The resulting horizontal and vertical stagnation, in conjunction with ample sunshine, causes a number of reactive pollutants to undergo photochemical reactions and form smog, which degrades visibility and irritates human tear ducts and nasal membranes. While programs to control emissions of air pollutants have substantially improved regional air quality within the last several decades, some parts of the San Diego Air Basin do not meet air quality standards.

Local Climate

Local meteorological conditions in the Proposed Project vicinity are similar to the regional pattern. Located in the interior valley area, the climate is less affected by the ocean. The summers are hotter and the winters are colder than the coastal areas to the west. The average temperature in January varies from about 41°F to 67°F. In August, the average temperature varies from 62°F to 86°F.

5.3.3.3 Air Quality

The following air quality information briefly describes the relevant types of pollutants.

Ozone (O_3)

O_3 occurs in two layers of the atmosphere. The layer surrounding Earth's surface is the troposphere. The troposphere extends approximately 10 miles above ground level, where it meets the second layer, the stratosphere. The stratospheric layer extends upward from about 10 to 30 miles, and protects life on Earth from the sun's ultraviolet rays (UV-B). In the troposphere, O_3 is a photochemical pollutant formed from reactions between volatile organic compounds (VOCs) and NO_X with the presence of sunlight, referred to as "photochemical smog." Therefore, VOCs and NO_X are O_3 precursors. VOCs and NO_X are emitted from various sources throughout the San Diego Air Basin. Significant O_3 formation generally requires an adequate amount of precursors in the atmosphere and several hours in a stable atmosphere with strong sunlight. High O_3 concentrations can form over large regions when emissions from motor vehicles and stationary sources are carried hundreds of miles from their origins.

Many respiratory ailments and cardiovascular disease are aggravated by exposure to high O_3 levels. O_3 also damages natural ecosystems (such as forests and foothill plant communities), agricultural crops, and some human-created materials (such as rubber, paint, and plastics). Societal costs from O_3 damage include increased healthcare costs, loss of human and animal life, accelerated replacement of industrial equipment, and reduced crop yields.

Carbon Monoxide (CO)

CO is an odorless, colorless toxic gas that is emitted by mobile and stationary sources. It is a result of incomplete combustion of hydrocarbons or other carbon-based fuels. In cities, automobile exhaust can cause as much as 95 percent of all CO emissions. At high concentrations, CO can reduce the oxygen-carrying capacity of the blood and cause headaches, dizziness, and unconsciousness.

Nitrogen Dioxide (NO_2)

NO_X are a family of highly reactive gases that are a primary precursor to the formation of ground-level O_3, and react in the atmosphere to form acid rain. One member of the NO_x family is NO_2. USEPA and CARB established AAQS for NO_2. NO_2 is a reddish-brown gas that can cause breathing difficulties at high levels. Peak readings of NO_2 occur in areas that have a high concentration of combustion sources (e.g., motor vehicle engines, power plants, refineries, and other industrial operations).

NO_2 can irritate and damage lungs, and lower resistance to respiratory infections, such as influenza. The health effects of short-term exposure are still unclear. However, continued or frequent exposure to NO_2 concentrations that are typically much higher than those normally found in the ambient air may increase acute respiratory illnesses in children and increase the incidence of chronic bronchitis and lung irritation. Chronic exposure to NO_2 may aggravate eyes and mucus membranes and cause pulmonary dysfunction.

Sulfur Dioxide (SO_2)

SO_2 is a colorless reactive gas that is produced from burning sulfur-containing fuels such as coal and oil, and by other industrial processes. Generally, the highest SO_2 concentrations are found near large industrial sources. SO_2 is a respiratory irritant that can cause narrowing of airways, leading to wheezing and shortness of breath. Long-term exposure to SO_2 can cause respiratory illness and aggravate existing cardiovascular disease.

Particulate Matter (PM_{10})

PM_{10} refers to suspended particulate matter, which is smaller than 10 microns, or 10 one-millionths of a meter. PM_{10} arises from sources such as road dust, diesel soot, combustion products, construction operations, and dust storms. PM_{10} scatters light and significantly reduces visibility. In addition, these particulates penetrate the lungs and can potentially damage the respiratory tract. On June 19, 2003, CARB adopted amendments to the statewide 24-hour particulate matter standards based on requirements set forth in the Children's Environmental Health Protection Act (California Senate Bill 25).

Fine Particulate Matter ($PM_{2.5}$)

Due to increased concerns over health impacts related to fine particulate matter, federal and state $PM_{2.5}$ standards were created. Particulate matter impacts primarily affect infants, children, older adults, and those with pre-existing cardiopulmonary disease. Due to its smaller size, $PM_{2.5}$ has the potential to lodge more deeply in the lungs than PM_{10}. USEPA and CARB have revised their AAQS for $PM_{2.5}$ to more stringent levels since the standards were originally proposed in 1997. Almost everyone in California is exposed to levels at or above the current state standards during some parts of the year, and the statewide potential for significant health impacts associated with particulate matter exposure was determined to be large and wide-ranging.

Reactive Organic Gases (ROGs) and Volatile Organic Compounds (VOCs)

Hydrocarbons are organic gases that are formed solely of hydrogen and carbon. There are several subsets of organic gases, including reactive organic gases (ROGs) and VOCs. ROGs and VOCs are emitted from the incomplete combustion of hydrocarbons or other carbon-based fuels. The major sources of hydrocarbons are combustion engine exhaust, oil refineries, and oil-fueled power plants. Other common sources are petroleum fuels, solvents, dry cleaning solutions, and paint (via evaporation).

Lead

Lead in the atmosphere occurs as particulate matter. Lead was historically emitted from vehicles combusting leaded gasoline, as well as from industrial sources. With the phase-out of leaded gasoline, large manufacturing facilities are now the primary sources of lead emissions. Lead has the potential to cause gastrointestinal, central nervous system, kidney, and blood diseases upon prolonged exposure. Lead is also classified as a probable human carcinogen.

Other Pollutants

CARB also set standards for four additional pollutants: sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particles. These pollutants are generally not considered pollutants of concern in the San Diego Air Basin because there are no major sources that would contribute to ambient levels within the basin.

Toxic Air Contaminants (TACs)

Section 39655 of the California Health and Safety Code defines a toxic air contaminant (TAC) as an air pollutant that "may cause or contribute to an increase in mortality or an increase in serious illness, or [that] may pose a present or potential hazard to human health." Section 39657(b) of the California Health and Safety Code defines TACs to include 189 substances that have been listed as Federal hazardous air pollutants under 42 U.S. Code [U.S.C.] Section 7412.

TACs can cause various cancers, depending on the particular chemicals, their type, and the duration of exposure. Additionally, some TACs may cause other health effects over the short or long term. The 10 TACs posing the greatest health risk in California are acetaldehyde, benzene, 1-3 butadiene, carbon tetrachloride, hexavalent chromium, para-dichlorobenzene, formaldehyde, methylene chloride, perchlorethylene, and diesel particulate matter.

5.3.3.4 Air Quality Designations

Three air quality designations can be given to an area for a criteria 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.

Current NAAQS and CAAQS are summarized in Table 5.3-1, National and California Ambient Air Quality Standards. On April 15, 2004, USEPA formally replaced the 1979 one-hour ozone standard with a more stringent 8-hour standard as part of the Clean Air Rules of 2004. The San Diego Air Basin is currently designated at the state level as a nonattainment area for O_3 and PM and at the Federal level as marginal nonattainment for O_3.

Table 5.3-1: National and California Ambient Air Quality Standards

Pollutant	Averaging Time	California[a]		Federal[b]	
		Standard[c]	Attainment Status	Standards[d]	Attainment Status
Ozone (O_3)	1 Hour	0.09 ppm (180 $\mu g/m^3$)	**Nonattainment**	NA	NA
	8 Hours	0.070 ppm (137 $\mu g/m^3$)	**Nonattainment**	0.075 ppm (147 $\mu g/m^3$)	**Marginal Nonattainment**
Particulate Matter (PM_{10})	24 Hours	50 $\mu g/m^3$	**Nonattainment**	150 $\mu g/m^3$	Attainment
	Annual Arithmetic Mean	20 $\mu g/m^3$	**Nonattainment**	NA	Unclassified
Fine Particulate Matter ($PM_{2.5}$)	24 Hours	No Separate State Standard		35 $\mu g/m^3$	Attainment
	Annual Arithmetic Mean	12 $\mu g/m^3$	**Nonattainment**	12.0 $\mu g/m^3$	Attainment
Carbon Monoxide (CO)	8 Hours	9.0 ppm (10 mg/m^3)	Attainment	9 ppm (10 mg/m^3)	Attainment
	1 Hour	20 ppm (23 mg/m^3)	Attainment	35 ppm (40 mg/m^3)	Attainment
Nitrogen Dioxide (NO_2)[e]	Annual Arithmetic Mean	0.030 ppm (56 $\mu g/m^3$)	NA	0.053 ppm (100 $\mu g/m^3$)	Attainment
	1 Hour	0.18 ppm (338 $\mu g/m^3$)	Attainment	100 ppb	Attainment
Lead (Pb)[g,h]	30 days average	1.5 $\mu g/m^3$	Attainment	NA	NA
	Calendar Quarter	NA	NA	1.5 $\mu g/m^3$	Attainment
Sulfur Dioxide (SO_2)[f]	24 Hours	0.04 ppm (105 $\mu g/m^3$)	Attainment	NA	Attainment
	3 Hours	NA	NA	0.5 ppm (1300 $\mu g/m^3$)	Attainment
	1 Hour	0.25 ppm (655 $\mu g/m^3$)	Attainment	75 ppb (196 $\mu g/m^3$)	NA
Visibility-Reducing Particles[i]	8 Hours (10 a.m. to 6 p.m., PST)	Extinction coefficient = 0.23 km@<70% RH	Unclassified	**No Federal Standards**	
Sulfates	24 Hour	25 $\mu g/m^3$	Attainment		
Hydrogen Sulfide	1 Hour	0.03 ppm (42 $\mu g/m^3$)	Unclassified		
Vinyl Chloride[g]	24 Hour	0.01 ppm (26 $\mu g/m^3$)	Unclassified		

Notes: $\mu g/m^3$ = micrograms per cubic meter; ppm = parts per million; km = kilometer(s); RH = relative humidity; PST = Pacific Standard Time; N/A = Not Applicable

[a] California standards for ozone, carbon monoxide (except 8-hour Lake Tahoe), sulfur dioxide (1- and 24-hour), nitrogen dioxide, and particulate matter (PM_{10}, $PM_{2.5}$, and visibility-reducing particles) are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in 17 CCR 70200.

[b] National standards (other than ozone, particulate matter, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over 3 years, is equal to or less than the standard. For PM_{10}, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 $\mu g/m^3$ is equal to or less than 1. For $PM_{2.5}$, the 24-hour standard is attained when 98% of the daily concentrations, averaged over 3 years, are equal to or less than the standard.

[c] Concentration is expressed first in units in which it was promulgated. Equivalent units given in parentheses are based on a reference temperature of 25°C and a reference pressure of 760 millimeters (mm) of mercury. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 mm of mercury; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

Pollutant	Averaging Time	California[a]		Federal[b]	
		Standard[c]	Attainment Status	Standards[d]	Attainment Status

[d] National Primary Standards: The levels of air quality necessary, with an adequate margin of safety, to protect the public health. National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant. The table presents primary standards with the exception of the 3-hour SO_2 standard, which is a secondary standard.
[e] To attain the 1-hour national standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 ppb. Note that the national 1-hour standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the national 1-hour standard to the California standards, the units can be converted from ppb to ppm. In this case, the national standard of 100 ppb is identical to 0.100 ppm.
[f] On June 2, 2010, a new 1-hour SO_2 standard was established and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO_2 national standards (24-hour and annual) remain in effect until 1 year after an area is designated for the 2010 standard, except that in areas designated nonattainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved.
[g] CARB has identified lead and vinyl chloride as "TACs" with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.
[h] The national standard for lead was revised on October 15, 2008, to a rolling 3-month average. The 1978 lead standard (1.5 $\mu g/m^3$ as a quarterly average) remains in effect until 1 year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.
[i] In 1989, CARB converted both the general statewide 10-mile visibility standard and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are "extinction of 0.23 per kilometer" and "extinction of 0.07 per kilometer" for the statewide and Lake Tahoe Air Basin standard, respectively.

Sources*: CARB, 2013a; USEPA, 2013.*

Ambient Air Quality

CARB sets state air quality standards and monitors ambient air quality at approximately 250 air quality monitoring stations across the state. Air quality monitoring stations usually measure pollutant concentrations 10 feet above ground level. Therefore, air quality is often referred to in terms of ground-level concentrations. Ambient air pollutant concentrations in the San Diego Air Basin are measured at 10 air quality monitoring stations operated by SDAPCD.

For the air quality evaluation, data from the Escondido Monitoring Station, located on East Valley Parkway in the City of Escondido, were used. The Escondido Monitoring Station is the site nearest to the Proposed Project area. This data included O_3, CO, NO_2, PM_{10}, and $PM_{2.5}$. Data collected at this monitoring station are representative of the air quality experienced on-site from 2010 through 2014; refer to Table 5.3-2, Local Air Quality Levels. The Escondido Monitoring Station does not measure SO_2. The only monitoring station measuring and reporting SO_2 after 2011 is the El Cajon site. Data for SO_2 from this monitoring station are presented in Table 5.3-2.

Violations of NAAQS and CAAQS for O_3 and PM have occurred historically in the Proposed Project area. The frequency of violations and current air quality conditions at the Escondido Monitoring Station are summarized in Table 5.3-2, Local Escondido Air Quality Levels.

Table 5.3-2: Local Escondido Air Quality Levels

Pollutant	Standard (Maximum Allowable Amount)		Year[a]	Maximum Concentration[b]	Number of Days State/Federal Standard Exceeded
	California	Federal Primary			
1-hour Ozone (O_3)[a]	0.09 ppm for 1 hour	NA	2010 2011 2012 2013 2014	0.11 ppm 0.10 0.08 0.08 0.10	2/NA 1/NA 0/NA 0/NA 1/NA
8-hour Ozone (O_3)[a]	0.070 ppm for 8 hours	0.075 ppm for 8 hours	2010 2011 2012 2013 2014	0.08 ppm 0.09 0.07 0.07 0.08	5/3 2/2 2/0 4/0 8/5
1-hour Carbon Monoxide (CO)	20 ppm for 1 hour	35 ppm for 1 hour	2010 2011 2012 2013 2014	3.9 ppm 3.5 4.4 3.2 3.8	0/0 0/0 0/0 0/0 0/0
8-hour Carbon Monoxide (CO)	9.0 ppm for 8 hours	9 ppm for 8 hour	2010 2011 2012 2013 2014	2.5 ppm 2.3 3.8 2.6 3.1	0/0 0/0 0/0 0/0 0/0
1-hour Nitrogen Dioxide (NO_2)	0.18 ppm for 1 hour	0.10 ppm For 1 hour	2010 2011 2012 2013 2014	0.064 ppm 0.062 0.062 0.061 0.063	0/0 0/0 0/0 0/0 0/0
Annual NO_2	0.030 ppm	0.053 ppm	2010 2011 2012 2013 2014	0.014 ppm 0.013 0.012 0.012 0.011	0/0 0/0 0/0 0/0 0/0
1-hour Sulfur Dioxide (SO_2)[c]	0.25 ppm for 1 hour	0.075 ppm for 1 hour	2010 2011 2012 2013 2014	NM 0.001 ppm 0.002 0.007 0.001	NM 0/0 0/0 0/0 0/0
24-hour Sulfur Dioxide (SO_2)[c]	0.04 ppm for 24 hours	NA	2010 2011 2012 2013 2014	NM 0.000 ppm 0.000 0.000 0.000	NM/NA 0/NA 0/NA 0/NA 0/NA
Fine Particulate Matter ($PM_{2.5}$)[a, b]	No Separate Standard	35 µg/m^3 for 24 hours	2010 2011 2012 2013 2014	33 µg/m^3 27 71 56.3 30.4	NA/NA NA/NA NA/NA NA/NA NA/NA
$PM_{2.5}$[a, b] Annual Average	12 µg/m^3	12.0 µg/m^3	2010 2011 2012 2013 2014	10.5 µg/m^3 10.4 10.5 10.5 9.5	NA/NA NA/NA NA/NA NA/NA NA/NA

Pollutant	Standard (Maximum Allowable Amount)		Year[a]	Maximum Concentration[b]	Number of Days State/Federal Standard Exceeded
	California	Federal Primary			
Particulate Matter (PM_{10}) [a, b]	50 µg/m^3 for 24 hours	150 µg/m^3 for 24 hours	2010	42 µg/m^3	NA/NA
			2011	40	NA/NA
			2012	33	NA/NA
			2013	80	NA/NA
			2014	43	NA/NA
PM_{10}[a, b] Annual Average	20 µg/m^3	No Separate Standard	2010	20.9 µg/m^3	NA/NA
			2011	18.8	NA/NA
			2012	18.0	NA/NA
			2013	23.1	NA/NA
			2014	21.6	NA/NA

Notes: ppm = parts per million; PM_{10} = particulate matter 10 microns in diameter or less; NM = not measured; µg/m^3 = micrograms per cubic meter; $PM_{2.5}$ = particulate matter 2.5 microns in diameter or less; NA = not applicable.

[a] Maximum concentration is measured over the same period as the California standards.

[b] PM_{10} and $PM_{2.5}$ exceedances are derived from the number of samples exceeded, not days.

[c] Reported for El Cajon monitoring station, the only available data after 2011.

Sources: *CARB, 2013; SDAPCD, 2013.*

5.3.3.5 Sensitive Receptors

Sensitive populations are more susceptible to the effects of air pollution than the general population. According to the Air Toxics Hot Spots Program Risk Assessment Guidelines (OEHHA, 2003), sensitive receptors include "hospitals, daycare centers, schools, work-sites, and residences."

Sensitive receptors in proximity to localized sources of toxics and CO are of particular concern. Land uses that may include sensitive receptors include residences, schools, playgrounds, childcare centers, athletic facilities, long-term health care facilities, rehabilitation centers, convalescent centers, and retirement homes.

The Proposed Project is located near a number of sensitive receptors. The closest school is the Maranatha Christian School on the northwest corner of Camino Del Sur and Maranatha Drive, approximately 0.1 mile away from the closest Proposed Project work area. In the western portion of the project, residential properties are located adjacent to the Proposed Project.

5.3.4 Potential Impacts

5.3.4.1 Significance Criteria

Standards of impact significance were derived from Appendix G of the *CEQA Guidelines*. Under these guidelines, the Proposed Project could have a potentially significant impact to air quality if it will:

a. Conflict with or obstruct implementation of the applicable air quality plan;

b. Violate any air quality standard or contribute substantially to an existing or projected air quality violation;

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 which exceed quantitative thresholds for ozone precursors);

d. Expose sensitive receptors to substantial pollutant concentrations; or

e. Create objectionable odors affecting a substantial number of people.

Pursuant to SDAPCD regulations, a project would result in a significant air quality impact if it generates total emissions (direct and indirect) that exceed their adopted thresholds; refer to Table 5.3-3, SDAPCD Pollutant Thresholds. A project that results in a significant impact must incorporate sufficient measures to reduce its impact to a level that is not significant. A project that results in impacts that cannot be mitigated to a level that is not significant must incorporate all feasible measures. Note that the emission thresholds are given as a daily value and an annual value, so that a multi-phased project (such as a project with a construction phase and a separate operational phase) with phases shorter than one year can be compared to the daily value.

Table 5.3-3: SDAPCD Pollutant Thresholds

Pollutant	SDAPCD Thresholds (lbs/day)	SDAPCD Thresholds (tons/year)[a]
Carbon Monoxide (CO)	550	100
Oxides of Sulfur (SO_x)	250	40
Volatile Organic Compounds (VOCs)[1]	75	Not Available
Oxides of Nitrogen (NO_x)	250	40
Particulate Matter (PM_{10})	100	15
Particulate Matter ($PM_{2.5}$)[a]	55	Not Available

Notes:
[a] The SDAPCD does not have thresholds of significance for VOCs or $PM_{2.5}$. As such, the VOC and $PM_{2.5}$ thresholds from the South Coast Air Quality Management District were utilized.
Source: *SDAPCD, 2012.*

5.3.4.2 Question 3a – Conflict with or obstruct implementation of the applicable air quality plan?

Construction – No Impact

A potentially significant impact on air quality would occur if the Proposed Project would conflict with or obstruct the implementation of the applicable air quality plan. It is necessary to assess the Proposed Project's consistency with the RAQS and SIP. Proposed Project consistency with the RAQS and SIP is determined in terms of whether the Proposed Project exceeds the criteria pollutant threshold levels established by SDAPCD and whether the load growth to be met by the Proposed Project has been anticipated in a given sub-region. As shown in Table 5.3-4, Proposed Project Construction Air Emissions, and as discussed under Significance Criteria 3b, emissions do not exceed the applicable significance thresholds. The Proposed Project would not conflict with implementation of the RAQS or SIP. Therefore, no impact would occur.

Operation and Maintenance – No Impact

Operation and maintenance activities for the Proposed Project will be similar to those already occurring for the existing substations and power lines at the Proposed Project site. As a result, the operation and maintenance emissions associated with the Proposed Project will not result in an increase in long-term air quality emissions. Therefore, the Proposed Project would not conflict with or obstruct implementation of the applicable air quality plan. No impact would occur.

5.3.4.3 Question 3b - Violate any air quality standard or contribute substantially to an existing or projected air quality violation?

Construction – Less than Significant Impact

Constructing the Proposed Project is anticipated to occur over approximately 30 months. Construction of the Proposed Project is anticipated to begin in August 2018 and to be completed by January 2021. Appendix 3-F presents a detailed conceptual construction schedule and equipment listing for the Proposed Project.

The Proposed Project would include various types of equipment such as line trucks, concrete trucks, haul trucks, pickup trucks, on-site generators, air compressors, bore/drill rigs, bulldozers, backhoes, loaders, cabling equipment, and cranes. Any soil export or import would be transported on or off the site with street-legal haul trucks. Portable cranes and heavy hauling trucks would be employed for the equipment delivery and installation. Crew trucks, boom trucks, and pick-up trucks would arrive and depart from the site daily for construction activities, testing and check-out, final power line tie-ins, and circuit cabling, until the transmission and power lines are tested and energized.

Construction of the Proposed Project may require multiple four- to twelve-person crews and associated equipment. Environmental monitors, construction inspectors, and SDG&E personnel would also be present throughout construction. These crews may work simultaneously at various points along the Proposed Project route and affected substations.

Construction of the Proposed Project would generate short-term air quality impacts. The short-term air quality impact analysis considers the following temporary impacts from the Proposed Project:

- Clearing, grading, excavating, and using heavy equipment or trucks would create fugitive dust, and thus PM_{10};
- Heavy equipment required for grading and construction would generate and emit diesel exhaust; and
- Vehicles transporting commuting construction workers and trucks hauling equipment and materials would generate and emit exhaust.

Table 5.3-4: Proposed Project Construction Air Emissions

Maximum Daily Construction Emissions, lbs/day						
2018	**ROG**	**CO**	**NOx**	**SOx**	**PM_{10}**	**$PM_{2.5}$**
Construction Equipment	2.6	51.8	71.2	0.1	1.9	1.9
Construction Truck Trips	0.5	6.6	6.4	0.0	0.1	0.1
Worker Trips	0.1	1.7	0.2	0.0	0.0	0.0
Fugitive Dust	0.0	0.0	0.0	0.0	8.0	3.4
2019	**ROG**	**CO**	**NOx**	**SOx**	**PM_{10}**	**$PM_{2.5}$**
Construction Equipment	3.6	75.3	105.9	0.1	2.7	2.7
Construction Truck Trips	0.0	0.0	0.0	0.0	0.0	0.0
Worker Trips	0.4	2.5	0.3	0.0	0.0	0.0
Fugitive Dust	0.0	0.0	0.0	0.0	0.6	0.2
2020	**ROG**	**CO**	**NOx**	**SOx**	**PM_{10}**	**$PM_{2.5}$**
Construction Equipment	3.0	58.5	87.1	0.1	2.2	2.2
Construction Truck Trips	0.6	7.0	0.0	0.0	0.1	0.1
Worker Trips	0.1	1.5	0.2	0.0	0.0	0.0
Fugitive Dust	0.0	0.0	0.0	0.0	9.0	3.5
2021	**ROG**	**CO**	**NOx**	**SOx**	**PM_{10}**	**$PM_{2.5}$**
Construction Equipment	0.1	2.9	3.9	0.0	0.1	0.1
Construction Truck Trips	0.0	0.0	0.0	0.0	0.0	0.0
Worker Trips	0.0	0.2	0.0	0.0	0.0	0.0
Fugitive Dust	0.0	0.0	0.0	0.0	0.3	0.0
Maximum Daily Emissions	**4.1**	**77.8**	**106.1**	**0.1**	**11.3**	**5.8**
Threshold	**75**	**550**	**250**	**250**	**100**	**55**
Significant?	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**

Construction activities for the Proposed Project were modeled based on the schedule provided in Appendix 3-F. Although the construction equipment would include a mix of equipment that meets USEPA Tier 2 and USEPA Tier 3 emissions standards for off-road diesel engines, emissions modeling was conducted assuming only Tier 2 equipment to be conservative. Emissions were also modeled assuming exposed surfaces are watered twice daily.

Variables factored into estimating the total construction emissions include the level of activity, length of construction period, number of pieces and types of equipment in use, site characteristics, weather conditions, number of construction personnel, and the amount of materials transported on-site or off-site. Proposed Project construction emissions findings are presented in Table 5.3-4. Table 5.3-4 presents an evaluation of the maximum daily emissions associated with the simultaneous construction activities required for the Proposed Project. Maximum daily activities were identified based on a review of the construction schedule to identify simultaneous construction phases. A list of mobile and stationary construction equipment is included in the air quality modeling; refer to Appendix 5.3-A.

To further reduce impacts to the extent possible, SDG&E would implement the following air emissions control measures during construction, which are not included in the emissions presented in Table 5.3-4:

- All active unpaved demolition and construction areas will be sufficiently dampened as needed, to control dust emissions.
- Exposed stockpiles (e.g., dirt, sand) will be covered, dampened, or stabilized with non-toxic soil binders as needed, to control dust emissions during construction.
- Open-bodied trucks transporting materials that may become airborne during construction will be completely covered, unless the material is sufficiently dampened, or there is at least two feet of freeboard from the top of the container.
- During construction all visible mud and dirt that is tracked out onto paved roadways will be cleaned up at the conclusion of each workday.
- All equipment shall be properly tuned and maintained in accordance with manufacturer specifications.
- SDG&E or its contractor shall maintain and operate construction equipment to minimize exhaust emissions. During construction, trucks and vehicles in loading and unloading queues shall have their engines turned off after 5 minutes when not in use.
- Low- and non-VOC containing coatings, sealants, adhesives, solvents, asphalt, and architectural coatings shall be used to reduce VOC emissions. Coatings, sealants, adhesives, solvents, and asphalt shall be in conformance with CARB's Suggested Control Measure for Architectural Coatings and with SDAPCD's VOC Rules 61, 66.1, 67.0.1, and 67.17.
- All on-road heavy-duty vehicles, off-road construction vehicles, and portable equipment used in the project will comply with CARB's Airborne Diesel Air Toxic Control Measures (ATCMs).

Fugitive Dust Emissions

Construction activities are a source of fugitive dust (PM_{10}) emissions that may have a substantial, although temporary, impact on local air quality. In addition, fugitive dust may be a nuisance to those living and working in the Proposed Project area. Fugitive dust emissions are associated with land clearing, excavation, cut and fill, and truck travel on unpaved roadways. Fugitive dust emissions vary substantially from day to day, depending on the level of activity, specific operations, and weather conditions. Fugitive dust from grading and construction is expected to be short-term and would cease when these activities are completed. Additionally, most of this fugitive dust material would be inert silicates, rather than the complex organic particulates released from combustion sources, which are more harmful to sensitive receptors.

Emissions calculations include fugitive dust emissions as part of the site grading and earthmoving activities (refer to Table 5.3-4). SDG&E adheres to standard construction practices (track-out requirements and containing dirt and dust within the Proposed Project area) for compliance with SDAPCD's Fugitive Dust Rule 55. The Proposed Project would not exceed SDAPCD standards for PM_{10} or $PM_{2.5}$.

Construction Equipment and Worker Vehicle Exhaust

Exhaust emissions from construction activities include emissions associated with transporting machinery and supplies to and from the Proposed Project area, emissions produced on-site as the equipment is used, and emissions from trucks transporting cut and fill material to and from the Proposed Project site. Emitted pollutants would include CO, ROG, NO_X, PM_{10}, and $PM_{2.5}$. As presented in Table 5.3-4, the maximum daily emissions for each year of construction of the Proposed Project would not exceed SDAPCD standards for all pollutants during construction. It was assumed for the purposes of estimating emissions that construction equipment would be comprised of a fleet which meets USEPA Tier 2 emission standards.

Toxic Air Contaminants (TACs)

California identifies diesel particulate matter as a TAC. Diesel particulate matter is emitted from on- and off-road vehicles that use diesel as fuel. Following identification of diesel particulate matter as a TAC in 1998, CARB worked on developing strategies and regulations aimed at reducing the emissions and associated risk from diesel particulate matter. The overall strategy for achieving these reductions is found in the Risk Reduction Plan to Reduce Particulate Matter from Diesel-Fueled Engines and Vehicles (CARB, 2000).

Construction activities would result in emissions of diesel particulate matter. Sources of diesel particulate matter for the Proposed Project would include haul trucks, heavy construction equipment, and contractor vehicles. Potential health effects associated with exposure to diesel particulate matter are long-term effects and are evaluated on the basis of a lifetime of exposure (70 years). Because construction activities would be short-term, emissions would not impact any sensitive receptors for a significant length of time.

CARB has adopted ATCMs applicable to off-road diesel equipment and portable diesel engines rated brake horsepower 50 and greater. The purpose of these ATCMs is to reduce emissions of particulate matter from engines subject to the rule. The ATCMs require diesel engines to comply with particulate matter emissions limitations on a fleet-averaged basis.

CARB has also adopted an ATCM that limits diesel-fueled commercial motor vehicle idling. The rule applies to motor vehicles with gross vehicular weight ratings greater than 10,000 pounds that are licensed for on-road use. The rule restricts vehicles from idling for more than 5 minutes at any location, with exceptions for idling that may be necessary in the operation of the vehicle.

All off-road diesel equipment, on-road heavy-duty diesel trucks, and portable diesel equipment used for the Proposed Project must meet the state's applicable ATCMs for control of diesel particulate matter and NO_X in the exhaust (e.g., ATCMs for portable diesel engines, off-road vehicles, and heavy-duty on-road diesel trucks, and 5-minute diesel engine idling limits) that are in effect during implementation of the Proposed Project. The mobile fleets used in the Proposed Project are expected to be in full compliance with these ATCMs. This would ensure that pollutant emissions in diesel engine exhaust do not exceed applicable state or federal air quality standards. As a result, impacts would be less than significant.

Operation and Maintenance – No Impact

Emissions associated with operation and maintenance of the Proposed Project would include emissions from worker vehicles and trucks. There may be an occasional need to use heavy equipment for operations and maintenance activities. Emissions would be similar to existing operations and maintenance and will not produce a significant amount of new emissions over the baseline. As a result, there would be no air quality impact associated with operation and maintenance of the Proposed Project.

5.3.4.4 Question 3c – 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 which exceed quantitative thresholds for ozone precursors)?

Construction – Less than Significant Impact

As shown in Table 5.3-4, construction of the Proposed Project would lead to an increase in nonattainment criteria air pollutants, but, emissions would be below the daily significance thresholds for all pollutants. All appropriate air emissions control measures will be implemented. SDG&E's standard construction practices include minimizing vehicle idling time and controls for dust emissions to reduce construction impacts. As a result, impacts due to nonattainment criteria pollutant increases would be less than significant.

Operation & Maintenance – No Impact

Operation and maintenance activities for the Proposed Project will be similar to existing operation and maintenance activities and will therefore not result in a cumulative net increase in emissions of criteria pollutants. As a result, there would be no impact related to existing air quality standards for operation and maintenance of the Proposed Project.

5.3.4.5 Question 3d – Expose sensitive receptors to substantial pollutant concentrations?

Construction – Less than Significant Impact

The Proposed Project is adjacent to sensitive receptors. Although sensitive receptors were identified near certain of the Proposed Project's components, impacts to these receptors would be less than significant due to the short-term nature of construction and implementation of SDG&E's standard construction practices. These practices include reducing idling time and implementing dust-control measures. Therefore, impacts to sensitive receptors during Proposed Project construction would be less than significant.

Operation & Maintenance – No Impact

Emissions resulting from operation and maintenance activities associated with the Proposed Project will be minimal and similar to existing emissions. Therefore, operations and maintenance activities would have no impact on sensitive receptors.

5.3.4.6 Question 3e – Create objectionable odors affecting a substantial number of people?

Construction – Less than Significant Impact

Construction activity for the Proposed Project may generate detectable odors from heavy-duty equipment exhaust. Potential odors generated during construction would be temporary and would be limited by the relatively small number of vehicles on-site. Therefore, impacts would be less than significant.

Operation & Maintenance – No Impact

Operations and maintenance activities associated with the Proposed Project will be similar to existing operations and maintenance and therefore would not result in an increase in objectionable odors. As such, no impact would occur.

5.3.5 Applicant Proposed Measures

Because air quality impacts would be less than significant, no applicant proposed measures are required or proposed.

5.3.6 Detailed Discussion of Significant Impacts

Based upon the preceding analysis, no significant impacts relating to air quality are anticipated from the Proposed Project.

5.3.7 References

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