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4.1 Air Quality

4.1.1 Introduction

This section describes existing air quality conditions in the vicinity of the PRP site, and evaluates potential impacts of the project to air quality. The project area discussed in this section refers to all areas of temporary and permanent disturbance associated with the demolition/construction and operation of the new plant and ancillary systems. Other than reconductoring the existing 66-kV generation-tie (gen-tie) line to the SCE's Ganesha-Simpson transmission line, no new offsite linear facilities are required for PRP.

The analysis has been conducted according to CEC power plant siting requirements, and also addresses South Coast Air Quality Management District (SCAQMD or District) air permitting requirements. Some air quality–related data are presented in other sections of this SPPE, including an evaluation of toxic air pollutants (see Section 4.9, Public Health) and information relating to the fuel characteristics, heat rate, and startup and operating limits of PRP (see Section 2, Project Description).

4.1.2 Project Setting

4.1.2.1 Current Site and Facilities

PRP would replace the existing 44.5 MW LM5000 gas turbine at the San Gabriel Facility with a new state-of-the-art LMS 100PA natural-gas fired simple-cycle CTG and associated auxiliaries. The existing gas turbine will be decommissioned and demolished, and certain existing ancillary facilities either will be removed to accommodate development of PRP, or will be repurposed for future use in connection with the project.

PRP will be located within the existing 2-acre boundary of the San Gabriel Facility. The location of the project is shown in Figure 2-1. The site is bordered by railroad and industrial facilities to the south, and by industrial uses to the west and east. To the immediate north are additional industrial uses, and further north is residential.

4.1.2.2 Geography and Topography

PRP is located approximately 1.4 miles northwest of the Pomona City center, east of the intersection of I-10 and State Route (SR) 71. The project site is at an elevation of approximately 825 feet above sea level. The site is located within an industrial zone. There are three areas of complex terrain (terrain exceeding stack height) near the project site:

1. The complex terrain to the immediate north and southwest of the project, located in the foothills of Buzzard Peak, approximately 1.5 miles (2.4 kilometers [km]) from the project;
2. The complex terrain to the south and southeast of the project site, located in the foothills of San Juan Hill, also approximately 1.5 miles (2.4 km) from the project; and
3. The complex terrain to the north of the project, located in the foothills of Mount San Antonio, approximately 5 miles (8 km) from the project.

The nearest Class I areas are the San Gabriel Wilderness and the Cucamonga Wilderness, which are approximately 16 miles (~27 km) to the northwest and northeast (respectively) of the project site.

4.1.2.3 Climate and Meteorology

The general climate of California is typically dominated by the eastern Pacific high-pressure system centered off the coast of California. In the summer, this system results in low inversion layers with clear skies inland and typically early morning fog by the coast. In the winter, this system promotes wind and rainstorms originating in the Gulf of Alaska and striking northern California. The large-scale wind flow pattern in the South Coast basin is a diurnal cycle driven by the differences in temperature between the land and the ocean as well as the mountainous terrain surrounding the basin. The Tehachapi and Temblor mountains separate the South Coast and San Joaquin Valley air basins. The San Bernardino, San Gabriel, and Santa Rosa mountains generally make up the eastern mountain range of the South Coast Air Basin. The Santa Monica and Santa Ana mountains make up the northern and southern (respectively) coastal mountain ranges of the South Coast Air Basin.

The nearest long-term meteorological station with available temperature and precipitation means and extremes is the National Weather Service Cooperative (COOP) Pomona monitoring station. This weather station is located approximately 1.5 miles north of the project at latitude 34°04'N, longitude 117°45'W. Data collected at this station over a 124-year period (1893 to 2015) are presented in Table 4.1-1. The hottest month, August, has an average maximum temperature of 91.1 degrees Fahrenheit (°F) and an average minimum temperature of 58.1°F. The coldest month, January, has an average maximum temperature of 65.5°F, and an average minimum temperature of 38.1°F.

Table 4.1-1. Average Temperature and Precipitation Data at Pomona (1893 to 2015)
Small Power Plant Exemption Application for the Pomona Repower Project

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Average Max. Temperature (°F)	65.5	67.6	70.1	74.2	77.8	84.1	91.0	91.1	88.4	80.6	73.2	66.4	77.5
Average Min. Temperature (°F)	38.1	40.3	42.3	45.6	50.0	53.4	57.7	58.1	55.3	49.8	42.6	38.4	47.6
Average Total Precipitation (in.)	3.56	3.49	2.82	1.22	0.35	0.10	0.01	0.07	0.26	0.78	1.56	2.77	16.97

Source:

Western Regional Climate Center (http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca7050)

The South Coast basin receives most of its rainfall between November and April. The Chino Airport station recorded an annual average of 2.6 inches during this period. The wind patterns near the project site are predominately from the west or southwest (approximately 60 percent of the time). Calm conditions occur less than 1 percent of the time. Individual and composite annual and quarterly wind roses for the project area are included in Appendix 4.1A.

4.1.3 Background Air Quality

The U.S. Environmental Protection Agency (USEPA) has established national ambient air quality standards (NAAQS) for the following seven pollutants, termed criteria pollutants: ozone (O_3), nitrogen dioxide (NO_2), CO, SO_2, particulate matter with aerodynamic diameter less than or equal to 10 microns (PM_{10}), particulate matter with aerodynamic diameter less than or equal to 2.5 microns ($PM_{2.5}$), and airborne lead (Pb). The federal Clean Air Act (CAA) requires USEPA to designate areas as attainment or nonattainment with respect to each criteria pollutant, depending on whether the areas meet the NAAQS. An area that is designated nonattainment means the area is not meeting the NAAQS and is subject to planning requirements to attain the standard.

In addition to the seven pollutants listed above, the California Air Resources Board (ARB) has established state standards for visibility-reducing particles, sulfates, hydrogen sulfide, and vinyl chloride. Similar to USEPA, ARB designates areas in California as attainment or nonattainment with respect to the California ambient air quality standards (CAAQS). The state standards were designed to protect the most sensitive members of the population, such as children, the elderly, and people who suffer from lung or heart diseases. The attainment status at the project site for both the NAAQS and CAAQS are listed in Table 4.1-2.

Both state and federal air quality standards are based on two variables: maximum concentration and an averaging time over which the concentration will be measured. Maximum concentrations were based on levels that may have an adverse effect on human health. The averaging times were based on whether the damage caused by the pollutant will occur during exposures to a high concentration for a short time (for example, 1 hour), or to a relatively lower average concentration over a longer period (8 hours, 24 hours, or 1 month). For some pollutants, there is more than one air quality standard, reflecting both short-term and long-term effects. Table 4.1-3 presents the NAAQS and CAAQS.

The project site is in an urban area that is in attainment for some state and federal standards. Ambient air concentrations of O_3, NO_2, SO_2, CO, PM_{10}, and $PM_{2.5}$ are recorded at various monitoring stations in Los Angeles County. The closest ARB-certified monitoring site relative to the project site is located approximately 1.6 miles east of the project site in Pomona; CO, NO_2, and O_3 are monitored at that location. In addition, SO_2 data are from the Fontana, 14360 Arrow Boulevard monitoring station (approximately 16.4 miles from site); and PM_{10} and $PM_{2.5}$ data are from the Glendora (located approximately 7.3 miles from site) and Ontario - 1408 Francis Street (located approximately 8.7 miles from site) monitoring stations. Pb levels are taken from the Pico Rivera and City of Industry monitoring stations.[6] The monitoring stations are generally positioned to represent area-wide ambient conditions rather than the localized impacts of any particular emission source or group of sources. The ambient air quality data collected at these monitoring locations are based on data published by ARB (ADAM Web site) and USEPA (AIRS Web site).

Table 4.1-2. State and Federal Air Quality Designations for the Project Area
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Pollutant	State Designation	Federal Designation
Ozone	Nonattainment	Nonattainment
CO	Attainment	Unclassified/attainment
NO_2	Attainment	Unclassified/attainment
SO_2	Attainment	Attainment
PM_{10}	Nonattainment	Attainment
$PM_{2.5}$	Nonattainment	Nonattainment
Lead	Attainment	Nonattainment
Hydrogen Sulfide	Unclassified	N/A
Sulfates	Attainment	N/A
Visibility Reducing Particles	Unclassified	N/A

* See Pb discussion in Section 4.1.2.7

Note:

N/A = not applicable

Source:

ARB, 2016b

[6] Lead data for 2005-2007 is obtained from the Pico Rivera monitoring station, however data was not available from 2008–2014 from this location. Therefore data from the City of Industry monitoring station was used for 2008–2014.

Table 4.1-3. Ambient Air Quality Standards
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Pollutant	Averaging Time	California	National
Ozone	1-hour 8-hour	0.09 ppm (180 µg/m^3) 0.07 ppm (137 µg/m^3)	— 0.07 ppm[e] (137 µg/m^3)
CO	1-hour 8-hour	20 ppm (23 mg/m^3) 9.0 ppm (10 mg/m^3)	35 ppm (40 mg/m^3) 9 ppm (10 mg/m^3)
NO_2	1-hour Annual arithmetic mean	0.18 ppm (339 µg/m^3) 0.030 ppm (57 µg/m^3)	100 ppb (188 µg/m^3) [a] 53 ppb (100 µg/m^3)
SO_2 [b]	1-hour 3-hour (secondary standard) 24-hour	0.25 ppm (655 µg/m^3) — 0.04 ppm (105 µg/m^3)	75 ppb (196 µg/m^3) 0.5 ppm (1,300 µg/m^3) —
Respirable Particulate Matter (PM_{10})	24-hour Annual arithmetic mean	50 µg/m^3 20 µg/m^3	150 µg/m^3 —
Fine Particulate Matter ($PM_{2.5}$)	24-hour Annual arithmetic mean	— 12 µg/m^3	35 µg/m^3 [c] 12.0 µg/m^3 [d]
Sulfates	24-hour	25 µg/m^3	—
Lead	30-day average Rolling 3-month average	1.5 µg/m^3 —	— 0.15 µg/m^3
Hydrogen sulfide (H_2S)	1-hour	0.03 ppm (42 µg/m^3)	—
Vinyl chloride	24-hour	0.010 ppm (26 µg/m^3)	—
Visibility-reducing particles	8-hour (10 a.m. to 6 p.m. PST)	Insufficient amount to produce an extinction coefficient of 0.23 per km because of particles when the relative humidity is less than 70 percent.	—

[a] To attain this standard, the 3-year average of the 98th percentile of the daily maximum 1-hour average at each monitor within an area must not exceed 100 ppb.

[b] On June 2, 2010, USEPA established a new 1-hour SO_2 standard, effective August 23, 2010, which is based on the 3-year average of the annual 99th percentile of 1-hour daily maximum concentrations. USEPA also revoked both the 24-hour SO_2 standard of 0.14 ppm and the annual primary SO_2 standard of 0.030 ppm, effective August 23, 2010. The secondary SO_2 standard was not revised at that time; however, the secondary standard is undergoing a separate review by USEPA.

[c] The 24-hour standard is attained when 98 percent of the daily concentrations, averaged over 3 years, are equal to or less than the standard.

[d] 3-year average of the weighted annual mean concentrations.

[e] On October 1, 2015, USEPA established a new ground level ozone standard of 70 ppb - http://www3.epa.gov/airquality/ozonepollution/actions.html#sep2015

Notes:

µg/m^3 = microgram(s) per cubic meter
ppm = part(s) per million
ppb = part(s) per billion

Source:

ARB, 2016a

4.1.3.1 Nitrogen Dioxide

NO_2 is formed primarily from reactions in the atmosphere between NO (nitric oxide) and oxygen (O_2) or O_3. NO is formed during high-temperature combustion processes, when the nitrogen and O_2 in the combustion air combine. Although NO is much less harmful than NO_2, it can be converted to NO_2 in the atmosphere within a matter of hours, or even minutes, under certain conditions. The control of NO and NO_2 emissions is also important because of the role of both compounds in the atmospheric formation of O_3.

Table 4.1-4 shows NO_2 levels recorded at the Pomona station for the years 2005 through 2014. The South Coast Air Basin is classified as an attainment area with respect to state and federal ambient NO_2 standards. During the period from 2005 to 2014, there were no violations of the CAAQS 1-hour standard (0.18 ppm) at the Pomona monitoring station. The highest 1-hour concentration recorded at the Pomona station during the years 2005 to 2014 was 0.105 ppm in 2008. A new federal 1-hour NO_2 standard of 0.100 ppm became effective on April 12, 2010. To attain this standard, the 3-year average of the 98th percentile of the daily maximum 1-hour average at each monitor within South Coast Air Basin must not exceed 0.100 ppm.[7] Table 4.1-4 also shows that there were no violations of the annual NAAQS (0.053 ppm at the Pomona monitoring station during this period); however, the annual CAAQS (0.030 ppm) was exceeded during the period of 2005 through 2007. Data completeness for NO_2 concentrations at the Pomona monitoring station averaged 93 percent for the 2005 through 2014 period.[8]

Table 4.1-4. Nitrogen Dioxide Levels at Pomona Monitoring Station, 2005-2014 (ppm)
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	2005	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**
Maximum 1-hour average[a]	0.083	0.095	0.097	0.105	0.102	0.097	0.087	0.082	0.079	0.089
98th percentile 1-hour[a]	0.077	0.084	0.078	0.087	0.078	0.073	0.067	0.061	0.065	0.064
Highest 1-hour average, 3-year average[b]	0.101	0.095	0.092	0.099	0.101	0.101	0.095	0.089	0.083	0.083
1-hour 98th percentile, 3-year average[b]	0.089	0.083	0.080	0.083	0.081	0.079	0.073	0.067	0.064	0.063
Annual average	0.031	0.031	0.031	0.030	0.027	0.026	0.025	0.021	0.023	0.022
Days over State Standard (0.18 ppm, 1 hour)[c]	0	0	0	0	0	0	0	0	0	0
Days over Federal Standard (0.100 ppm, 1 hour)[a]	0	0	0	1	1	0	0	0	0	0

Sources:

[a] USEPA AirData Monitor Values Reports (http://www.epa.gov/airdata/ad_rep_mon.html).
[b] 3-year averages are calculated based on the annual values obtained from the USEPA AirData websites.
[c] ARB iADAM (http://www.arb.ca.gov/adam/index.html).

4.1.3.2 Ozone

O_3 is an end-product of complex reactions between VOC and NOx in the presence of ultraviolet solar radiation. VOC and NOx emissions from vehicles and stationary sources, combined with daytime wind flow patterns, mountain barriers, temperature inversions, and intense sunlight, generally result in the highest O_3 concentrations. For purposes of both state and federal air quality planning, the South Coast

[7] The 3-year average of the 98th percentile never exceeded 0.100 ppm over the 2005-2014 time period; however, the maximum 1-hour average did exceed 0.100 in both 2008 and 2009, as shown in Table 4.1-4.

[8] Appendix S to 40 C.F.R. Part 50—Interpretation of the Primary National Ambient Air Quality Standards for Oxides of Nitrogen – specifies that data completeness for the annual primary standard design value is valid when at least 75 percent of the hours in the year are reported." The 93 percent data completeness reported here was calculated by averaging the fraction of valid hourly NO_2 observations per year at the Pomona station, as reported on the USEPA AirData website at http://www3.epa.gov/airdata/ad_rep_mon.html.

Air Basin is classified as a nonattainment area for O_3. Table 4.1-5 shows the measured O_3 levels at the Pomona monitoring station during the period from 2005 to 2014. The 1-hour O_3 CAAQS of 0.09 ppm was exceeded each year during the 10-year analysis period.

The federal 8-hour O_3 NAAQS requires that the 3-year average of the fourth-highest values for individual years be maintained at or below 0.07 ppm. Therefore, the number of days in each year with maximum 8-hour concentrations above the standard in Table 4.1-5 does not equate to the number of violations. There have been annual violations of the federal and state O_3 standards at this monitoring station throughout the 2005 to 2014 period.

Table 4.1-5. Ozone Levels at Pomona Monitoring Station, 2005-2014 (ppm)
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	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Maximum 1-hour average [a]	0.140	0.151	0.153	0.141	0.138	0.115	0.119	0.117	0.125	0.123
Maximum 8-hour average [a]	0.112	0.127	0.109	0.110	0.099	0.082	0.096	0.092	0.099	0.092
Annual 4th-highest daily maximum 8-hour concentration, averaged over 3 years [b]	0.100	0.099	0.102	0.103	0.099	0.090	0.085	0.082	0.085	0.086
Number of days exceeding California 1-hour standard (0.09 ppm) [b]	26	34	19	32	25	9	15	21	12	22
Number of days exceeding California 8-hour standard (0.07 ppm) [b]	30	41	26	47	37	12	24	30	22	56
Number of days exceeding National 8-hour standard (0.070 ppm) [a]	17	27	19	35	21	4	16	15	15	33

[a] USEPA AirData Monitor Values Reports (http://www.epa.gov/airdata/ad_rep_mon.html).
[b] ARB iADAM (http://www.arb.ca.gov/adam/index.html).

4.1.3.3 Sulfur Dioxide

SO_2 is produced by the combustion of any sulfur-containing fuel. It is also emitted by chemical plants that treat or refine sulfur or sulfur-containing chemicals. Natural gas contains nearly negligible sulfur; whereas, fuel oils may contain much larger amounts. Because of the complexity of the chemical reactions that convert SO_2 to other compounds (such as sulfates), peak concentrations of SO_2 occur at different times of the year in different parts of California, depending on local fuel characteristics, weather, and topography. The South Coast Air Basin is considered to be in attainment with respect to the state air quality standard and unclassified with respect to the federal air quality standard for SO_2.

Table 4.1-6 shows the available data on maximum 1-hour and 24-hour average SO_2 levels recorded at the Fontana (14360 Arrow Boulevard) station during the period from 2005 to 2014. As indicated by this table, the maximum measured 1-hour average SO_2 levels comply with the NAAQS (75 ppb) and CAAQS (0.25 ppm); and the maximum 24-hour values comply with the NAAQS and CAAQS of 0.14 ppm and 0.04 ppm, respectively. Note that the 24-hour and annual NAAQS for SO_2 have been superseded by the 1-hour NAAQS, which became effective on August 23, 2010.

Table 4.1-6. Sulfur Dioxide Levels at Fontana, 14360 Arrow Blvd, Monitoring Station, 2005-2014 (ppm)
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	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Highest 1-hour average[a]	0.009	0.009	0.010	0.008	0.005	0.007	0.012	0.004	0.004	0.004
Highest 24-hour average[a]	0.004	0.003	0.004	0.003	0.002	0.002	0.003	0.003	0.002	0.001
99th percentile 1-hour average[a]	0.008	0.008	0.008	0.006	0.004	0.003	0.007	0.004	0.003	0.003
99th percentile 1-hour average, highest 3-hour average[b]	0.006	0.007	0.008	0.007	0.006	0.004	0.005	0.005	0.005	0.003
Annual average	0.0021	0.0019	0.0018	0.0016	0.0009	0.0007	0.0006	0.0006	0.0005	0.0003
Days over 1-hour Federal Standard (0.075 ppm)[c]	0	0	0	0	0	0	0	0	0	0
Days over 24-hour Federal Standard (0.140 ppm)[a]	0	0	0	0	0	0	0	0	0	0

[a] USEPA AirData Monitor Values Reports (http://www.epa.gov/airdata/ad_rep_mon.html)

[b] Three-year averages are calculated based on the annual 99th percentile 1-hour averages obtained from USEPA Air Data. Final rule signed June 22, 2010, effective August 23, 2010. To attain this standard, the 3-year average of the 99th percentile of the daily maximum 1-hour average at each monitor within an area must not exceed 75 ppb.

[c] Based on the highest 1-hour and 24-hour averages obtained, the federal standards were not exceeded, so there is zero days of exceedances.

4.1.3.4 Carbon Monoxide

CO is a product of incomplete combustion and is emitted principally from automobiles and other mobile sources of pollution. It is also a product of combustion from stationary sources (both industrial and residential) burning fuels. Peak CO levels occur typically during winter months as a result of a combination of higher emission rates and stagnant weather conditions.

Table 4.1-7 shows the available data on maximum 1-hour and 8-hour average CO levels recorded at the Pomona monitoring station during the period from 2005 to 2014. As indicated by this table, the maximum measured 1-hour average CO levels comply with the NAAQS and CAAQS (35.0 ppm and 20.0 ppm, respectively) and the maximum 8-hour values comply with the NAAQS and CAAQS of 9.0 ppm. The highest individual 1-hour and 8-hour CO concentrations at this station during the period from 2005 to 2014 were 4.2 ppm and 2.5 ppm, respectively, both recorded in 2005. For purposes of both state and federal air quality planning, the South Coast Air Basin is in attainment with regard to CO.

Table 4.1-7. Carbon Monoxide Levels at Pomona Monitoring Station, 2005-2014 (ppm)
Small Power Plant Exemption Application for the Pomona Repower Project

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Maximum 1-hour average[a]	4.2	3.3	3.1	2.6	2.6	2.7	2.1	2.5	2.2	2.0
Maximum 8-hour average[a]	2.5	2.2	2.0	1.8	1.9	1.8	1.6	1.5	1.5	1.6
Days over the 8-hour California Standard (9 ppm)[b]	0	0	0	0	0	0	0	0	0	0
Days over the 8-hour Federal Standard (9 ppm)[a]	0	0	0	0	0	0	0	0	0	0

[a] USEPA AirData Monitor Values Reports (http://www.epa.gov/airdata/ad_rep_mon.html).
[b] ARB iADAM (http://www.arb.ca.gov/adam/index.html).

4.1.3.5 Respirable Particulate Matter (PM_{10})

Particulates in the air are caused by a combination of wind-blown fugitive dust; particles emitted from combustion sources and manufacturing processes; sea salts; and organic, sulfate, and nitrate aerosols formed in the air from emitted hydrocarbons, sulfur oxides, and NOx, respectively. In 1984, ARB adopted standards for PM_{10} and phased out the total suspended particulate (TSP) standards that had been in effect previously. PM_{10} standards were substituted for TSP standards because PM_{10} corresponds to the size range of particulates that can be inhaled into the lungs (respired), and therefore is a better measure to use in assessing potential health effects. In 1987, USEPA also replaced national TSP standards with PM_{10} standards.

Table 4.1-8 shows the maximum PM_{10} levels recorded at the Glendora (2008 to 2014) and Ontario - 1408 Francis Street (2005 to 2007) monitoring stations during the period from 2005 through 2014 and the arithmetic annual average concentrations for the same period. (The arithmetic annual average is simply the arithmetic mean of the daily observations.) PM_{10} is monitored according to different protocols for evaluating compliance with the state and federal standards for this pollutant. Specifically, California uses a gravimetric or beta attenuation method; whereas, compliance with federal standards is evaluated based on an inertial separation and gravimetric analysis. This accounts for the differing 24-hour concentrations listed in Table 4.1-8 that represent data obtained by means of the state and federal samplers.

The maximum 24-hour PM_{10} levels exceeded the CAAQS state standard of 50 micrograms per cubic meter ($\mu g/m^3$) a number of times per year. The maximum daily concentration[9] recorded during the analysis period was 266 $\mu g/m^3$ (state samplers) in 2007. The maximum annual average concentration recorded was 47.2 $\mu g/m^3$ in 2007, which is above the state standard of 20 $\mu g/m^3$. The federal annual PM_{10} standard was revoked by the USEPA in 2006 because of a lack of evidence linking health problems to long-term exposure to coarse particle pollution. The South Coast Air Basin is classified as an attainment area with respect to the federal PM_{10} standards and a nonattainment area with respect to the state PM_{10} standards.

Table 4.1-8. Particulate Matter (PM_{10}) Levels at Glendora and Ontario - 1408 Francis St, Monitoring Stations, 2005-2014 ($\mu g/m^3$)
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	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Maximum 24-hour average (federal monitors) [a]	77	78	275	81	93	68	80	75	100	78
Maximum 24-hour average (state monitors) [b]	75	76	266	-	-	-	-	-	-	-
Annual arithmetic mean[b]	40.8	42.2	47.2	25.4	23.0	26.1	29.3	29.4	30.6	33.6
Estimated number of days exceeding State Standard (50 $\mu g/m^3$) [b]	18	14	12	-	-	-	-	-	-	-
Estimated number of days exceeding Federal Standard (150 $\mu g/m^3$) [a]	0	0	1	0	0	0	0	0	0	0

[a] USEPA AirData Monitor Values Reports (http://www.epa.gov/airdata/ad_rep_mon.html). Excludes exceptional events.
[b] ARB iADAM (http://www.arb.ca.gov/adam/index.html). No monitored values reported for state statistics.

[9] Excluding approved exceptional events.

4.1.3.6 Fine Particulates ($PM_{2.5}$)

Fine particulates result from fuel combustion in motor vehicles and industrial processes, residential and agricultural burning, and atmospheric reactions involving NO_x, SO_x, and organics. Fine particulates are referred to as $PM_{2.5}$ and have a diameter equal to or less than 2.5 microns. In 1997, USEPA established annual and 24-hour NAAQS for $PM_{2.5}$ for the first time. The most recent revision to the standard regulating the 3-year average of the 98th percentile of 24-hour $PM_{2.5}$ concentrations (35 µg/m^3) became effective on December 17, 2006. In December 2012, USEPA lowered the annual primary $PM_{2.5}$ standard from 15.0 to 12.0 µg/m^3 and established a secondary fine particle standard of 15.0 µg/m^3. The $PM_{2.5}$ data in Table 4.1-9 show that the national 24-hour average NAAQS of 35 µg/m^3 was exceeded from 2005 to 2014 at the Ontario - 1408 Francis St monitoring station. The maximum recorded 24-hour average 98th percentile value was 50 µg/m^3 in 2005. The annual $PM_{2.5}$ data from the Ontario - 1408 Francis St station are also presented in this table. The maximum annual arithmetic mean was 18.8 µg/m^3, recorded in 2005, which is above the primary national and state standard of 12 µg/m^3. The South Coast Air Basin is classified as nonattainment for the state and federal $PM_{2.5}$ standards.

Table 4.1-9. Particulate Matter ($PM_{2.5}$) Levels at Ontario - 1408 Francis St, Monitoring Station, 2005-2014 (µg/m^3)
Small Power Plant Exemption Application for the Pomona Repower Project

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Highest 24-hour average (Federal)[a]	87.7	53.6	72.8	54.2	46.9	46.1	52.9	35.2	49.3	38.4
Number of days exceeding Federal Standard (35 µg/m^3, 24-hour)[b]	8	7	6	6	3	1	2	0	1	1
98th percentile 24-hour Average[a]	50	42	49	45	36	31	35	29	27	35
98th percentile 24-hour, 3-year average[c]	59	51	47	45	43	37	34	32	30	30
Weighted annual mean[a, d]	18.8	18.4	18.3	15.8	14.7	13	13.3	12.4	12	13

[a] USEPA AirData Monitor Values Reports (http://www.epa.gov/airdata/ad_rep_mon.html).
[b] ARB iADAM (http://www.arb.ca.gov/adam/index.html).
[c] Three-year averages are calculated based on the annual values obtained from the USEPA AirData websites.
[d] Weighted Annual Mean - Arithmetic mean of 24-hour values weighted by calendar quarter, in micrograms per cubic meter.

4.1.3.7 Airborne Lead

Lead pollution has historically been emitted predominantly from the combustion of fuels; however, legislation in the early 1970s required a gradual reduction of the lead content of gasoline. Beginning with the introduction of unleaded gasoline in 1975, lead levels have been dramatically reduced throughout the U.S., including California, and violations of the ambient standards for this pollutant have been virtually eliminated.

On October 15, 2008, USEPA revised the federal ambient air quality standard (AAQS) for lead, lowering it from 1.5 µg/m^3 to 0.15 µg/m^3 for both the primary and the secondary standard. USEPA determined that numerous health studies are now available that demonstrate health effects at much lower levels of lead than previously thought. USEPA subsequently published the final rule in the Federal Register on November 12, 2008. This is the first time that the federal lead standard has been revised since it was first issued in 1978.

In addition to revising the level of the standard, USEPA changed the averaging time from a quarterly average to a rolling 3-month average. The level of the standard is “not to be exceeded” and is evaluated over a 3-year period. Lead levels are measured as lead in TSP. The revised lead standard also contains new monitoring requirements.

Ambient lead levels are monitored in Los Angeles County; however, to provide a complete data set, 2005-2007 Pb levels were collected from the Pico Rivera monitoring station, while data from 2008-2014 was obtained from the City of Industry monitoring station. Table 4.1-10 lists the maximum 24-hour average Pb levels reported in Los Angeles County between 2005 and 2014, which demonstrate compliance with California's 1.5 μg/m^3 standard. Although maximum 3-month rolling averages are not reported on USEPA's website for the Pico Rivera monitoring station, levels for the City of Industry station are available for 2009 and later years that demonstrate compliance with the 0.15 μg/m^3 federal NAAQS.

The South Coast Air Basin has long been in attainment with respect to the state ambient standard for lead. However, in 2008, when USEPA lowered the federal lead NAAQS to 0.15 μg/m^3, the Los Angeles County portion of the South Coast Air Basin was found to be the only area in California that did not meet the new standard, and was formally designated as nonattainment on December 31, 2010. The South Coast District subsequently identified emissions from two large lead-acid battery recycling facilities as the sole contributors to these violations, both of which are over 40 miles east of the PRP site. However, USEPA's 2012-2014 design values[10] for lead show the area is now in compliance with the 2008 lead NAAQS,[11] although USEPA has yet to formally redesignate the area to attainment status.

Table 4.1-10. Airborne Lead Levels at the Pico Rivera and City of Industry Monitoring Station, 2005-2014 (μg/m^3)
Small Power Plant Exemption Application for the Pomona Repower Project

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Maximum 24-hour Average [a, b]	0.03	0.09	0.16	0.09	0.18	0.22	0.135	0.058	0.244	0.08
Maximum 3-month Rolling Average [a, b, c]	-	-	-	-	0.1	0.11	0.06	0.03	0.04	0.03

[a] Data for 2005 to 2014 was obtained from USEPA AirData Monitor Values Reports (http://www.epa.gov/airdata/ad_rep_mon.html).

[b] Pb data for 2005 to 2007 was obtained from the Pico Rivera monitoring station. From 2008 to 2014, Pb data from the City of Industry monitoring station was used.

[c] Values may be absent due to incomplete reporting.

4.1.3.8 Particulate Sulfates

Sulfate compounds found in the lower atmosphere consist of both primary and secondary particles. Primary sulfate particles are directly emitted from open pit mines, dry lakebeds, and desert soils. Fuel combustion is another source of sulfates, both primary and secondary. Secondary sulfate particles are produced when oxides of sulfur (SO_x) emissions are transformed into particles through physical and chemical processes in the atmosphere. Particles can be transported long distances. The South Coast Air Basin is in attainment with respect to the state ambient standard for sulfates; there is no federal standard.

4.1.3.9 Other State-Designated Criteria Pollutants

Along with sulfates, California has designated hydrogen sulfide and visibility-reducing particles as criteria pollutants, in addition to the federal criteria pollutants. The South Coast Air Basin remains unclassified.

4.1.3.10 Existing Air Quality

As outlined in 40 C.F.R. 51, Appendix W, Section 9.2, the background data used to evaluate the potential air quality impacts of a project need not be collected on the project site, as long as the data are representative of the air quality in the subject area. The following three criteria were used for determining whether the background ambient air quality data are representative: (1) location, (2) data quality, and (3) data currentness. These criteria are defined and applied to the project as follows:

[10] The design value for the 2008 lead NAAQS is the maximum rolling 3-month lead-TSP average over a 3-year period.

[11] See www.epa.gov/airtrends/values.html.

- **Location:** The measured data must be representative of the areas where the maximum concentration occurs for the proposed stationary source, existing sources, and a combination of the proposed and existing sources.

  The nearest monitoring station to the project site is the Pomona station. This site is located approximately 1.6 miles east of the project site. O_3, CO, and NO_2 are monitored at this site.

  Because the Pomona monitoring station does not collect data on SO_2, PM_{10} and $PM_{2.5}$ ambient concentrations, other monitoring sites with similar site characteristics were used to provide representative background concentrations for these pollutants. The Fontana monitoring station (SO_2) is located approximately 16.4 miles east of the project site. The Glendora and Ontario – 1408 Francis St monitoring stations (PM_{10} and $PM_{2.5}$) are located approximately 7.3 (northwest) and 8.7 miles (east), respectively, from the project site. Because these monitoring locations are the closest stations available for the project site and are located in similar urban areas in the South Coast Air Basin, the data collected at these stations are representative of the project area.

- **Data quality:** Data must be collected and equipment must be operated in accordance with the requirements of 40 C.F.R. Part 58, Appendices A and B, and Prevention of Significant Deterioration (PSD) monitoring guidance.

  The ARB and USEPA ambient air quality data summaries of data collected by ARB and local agencies were used as the primary sources of data. Therefore, the data at the monitoring stations listed in Table 4.1-11 meet the data quality requirements of 40 C.F.R. Part 58, Appendices A and B, and PSD monitoring guidance.

- **Data currentness:** The data are current if they have been collected within the preceding 3 years and are representative of existing conditions.

  The maximum ambient background concentrations from the period 2012 through 2014 were combined with the modeled concentrations and used for comparison to the AAQSs. Therefore, the data presented above represent the 3 most recent years of data available.

Based on the criteria presented above, the three most recent years of background data from the Pomona (NO_2, CO, and O_3), Fontana (SO_2), and Glendora/Ontario (PM_{10} and $PM_{2.5}$) monitoring stations have been used to represent existing background concentrations in the project area. A summary of the monitored background concentrations for 2012 through 2014 are presented in Table 4.1-11.

4.1.4 Laws, Ordinances, Regulations, and Standards

A summary of the applicable air quality LORS for PRP is provided below. The analysis presented in Section 4.1.7, Consistency with Laws, Ordinances, Regulations, and Standards, demonstrates that the project would comply with the LORS.

4.1.4.1 Federal LORS

The USEPA has responsibility for enforcing, on a national basis, the requirements of many of the country’s environmental and hazardous waste laws. California is under the jurisdiction of USEPA Region 9, which has its offices in San Francisco. Region 9 is responsible for the local administration of USEPA programs for California, Arizona, Nevada, Hawaii, and certain Pacific trust territories.

USEPA’s activities relative to the California air pollution control program focus principally on reviewing California’s submittals for the State Implementation Plan (SIP). The SIP is required by the federal CAA to demonstrate how all areas of the state will meet the national AAQSs by the federally specified deadlines (42 United States Code [U.S.C.] Section 7409, 7411).

Table 4.1-11. Background Air Concentrations (2012–2014)[a]
Small Power Plant Exemption Application for the Pomona Repower Project

Pollutant	Averaging Time	Existing Monitored Concentrations, ppm			Maximum for the Period, ppm	Maximum for the Period, µg/m³
		2012	2013	2014		
NO_2[b]	1-hour (max)	0.082	0.079	0.089	0.089	167.5
	1-hour (98th percentile)	0.061	0.065	0.064	0.065	122.3
	Annual[d]	0.021	0.023	0.022	0.023	42.7
Ozone[b]	1-hour(max)	0.0117	0.125	0.123	0.125	245.4
	8-hour (max)	0.092	0.099	0.092	0.099	194.3
	Annual 4th-highest daily max 8-hour concentration, averaged over 3 years	0.082	0.085	0.086	0.086	170.1
SO_2[c]	1-hour (max)	0.004	0.004	0.004	0.004	11.3
	1-hour (99th percentile)	0.004	0.003	0.003	0.004	10.5
	24-hour	0.003	0.002	0.001	0.003	8.4
CO[b]	1-hour	2.5	2.2	2.0	2.5	2,864
	8-hour	1.5	1.5	1.6	1.6	1,833
PM_{10}[e]	24-hour (federal)	75	100	78	n/a	100
	Annual Arithmetic Mean	29.4	30.6	33.6	n/a	33.6
$PM_{2.5}$[f]	24-hour (98th percentile)	32	30	30	n/a	32
	Weighted Annual Mean	12.4	12.0	13.0	n/a	13.0

[a] Background data based on:

- USEPA AirData Monitor Values Reports (http://www.epa.gov/airdata/ad_rep_mon.html).
- ARB iADAM (http://www.arb.ca.gov/adam/index.html).

[b] Data from the Pomona monitoring station.

[c] Data from the Fontana monitoring station in San Bernardino County.

[d] Annual Average.

[e] Data from the Glendora monitoring station.

[f] Data from the Ontario Station - 1408 Francis St in San Bernardino County. 24-hour levels based on three-year average of 98th percentile background concentrations.

Note:

n/a = data not available or not applicable

The federal CAA, as most recently amended in 1990, provides USEPA with the legal authority to regulate air pollution from stationary sources such as PRP. USEPA has promulgated the following stationary source regulatory programs to implement the requirements of the federal CAA.

- Prevention of Significant Deterioration (PSD)
- Nonattainment New Source Review (NANSR)
- Title IV: Acid Rain Program
- Title V: Operating Permits
- National Standards of Performance for New Stationary Sources (NSPS)
- National Emission Standards for Hazardous Air Pollutants (NESHAPs)

Prevention of Significant Deterioration Program.

Authority: CAA Sections 160-169A, 42 U.S.C. Sections 7470-7491; 40 C.F.R. Parts 51 and 52

Requirements: Requires preconstruction review and permitting of new or modified major stationary sources of air pollution to prevent significant deterioration of ambient air quality. PSD applies to pollutants for which ambient concentrations do not exceed the corresponding NAAQS (i.e., attainment pollutants). For the SCAQMD, the PSD pollutants are PM_{10}, SO_2, NO_2, CO, and greenhouse gases (GHGs). The PSD program allows new sources of air pollution to be constructed, or existing sources to be modified, while preserving the existing ambient air quality levels, protecting public health and welfare, and protecting Class I areas (e.g., national parks and wilderness areas).

The PSD requirements apply to any project that is a new major stationary source or a major modification to an existing major stationary source. A major source is a listed facility (one of 28 PSD source categories listed in the federal CAA) that emits at least 100 tons per year (tpy), or any other facility that emits at least 250 tpy.[12] A major modification is any project at a major stationary source that results in a significant increase in emissions of any PSD pollutant.

A significant increase for a PSD pollutant is an increase above the significant emission rate for that pollutant (Table 4.1-12). It is important to note that, once PSD is triggered by any pollutant, PSD requirements apply to any PSD pollutant with an emission increase above the significance level, regardless of whether the facility is major for that pollutant.

USEPA has delegated authority to the SCAQMD to implement the PSD program within the District's geographical boundaries. As discussed further in this section, PRP is not subject to PSD review.

Table 4.1-12. PSD Significant Emission Thresholds
Small Power Plant Exemption Application for the Pomona Repower Project

Pollutant	PSD Significant Emission Threshold (tpy)[a]
SO_2	40
PM_{10}	15
NO_x	40
CO	100
GHGs	75,000[b]

[a] 40 C.F.R. 52.21 (b)(1)(23).

[b] Based on the Supreme Court's June 23, 2014, opinion on the GHG Tailoring Rule (Utility Air Regulatory Group v. USEPA, No. 12-1146), the project will not be subject to PSD review based solely on its GHG emissions. However, the June 16, 2011, version of 40 C.F.R. 52.21 includes the 75,000 tpy CO2e threshold, so that threshold is shown here for completeness.

[12] Effective July 1, 2011, under USEPA's Tailoring Rule [75 FR 31514, June 3, 2010] a stationary source that emits more than 100,000 tpy of GHGs was also considered to be a major stationary source. However, as a result of a 2014 Supreme Court decision (Utility Air Regulatory Group v. EPA (No. 12-1146)), USEPA may not treat GHGs as an air pollutant for purposes of determining whether a source is a major source required to obtain a PSD permit. The Court also said that PSD permits that are otherwise required (based on emissions of other pollutants) may continue to require limitations on GHG emissions based on the application of Best Available Control Technology (BACT).

The principal requirements for the PSD program encompass the following:

- Emissions of pollutants that are subject to PSD review must be controlled using BACT.
- Air quality impacts of the project, in combination with other increment-consuming sources, must not exceed maximum allowable incremental increases.
- Air quality impacts of all sources in the area plus ambient pollutant background levels cannot exceed NAAQS.
- Preconstruction and/or post-construction air quality monitoring may be required.
- The air quality impacts on soils, vegetation, and nearby PSD Class I areas (specific national parks and wilderness areas) must be evaluated.

Best Available Control Technology. BACT must be applied to any new or modified major source to minimize the emissions increase of those pollutants exceeding the PSD emission thresholds. USEPA defines BACT as an emissions limitation based on the maximum degree of reduction for each subject pollutant, considering energy, environmental, and economic impacts, that is achievable through the application of available methods, systems, and techniques. BACT must be as stringent as any emission limit required by an applicable NSPS or NESHAP.

Air Quality Impact Analysis. An air quality dispersion analysis must be conducted to evaluate impacts of significant emission increases from new or modified facilities on ambient air quality. PSD source emissions must not cause or contribute to an exceedance of any AAQS, and the increase in ambient air concentrations must not exceed the allowable increments shown in Table 4.1-13. Once PSD review is triggered for the project, all pollutants with emission increases above the PSD significance thresholds are subject to this requirement.

Table 4.1-13. PSD Increments and Significant Impact Levels
Small Power Plant Exemption Application for the Pomona Repower Project

Pollutant	Averaging Time	SILs (µg/m^3)[a]	Maximum Allowable Class II Increments[b]
SO_2	Annual	1.0	20
	24-hour	5	91
	3-hour	25	512
	1-hour	7.8[c]	No 1-hour increment
PM_{10}	Annual	1.0	17
	24-hour	5	30
NO_2	Annual	1.0	25
	1-hour	7.5[c]	No 1-hour increment
CO	8-hour	500	No CO increments
	1-hour	2,000	

[a] 40 C.F.R. 51.165 (b)(2).

[b] 40 C.F.R. 52.21 (c)

[c] USEPA has not yet defined significance impact levels (SILs) for one-hour NO_2 or SO_2 impacts. However, USEPA has suggested that, until SILs have been promulgated, values of 4 ppb (7.5 µg/m^3) for NO_2 and 3 ppb (7.8 µg/m^3) for SO_2 may be used. These values will be used in this analysis wherever a SIL will be used for NO_2 or SO_2.

[d] In January 2013, USEPA sought and the U.S. Court of Appeals for the District of Columbia Circuit granted remand and vacatur of these SILs as they apply for purposes of avoiding a cumulative impacts analysis under federal PSD requirements (40 C.F.R. Section 51.166(k)(2) and Section 52.21(k)(2)). However, USEPA has retained these SILs for purposes of demonstrating whether a source located in an attainment/unclassifiable area will be deemed to cause or contribute to a violation in a downwind nonattainment area. See Sierra Club v. EPA, No. 10-1413 (D.C. Cir. 2013), slip op. 9. Accordingly, application of these SILs for purposes of satisfying the District's requirement to assure that a new or modified facility does not interfere with the attainment or maintenance of an AAQS (SCAQMD Rule 1300, Section A.1.b) may be appropriate.

Air Quality Monitoring. At its discretion, the PSD permit issuer may require preconstruction and/or post-construction ambient air quality monitoring for PSD sources if representative monitoring data are not already available. Preconstruction monitoring data must be gathered over a one-year period to characterize local ambient air quality. Post-construction air quality monitoring data must be collected as deemed necessary by the PSD permit issuer to characterize the impacts of proposed project emissions on ambient air quality.

Protection of Class I Areas. The potential increase in ambient air quality concentrations for attainment pollutants (i.e., NO_2, PM_{10}, or SO_2) within Class I areas closer than approximately 100 km may need to be quantified if the new or modified PSD source were to have a sufficiently large emission increase as evaluated by the Class I area Federal Land Managers. In such a case, a Class I visibility impact analysis would also be performed.

Growth, Visibility, Soils, and Vegetation Impacts. Impairment to visibility, soils, and vegetation resulting from PSD source emissions as well as associated commercial, residential, industrial, and other growth must be analyzed. This analysis shows cumulative impacts to local ambient air quality.

Administering Agency: SCAQMD, with USEPA Region 9 oversight.

Nonattainment New Source Review

Authority: CAA Section 171-193, 42 U.S.C. Section 7501 et seq.; 40 C.F.R. Parts 51 and 52

Requirement: Requires preconstruction review and permitting of new or modified major stationary sources of air pollution to allow industrial growth without interfering with the attainment and maintenance of NAAQS. NANSR jurisdiction has been delegated to the SCAQMD for all nonattainment pollutants and is discussed further under local LORS and conformance below.

- Emissions must be controlled to the lowest achievable emission rate (LAER).
- Sufficient offsetting emissions reductions must be obtained following the requirements in the regulations to continue reasonable further progress toward attainment of applicable NAAQS.
- The owner or operator of the new facility has demonstrated that major stationary sources owned or operated by the same entity in California are in compliance or on schedule for compliance with applicable emissions limitations in this rule.
- The administrator must find that the implementation plan has been adequately implemented.
- An analysis of alternatives must show that the benefits of the proposed source significantly outweigh any environmental and social costs.

NANSR jurisdiction has been delegated to the SCAQMD for all pollutants.

Administering Agency: SCAQMD, with USEPA Region 9 oversight.

Acid Rain Program

Authority: CAA Section 401 (Title IV), 42 U.S.C. Section 7651

Requirement: Requires the monitoring and reporting of emissions of acidic compounds and their precursors. The principal source of these compounds is the combustion of fossil fuels. Therefore, Title IV established national standards to monitor, record, and in some cases limit SO_2 and NO_x emissions from electrical power generating facilities. These standards are implemented by SCAQMD with federal oversight.

Administering Agency: SCAQMD, with USEPA Region 9 oversight.

Title V Operating Permits Program

Authority: CAA Section 501 (Title V), 42 U.S.C. Section 7661

Requirements: Requires the issuance of operating permits that identify all applicable federal performance, operating, monitoring, recordkeeping, and reporting requirements. Title V applies to major facilities, Phase II acid rain facilities, subject solid waste incinerator facilities, and any facility listed by USEPA as requiring a Title V permit. SCAQMD has received delegation authority for this program.

Administering Agency: SCAQMD, with USEPA Region 9 oversight.

National Standards of Performance for New Stationary Sources

Authority: CAA Section 111, 42 U.S.C. Section 7411; 40 C.F.R. Part 60

Requirements: Establishes standards of performance to limit the emission of criteria pollutants (air pollutants for which USEPA has established NAAQS) from new or modified facilities in specific source categories. These standards are implemented at the local level with federal oversight. The applicability of these regulations depends on the equipment size, process rate, and/or the date of construction, modification, or reconstruction of the affected facility.

Several NSPS will be applicable to the proposed project. The gas turbine will be subject to the requirements of Subpart KKKK, Standards of Performance for Stationary Gas Turbines, which sets limits on NO_x and SO_2 emissions from gas turbines. Subpart KKKK limits NO_x and SO_2 emissions from new gas turbines based on power output. The limits for gas turbines greater than 850 MMBtu/hr are 15 parts per million, volume (ppmv) @ 15 percent O_2 or 0.43 lb/MW-hr for NO_x, and 0.90 lb per MW-hr SO_2 for SO_x.

On October 23, 2015[13], USEPA published a revised final NSPS to control GHG emissions from new power plants (Subpart TTTT). The final rule became effective on December 22, 2015. USEPA established separate GHG emission standards for steam generating units, integrated gasification combined cycle (IGCC) unit and stationary combustion turbines. The PRP gas turbine will be subject to the applicable GHG emission limits contained in 40 C.F.R. Part 60 Subpart TTTT, Table 2.

Administering Agency: SCAQMD, with USEPA Region 9 oversight.

National Emission Standards for Hazardous Air Pollutants

Authority: CAA Section 112, 42 U.S.C. Section 7412

Requirements: Establishes national emission standards to limit emissions of HAPs (or air pollutants identified by USEPA as causing or contributing to the adverse health effects of air pollution, but for which NAAQS have not been established) from major sources of HAPs in specific source categories.[14] These standards are implemented at the local level with federal oversight. Only the NESHAPs for gas turbines, which limit formaldehyde emissions from gas turbines, is potentially applicable to the new power plant project. However, the gas turbine NESHAP is not expected to apply to PRP because the facility would not be a major source of HAPs (i.e., 10 tpy of one HAP or 25 tpy of all HAPs). Thus, NESHAPs requirements will not be addressed further.

Administering Agency: SCAQMD, with USEPA Region 9 oversight.

[13] 80 FR 64648, October 23, 2015.

[14] A major source of HAPs is one that emits more than 10 tpy of any individual HAP, or more than 25 tpy of all HAPs combined.

Compliance Assurance Monitoring

Authority: 40 C.F.R. Section 64 Compliance Assurance Monitoring (CAM)

Requirements: Requires compliance monitoring at emission units at major stationary sources that are required to obtain a Title V permit and that use control equipment to achieve a specified emission limit. The rule is intended to provide "reasonable assurance" that the control systems are operating properly to maintain compliance with the emission limits. CAM is usually implemented through the Title V permit. The only equipment associated with the proposed project that may be affected by CAM is the oxidation catalyst that will be installed on the new gas turbine (if VOC control is claimed for use of oxidation catalysts).

Administering Agency: SCAQMD, with USEPA Region 9 oversight.

4.1.4.2 State LORS

ARB was created in 1968 by the Mulford-Carrell Air Resources Act, through the merger of two other state agencies. ARB's primary responsibilities are to develop, adopt, implement, and enforce the state's motor vehicle pollution control program; to administer and coordinate the state's air pollution research program; to adopt and update, as necessary, the CAAQS; to review the operation of the local air pollution control districts (APCDs); and to review and coordinate preparation of the SIP for achievement of the NAAQS. ARB has implemented the following state or federal stationary source regulatory programs in accordance with the requirements of the federal CAA and California Health & Safety Code:

- State Implementation Plan
- California Clean Air Act
- Toxic Air Contaminant Program
- Nuisance Regulation
- Air Toxics "Hot Spots" Act
- CEC and ARB Memorandum of Understanding
- California Climate Change Regulatory Program

State Implementation Plan

Authority: California Health & Safety Code Sections 39500 et seq.

Requirements: The SIP demonstrates the means by which all areas of the state will attain and maintain NAAQS within the federally mandated deadlines, as required by the federal CAA. ARB reviews and coordinates preparation of the SIP. Local districts must adopt new rules or revise existing rules to demonstrate that the resulting emission reductions, in conjunction with reductions in mobile source emissions, will result in attainment of the NAAQS. The relevant SCAQMD Rules and Regulations that have been incorporated into the SIP are discussed with the local LORS.

Administering Agency: SCAQMD, with ARB and USEPA Region 9 oversight.

California Clean Air Act

Authority: California Health & Safety Code Sections 40910 – 40930

Requirements: Established in 1989, the California Clean Air Act requires local districts to attain and maintain both national and state AAQS at the "earliest practicable date." Local districts must prepare air quality plans demonstrating the means by which the AAQSs will be attained and maintained. The relevant components of the SCAQMD Air Quality Plan are discussed with the local LORS.

Administering Agency: SCAQMD, with ARB oversight.

Toxic Air Contaminant Program

Authority: California Health & Safety Code Sections 39650 – 39675

Requirements: Adopted in 1983, the Toxic Air Contaminant (TAC) Identification and Control Act created a two-step process to identify TACs and control their emissions. ARB identifies and prioritizes the pollutants to be considered for identification as TACs. ARB assesses the potential for human exposure to a substance, while the California Office of Environmental Health Hazard Assessment (OEHHA) evaluates the corresponding health effects. Both agencies collaborate in the preparation of a risk assessment report, which concludes whether a substance poses a significant health risk and should be identified as a TAC. In 1993, the Legislature amended the program to encompass the 187[15] federally identified HAPs as TACs. ARB reviews the emission sources of an identified TAC and, if necessary, develops air toxics control measures to reduce the emissions.

Administering Agency: ARB

Nuisance Regulation

Authority: California Health & Safety Code Section 41700

Requirements: Provides that "no person shall discharge from any source whatsoever such quantities of air contaminants or other material which causes injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public or which endanger the comfort, repose, health, or safety of any such persons or the public, or which cause, or have a natural tendency to cause injury or damage to business or property."

Administering Agency: SCAQMD and ARB

Air Toxic "Hot Spots" Act

Authority: California Health & Safety Code Sections 44300-44384; Cal. Code Regs. Title 17 Sections 93300-93347

Requirements: Adopted in 1987, the Air Toxics "Hot Spots" Information and Assessment Act supplements the TAC program, by requiring the development of a statewide inventory of air toxics emissions from stationary sources. The program requires affected facilities to prepare (1) an emissions inventory plan that identifies relevant air toxics and sources of air toxics emissions; (2) an emissions inventory report quantifying air toxics emissions; and (3) a health risk assessment (HRA), if necessary, to characterize the health risks to the exposed public. Facilities whose air toxics emissions are deemed to pose a significant health risk must issue notices to the exposed population. In 1992, the Legislature amended the program to further require facilities whose air toxics emissions are deemed to pose a significant health risk to implement RMPs to reduce the associated health risks. This program is implemented at the local level with state oversight.

Administering Agency: SCAQMD and ARB

CEC and ARB Memorandum of Understanding

Authority: Cal. Pub. Res. Code Section 25523(a); Cal. Code Regs. Title 20 Sections 1752, 1752.5, 2300-2309 and Div. 2, Chap. 5, Art. 1, Appendix B, Part (k)

Requirements: Provides for the inclusion of requirements in the CEC's decision on an SPPE to assure protection of environmental quality; the application is required to contain information concerning air quality protection.

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[15] Methyl ethyl ketone was removed from the list on December 19, 2005 (http://www.epa.gov/ttn/atw/pollutants/atwsmod.html, accessed April 9, 2006).

Administering Agency: CEC

California Climate Change Regulatory Program

Authority: Stats. 2006, Ch. 488 and California Health & Safety Code Sections 38500-38599

Requirements: The State adopted the Global Warming Solutions Act of 2006 (Assembly Bill [AB] 32) on September 27, 2006, which requires sources within the state to reduce carbon emissions to 1990 levels by the year 2020. Based on this statutory authority, ARB has adopted regulations to limit GHG emissions from electric power plants and other specific source categories through a Cap-and-Trade Program. In addition, ARB has adopted regulations requiring the calculation and reporting of GHG emissions from subject facilities. Pursuant to a 2005 Executive Order, additional reductions are required by 2050. In April 2015, Governor Brown issued an Executive Order establishing a new interim statewide GHG reduction target of 40 percent below 1990 levels by 2030 to ensure that the state meets the 2050 goal.

AB 32 does not directly amend other environmental laws, such as CEQA. Instead, it provides for creation of a GHG emissions program that will involve identification of sources, prioritization of sources for regulation based on significance of source contribution to GHG emissions, and eventual regulation of those sources.

GHGs contain the pollutants described below.

- CO_2 is a naturally occurring gas, as well as a by-product of burning fossil fuels and biomass, land-use changes, and other industrial processes. It is the principal anthropogenic GHG that affects the Earth's radiative balance.
- Methane (CH_4) is a GHG with a global warming potential (GWP) most recently estimated at 25 times that of CO_2. GWP is a measure of how much a given mass of GHG is estimated to contribute to global warming and is a relative scale that compares the mass of one GHG to that same mass of CO_2. CH_4 is produced through anaerobic (without O_2) decomposition of waste in landfills, animal digestion, decomposition of animal wastes, production and distribution of natural gas and petroleum, coal production, and incomplete fossil fuel combustion.
- Nitrous oxide (N_2O) is a GHG with a GWP of 298 times that of CO_2. Major sources of N_2O are soil cultivation practices, especially the use of commercial and organic fertilizers, fossil fuel combustion, nitric acid production, and biomass burning.
- Sulfur hexafluoride (SF_6) is a colorless gas soluble in alcohol and ether, and slightly soluble in water. It is a very powerful GHG used primarily in electrical transmission and distribution systems, as well as dielectrics in electronics.

The annual GHG emission reports to ARB for subject facilities must show the project's emission rates of GHGs from the stack, cooling towers, fuels and materials handling processes, delivery and storage systems, as well as from all on-site secondary emission sources. The facility will also be required to participate in the Cap-and-Trade Program.

On January 25, 2007, the Public Utilities Commission (PUC) and CEC jointly adopted a Greenhouse Gas Emissions Performance Standard (EPS) in an effort to help mitigate climate change. The EPS is a facility-based emissions standard requiring that all new long-term commitments for baseload generation to serve California consumers be with power plants that have emissions no greater than a combined-cycle gas turbine plant. That level is established at 1,100 pounds of CO_2 per MW-hour (or 0.50 MT CO_2 per MW-hour).

Administering Agencies: ARB and CEC.

4.1.4.3 Local LORS

When the state's air pollution statutes were reorganized in the mid-1960s, local districts were required to be established in each county of the state. There are three different types of districts: county, regional, and unified. In addition, special air quality management districts (AQMDs, such as the SCAQMD), with more comprehensive authority over non-vehicular sources, as well as transportation and other regional planning responsibilities, have been established by the Legislature for several regions in California. Local districts have principal responsibility for the following:

- Developing plans for meeting the NAAQS and CAAQS
- Developing control measures for non-vehicular sources of air pollution necessary to achieve and maintain both state and federal air quality standards
- Implementing permit programs established for the demolition/construction, modification, and operation of sources of air pollution
- Enforcing air pollution statutes and regulations governing non-vehicular sources
- Developing programs to reduce emissions from indirect sources
- South Coast Air Quality Management District Rules and Regulations

Authority: California Health & Safety Code Section 40001

Requirements: Prohibit emissions and other discharges (such as smoke and odors) from specific sources of air pollution in excess of specified levels.

Administering Agency: SCAQMD, with ARB oversight.

Permits Required. Under Regulation II, Rule 201, Permit to Construct (PTC), SCAQMD administers the air quality regulatory program for the construction, alteration, replacement, and operation of new power plants. As part of the PTC process, the project will be required to obtain a preconstruction Determination of Compliance (DOC) from the District. The District's permitting process allows the District to review new and modified air pollution sources to ensure compliance with all applicable prohibitory rules and to ensure that appropriate emission controls are used. Projects that are reviewed under the CEC PTC process must obtain a final DOC (FDOC) and PTC from the local air district (in this case, SCAQMD) prior to construction of the new power plant. The PTC remains in effect until the application for a Permit to Operate (PTO) is granted, denied, or canceled. Once the project commences operation and demonstrates compliance with the PTC, SCAQMD will issue a PTO. The PTO specifies conditions that the facility must meet to comply with all applicable air quality rules, regulations, and standards.

New Source Review Requirements. The District's New Source Review (NSR) rule (Regulation XIII, New Source Review) and Rule 2005 (New Source Review for RECLAIM) establish the criteria for siting new and modified emission sources; these rules are applicable to the proposed project. SCAQMD has been delegated authority for NSR rule development and enforcement. There are three basic requirements within the NSR rules. First, BACT must be applied to any new source with an increase in emissions. Second, all potential emission increases of nonattainment pollutants or precursors from the proposed source above specified thresholds must be offset by real, quantifiable, surplus, permanent, and enforceable emission decreases in the form of Emission Reduction Credits (ERCs) or RECLAIM trading credits (RTCs), depending on the pollutant. Third, an ambient air quality impact analysis must be conducted to confirm that the project would not cause or contribute to a violation of a national or California AAQS or jeopardize public health.

Federal PSD Requirements. On July 25, 2007, USEPA and SCAQMD entered into a delegation agreement for the PSD program. Under this agreement, the two agencies agreed to a partial delegation of the PSD program. SCAQMD may issue new PSD permits and modify existing PSD permits if the application does not involve Plantwide Applicability Limits (PALs) or additional calculation methodologies promulgated in

40 C.F.R. Section 52.21 but not set forth in Regulation XVII. Permits issued in accordance with the requirements of Regulation XVII are deemed to meet federal PSD permit requirements. Subsequently, USEPA adopted PSD requirements for GHGs, which were not addressed by Regulation XVII. SCAQMD adopted Regulation 1714 which contains the PSD permit program requirements for GHGs by referencing the requirements of 40 C.F.R. Section 52.21. On December 10, 2012, USEPA took final action to approve Regulation 1714 into the SIP. As a result, the SCAQMD is the reviewing agency for PSD permits within its jurisdiction, and the applicable requirements are contained in Regulation XVII.

New Source Review Requirements for Air Toxics. The SCAQMD's Rule 1401 (New Source Review of Toxic Air Contaminants) describes the requirements, procedures, and standards for evaluating the potential impact of TACs from new sources and modifications to existing sources. The rule also requires a demonstration that a new or modified source will not exceed the health risk thresholds in Section (d) of the rule.

New Source Performance Standards. The SCAQMD's New Source Performance Standards (Regulation IX, Standards of Performance for New Stationary Sources) incorporate the federal NSPS from 40 C.F.R. Part 60. The applicability and requirements of the New Source Performance Standards are discussed above under the federal regulations section.

Federal Programs and Permits. The federal Title IV acid rain program requirement and Title V operational permit requirements are in SCAQMD's Regulation XXXI (Acid Rain Permit Program) and Regulation XXX (Title V Permits). The applicability and requirements of these programs and permits are discussed above under the federal regulations section.

Public Notification. Because the proposed PRP project emissions will exceed the trigger levels in Rule 212(g), public notice is required and the project owner expects that the Air Pollution Control Officer will provide this notice in a timely manner.

Permit Fees. The SCAQMD requirements regarding permit fees are specified in Regulation III. This regulation establishes the filing and permit review fees for specific types of new sources, as well as annual renewal fees and penalty fees for existing sources.

Prohibitions. The SCAQMD prohibitions for specific types of sources and pollutants are addressed in Regulation IV. The prohibitory rules that apply to the proposed PRP project are listed below.

- *Rule 401 – Visible Emissions*: This rule prohibits any source from discharging any emissions of any air contaminant opacity of more than 20 percent (Ringelmann No.1) for a period or periods aggregating more than 3 minutes in any period of 60 consecutive minutes.
- *Rule 402 – Nuisance:* This rule prohibits the discharge from a facility of air contaminants that cause injury, detriment, nuisance, or annoyance to the public, or cause damage to business or property.
- *Rule 403 – Fugitive Dust:* The purpose of this rule is to reduce the amount of particulate matter entrained in the ambient air as a result of man-made fugitive dust sources by requiring actions to prevent, reduce, or mitigate fugitive dust emissions. The provisions of this rule apply to any activity or man-made condition capable of generating fugitive dust. This rule prohibits emissions of fugitive dust beyond the property line of the emission source.
- *Rule 407 – Liquid and Gaseous Air Contaminants:* This rule limits CO emissions to 2,000 ppmvd and SO_2 emissions to 500 ppmvd, averaged over 15 minutes.
- *Rule 409 – Combustion Contaminants:* This rule restricts the discharge of combustion contaminants (i.e., carbon-containing particulate matter) from the combustion of fuel to 0.23 grams per cubic meter grain per cubic foot) of gas, calculated to 12 percent CO_2, averaged over 15 minutes.
- *Rule 431.1 – Sulfur Content of Fuels:* This rule prohibits any stationary source to use any gaseous fuel containing more than 16 ppmv sulfur compounds calculated as H_2S.

- *Rule 474 – Fuel Burning Equipment-Oxides of Nitrogen:* This rule does not apply because the CTG is subject to NO_x RECLAIM requirements.
- *Rule 475 – Electric Power Generating Equipment:* This rule applies to power generating equipment rated greater than 10 MW installed after May 7, 1976. Requirements specify that the equipment must comply with a PM_{10} mass emission limit of 11 lb/hr or a PM_{10} concentration limit of 0.01 grains/dry standard cubic foot (dscf). Compliance is demonstrated if either the mass emission limit or the concentration limit is met.
- *Rule 476 – Steam Generating Equipment:* Superseded by NO_x RECLAIM.

All applicable LORS are summarized in Table 4.1-14.

Table 4.1-14 Laws, Ordinances, Regulations, and Standards
Small Power Plant Exemption Application for the Pomona Repower Project

LORS	Purpose	Regulating Agency	Permit or Approval	Schedule and Status of Permit	Conformance (Section)
Federal					
CAA Sections 160-169A and implementing regulations, 42 U.S.C. Sections 7470-7491, 40 C.F.R Parts 51 &52 (Prevention of Significant Deterioration Program)	Requires PSD review and facility permitting for demolition/construction of new or modified major stationary sources of air pollution. PSD review applies to pollutants for which ambient concentrations are lower than NAAQS.	SCAQMD with USEPA oversight	Not applicable	Not applicable	Section 4.1.6.1
CAA Sections 171-193; 42 U.S.C. Sections 7501 et seq. (New Source Review)	Requires NSR facility permitting for demolition/construction or modification of specified stationary sources. NSR applies to pollutants for which ambient concentration levels are higher than NAAQS.	SCAQMD with USEPA oversight	After project review, issues FDOC/PTC with conditions limiting emissions.	Agency approval to be obtained before start of demolition/construction	Section 4.1.6.1
CAA Section 401 (Title IV), 42 U.S.C. Section 7651 (Acid Rain Program)	Requires quantification of NO_2 and SO_2 emissions, and requires operator to hold allowances	SCAQMD with USEPA oversight	After project review, issues FDOC/PTC with conditions limiting emissions. These conditions include applicable Acid Rain requirements.	Agency approval to be obtained before start of demolition/construction	Section 4.1.6.1
CAA Section 501 (Title V), 42 U.S.C. Section 7661 (Federal Operating Permits Program)	Establishes comprehensive permit program for major stationary sources.	SCAQMD with USEPA oversight	After project review, issues FDOC/PTC with conditions limiting emissions. These conditions include applicable Title V requirements.	Agency approval to be obtained before start of demolition/construction	Section 4.1.6.1
CAA Section 111, 42 U.S.C. Section 7411, 40 C.F.R. Part 60 (New Source Performance Standards [NSPS])	Establishes national standards of performance for new stationary sources	SCAQMD with USEPA oversight	After project review, issues FDOC/PTC with conditions limiting emissions.	Agency approval to be obtained before start of demolition/construction	Section 4.1.6.1
CAA Section 112, 42 U.S.C. Section 7412, 40 C.F.R. Part 63 (National Emission Standards for Hazardous Air Pollutants [NESHAPs])	Establishes national emission standards for hazardous air pollutants	SCAQMD with USEPA oversight	Not applicable	Not applicable	Section 4.1.6.1

Table 4.1-14 Laws, Ordinances, Regulations, and Standards
Small Power Plant Exemption Application for the Pomona Repower Project

LORS	Purpose	Regulating Agency	Permit or Approval	Schedule and Status of Permit	Conformance (Section)
State					
California Health & Safety Code Section 41700 (Nuisance Regulation)	Prohibits discharge of such quantities of air contaminants that cause injury, detriment, nuisance, or annoyance	SCAQMD with ARB oversight	After project review, issues FDOC/PTC with conditions limiting emissions	Agency approval to be obtained before start of demolition/construction	Section 4.1.6.2
California Health & Safety Code Section 44300-44384; Cal. Code Regs. Title 17 Sections 93300-93347 (Toxic "Hot Spots" Act)	Requires preparation and biennial updating of facility emission inventory of hazardous substances; risk assessments	SCAQMD with ARB oversight	After project review, issues FDOC/PTC with conditions limiting emissions	Agency approval to be obtained before start of demolition/construction	Section 4.1.6.2
California Public Resources Code Section 25523(a); Cal. Code Regs. Title 20 Sections 1752, 2300-2309 (CEC & ARB Memorandum of Understanding)	Requires that CEC's decision on SPPE include requirements to assure protection of environmental quality; SPPE required to address air quality protection.	CEC	After project review, issues conditions of certification that includes the conditions in the FDOC		Section 4.1.6.2
Global Warming Solutions Act and other GHG reduction measures	Minimize emissions of GHG from all sources in CA; operator must purchase and surrender GHG allowances.	CEC and ARB	After project review, CEC issues conditions of certification requiring reporting of GHG emissions		Section 4.1.6.2
Local					
California Health & Safety Code Section 40001 (Air pollution--general)	Prohibit emissions and other discharges (such as smoke and odors) from specific sources of air pollution in excess of specified levels.	SCAQMD with ARB oversight	After project review, issues FDOC/PTC with conditions limiting emissions	Agency approval to be obtained before start of demolition/construction	Section 4.1.6.3
SCAQMD Regulation II, Rule 201 (Permits required)	Administers air quality regulation program for power plants	SCAQMD with ARB oversight	After project review, issues FDOC/PTC with conditions limiting emissions	Agency approval to be obtained before start of demolition/construction	Section 4.1.6.3
SCAQMD Regulation XIII (New Source Review)	Establishes criteria for siting new and modified emission sources	SCAQMD with ARB oversight	After project review, issues FDOC/PTC with conditions limiting emissions	Agency approval to be obtained before start of demolition/construction	Section 4.1.6.3

Table 4.1-14 Laws, Ordinances, Regulations, and Standards
Small Power Plant Exemption Application for the Pomona Repower Project

LORS	Purpose	Regulating Agency	Permit or Approval	Schedule and Status of Permit	Conformance (Section)
SCAQMD Regulation XVII (Prevention of Significant Deterioration)	Establishes criteria for siting new and modified emission sources	SCAQMD with ARB oversight	Not Applicable	Not Applicable	Section 4.1.6.3
SCAQMD Rule 1401 (Toxic Air Contaminants New Source Review)	Establishes procedures for review and control of toxic air contaminants from new sources	SCAQMD with ARB oversight	After project review, issues FDOC/PTC with conditions limiting emissions	Agency approval to be obtained before start of demolition/construction	Section 4.1.6.3
SCAQMD Regulation IX, Standards of Performance for New Stationary Sources	Incorporates federal NSPS standards.	SCAQMD with ARB oversight	After project review, issues FDOC/PTC with conditions limiting emissions	Agency approval to be obtained before start of demolition/construction	Section 4.1.6.3
SCAQMD Regulation XXX and XXXI (Federal Permits)	Implements Acid Rain and Title V permit programs	SCAQMD with USEPA oversight	After project review, issues FDOC/PTC with conditions limiting emissions including Acid Rain and Title V requirements	Agency approval to be obtained before start of demolition/construction	Section 4.1.6.3
SCAQMD Rule 212	Public Notification Requirement	SCAQMD with ARB oversight	After project review, issues Preliminary DOC (PDOC) that with conditions limiting emissions. The PDOC is noticed for public review.	Agency issues PDOC	Section 4.1.6.3
SCAQMD Regulation III (Permit Fees)	Permit fees	SCAQMD	Submitted as part of DOC/PTC application package to SCAQMD	Payment of fees required at time of application	Section 4.1.6.3
SCAQMD Rule 401 (Visible Emissions)	Prohibits visible emissions above certain levels	SCAQMD with ARB oversight	After project review, issues FDOC/PTC with conditions limiting emissions	Agency approval to be obtained before start of demolition/construction	Section 4.1.6.3
SCAQMD Rule 402 (Nuisance)	Prohibit emissions and other discharges (such as smoke and odors) from specific sources of air pollution in excess of specified levels.	SCAQMD with ARB oversight	After project review, issues FDOC/PTC with conditions limiting emissions	Agency approval to be obtained before start of demolition/construction	Section 4.1.6.3
SCAQMD Rule 403 (Fugitive Dust)	Limits emissions of particulate matter	SCAQMD with ARB oversight	After project review, issues FDOC/PTC with conditions limiting emissions	Agency approval to be obtained before start of demolition/construction	Section 4.1.6.3

Table 4.1-14 Laws, Ordinances, Regulations, and Standards
Small Power Plant Exemption Application for the Pomona Repower Project

LORS	Purpose	Regulating Agency	Permit or Approval	Schedule and Status of Permit	Conformance (Section)
SCAQMD Rules 407 and 409 (Liquid and Gaseous Air Contaminants, Combustion Contaminants)	Limits CO, SO_2, and PM in exhaust	SCAQMD with ARB oversight	After project review, issues FDOC/PTC with conditions limiting emissions	Agency approval to be obtained before start of demolition/construction	Section 4.1.6.3
SCAQMD Rule 431.1 (Fuel Sulfur)	Limits sulfur content of fuel	SCAQMD with ARB oversight	After project review, issues FDOC/PTC with conditions limiting emissions	Agency approval to be obtained before start of demolition/construction	Section 4.1.6.3
SCAQMD Rule 475 (Electric Power Generating Equipment)	Limits PM10 emissions from power generating equipment	SCAQMD with ARB oversight	After project review, issues FDOC/PTC with conditions limiting emissions	Agency approval to be obtained before start of demolition/construction	Section 4.1.6.3

4.1.5 Environmental Analysis

The following sections describe the emission sources that have been evaluated, the results of the ambient impact analyses, and the evaluation of project compliance with the applicable air quality regulations, including the District's NSR requirements. These analyses are designed to confirm that the proposed project's design features lead to less-than-significant impacts even with the following conservative analysis assumptions and procedures: maximum allowable emission rates, project operating schedules that lead to maximum emissions, worst-case meteorological conditions, and the worst-observed existing air quality added to the highest potential ground-level impact from modeling—even when all of these situations could not physically occur at the same time.

4.1.5.1 Project Description

PRP is a natural-gas-fired, simple-cycle, water-cooled, electrical generating power plant that will be constructed at the current location of the San Gabriel Facility, an existing and operating power plant in Pomona, California. PRP will include the removal of the existing LM5000 gas turbine currently in operation. The proposed PRP simple-cycle 100 MW (nominal net output) electrical generating facility will encompass the following new stationary sources of emissions:

- One GE LMS 100PA simple-cycle gas turbine, rated at a nominal 960 MMBtu/hr (higher heating value, HHV) (at 28°F)
- One 2-cell wet mechanical draft cooling tower (the tower includes a third cell that acts as a backup)
- 10,000-gallon 19 percent aqueous ammonia storage tank

The combustion turbine will be fueled exclusively with natural gas. The turbine will be equipped with an inlet air evaporative cooling system to maintain gas turbine power output across the full range of ambient temperatures. At an ambient temperature of 59°F, the facility will have a baseload gross output heat rate of approximately 7,846 Btu/kWh (LHV).

The gas turbine will use water injection and an SCR system for NO_x control. An oxidation catalyst will be used to reduce CO emissions and will also reduce emissions of TACs. Particulate, SO_x, CO, and VOC emissions will be minimized through the use of natural gas as the fuel and through efficient operation. Emission control systems will operate at all times except during startups and shutdowns. The gas turbine is expected to operate as a peaker plant.

Gas turbine specifications are summarized in Table 4.1-15.

Table 4.1-15. New Gas Turbine Design Specifications
Small Power Plant Exemption Application for the Pomona Repower Project

Manufacturer	General Electric
Model	LMS 100PA
Fuel	Natural gas
Design Ambient Temperature*	28°F
Nominal Gas Turbine Heat Input Rate*	960 MMBtu/hr (HHV)
Nominal Power Output (Gas Turbine)	111, 272 kW (gross)
Stack Exhaust Temperature*	779°F
Exhaust Flow Rate*	1,799,752 lb/hr
Exhaust O_2 Concentration, dry volume*	13.07 percent
Exhaust CO_2 Concentration, dry volume*	4.51 percent

Table 4.1-15. New Gas Turbine Design Specifications
Small Power Plant Exemption Application for the Pomona Repower Project

Exhaust Moisture Content, wet volume*	10.5 percent
Emission Controls	Water Injection, SCR, oxidation catalyst
Stack Height	90 feet
Stack Diameter	14.5 feet

* This ambient temperature at 100 percent load results in maximum heat input/power output; exhaust characteristics shown reflect this ambient temperature and load.

The natural gas fuel will meet the PUC grade specifications and will have a sulfur content not to exceed 0.75 grains per 100 dscf on a short-term basis.[16] Table 4.1-16 summarizes a typical analysis for the natural gas fuel to be used by the gas turbine.

Table 4.1-16. Typical Natural Gas Specifications
Small Power Plant Exemption Application for the Pomona Repower Project

Component Analysis		Chemical Analysis	
Component	**Average Concentration, Volume %**	**Constituent**	**Percent by Weight**
Methane (CH_4)	95.00	Carbon (C)	71.72%
Ethane (C_2H_6)	2.00	Hydrogen (H)	23.63%
Propane (C_3H_8)	0.63	Nitrogen (N)	1.51%
Butane (C_4H_{10})	0.21	Oxygen (O)	2.14%
Pentane (C_5H_{12})	0.07	Sulfur (S)	0.25 gr/100 scf (annual average)
Hexane (C_6H_{14})	0.03		
Nitrogen (N_2)	0.92	Higher Heating Value	1,026 Btu/scf 22,695 Btu/lb
Carbon Dioxide (CO_2)	1.14		

4.1.5.2 Facility Operation

Combustion turbine performance specifications were developed for four ambient temperature scenarios: hot ambient temperature (100°F), annual average temperature (74°F), ISO temperature (59°F), and cold ambient temperature (28°F). The low-temperature scenario was used to characterize maximum hourly emissions because it has the highest hourly heat input and emission rates. The plant may be operated under a wide variety of conditions over its life. Maximum daily emissions are based on 16 hours of full-load operation of the CTG with up to 8 hours of CTG startup/shutdown, and 24 hours of operation for the cooling tower. Maximum annual emissions for the CTG were based on 2,800 hours per year of operation at full load with 1,000 hours for CTG startup/shutdown.

This operating profile was used to develop daily and annual heat input limits for the fuel-burning equipment. These heat input limits, summarized in Table 4.1-17, were used as the basis for calculating project emissions.

[16] 0.25 grains per 100 dry scf on an annual average basis.

Table 4.1-17. New Gas Turbine Annual Heat Input Limits
Small Power Plant Exemption Application for the Pomona Repower Project

	Heat Input, MMBtu (HHV)
Interval	**Gas Turbine**
Hourly	959
Daily	23,026
Annual	3,593,316

Criteria pollutant emission rates were calculated for three components of the project: demolition/construction of the project, commissioning activities for the gas turbine and normal operation. Tables containing the detailed emission calculations can be found in Appendix 4.1B.

4.1.5.3 Proposed Demolition/Construction Emissions

Construction of PRP will require the removal of the existing San Gabriel Facility. Demolition of the existing plant, expected to occur in the first half of 2017, will provide the space required for the construction of PRP. Demolition and construction are expected to take approximately 20 months with an additional 5 months for commissioning/performance testing activities. The commissioning/ performance testing phase is scheduled to be completed by the first quarter of 2019.

The demolition/construction emission estimates include emissions from vehicle and equipment exhaust, and fugitive dust generated from material handling and paved/unpaved surface travel. A dispersion modeling analysis and a screening-level health risk assessment (SHRA) were conducted based on these emissions. The detailed analysis of the construction and demolition emissions and ambient impacts are included in Appendices 4.1F and 4.1G.

4.1.5.4 Initial Commissioning Emissions

Gas turbine commissioning is the process of initial startup, tuning, and adjustment of the new CTG and auxiliary equipment and of the emission control systems. The commissioning process will consist of sequential test operation of the gas turbine up through increasing load levels, and with successive application of the air pollution control systems. The total set of commissioning tests will require approximately 220 hours of gas turbine operation before the gas turbine is ready for emissions performance testing. Up to approximately 120 hours of operation will be required prior to installing the SCR and oxidation catalysts. The detailed gas turbine commissioning schedule is shown in Appendix 4.1B. In the permit application submitted to the SCAQMD, the project owner requested that the District allow up to 220 hours of gas turbine operation prior to the initial compliance tests.

During part of this period, NO_x emissions will be higher than normal operating levels because the NO_x emission control system will not be installed and/or fully operational and because the gas turbine will not be tuned for optimum performance. CO emissions will also be higher than normal because turbine performance will not be optimized and the CO emissions control system will not be installed or fully operational.[17] Emission rates for PM_{10}, $PM_{2.5}$, and SO_x during initial commissioning are not expected to be higher than normal operating emissions because emissions from these pollutants are related to fuel use.

Gas turbine commissioning activities can be broken down into several separate test phases, as shown in the commissioning summary table included in Appendix 4.1B. The emission estimates shown in the detailed commissioning summary table in Appendix 4.1B are based on the emission rates and

[17] Some of the commissioning test phases must be carried out at such low turbine loads that turbine exhaust temperatures are not able to reach levels at which the oxidation catalyst will be fully operational.

commissioning schedule provided by the gas turbine supplier. Estimated emissions of criteria pollutants during the commissioning phase are summarized in Table 4.1-18.

Table 4.1-18. Maximum Initial Commissioning Emissions for the PRP Gas Turbine
Small Power Plant Exemption Application for the Pomona Repower Project

Period	NO_x	CO	VOC	$PM_{10}/PM_{2.5}$	SO_x
CTG, lb/hr	88.07	242.37	11.98	3.50	2.00
CTG, lb/day	1409.1	3877.9	191.6	84.0	48.1
CTG, total tons	2.53	4.89	0.33	0.21	0.07

At the conclusion of the commissioning period, emissions rates will be at the normal operating levels discussed in the following section. While the required continuous CEMS for NO_x and CO will be calibrated and operating during the commissioning test phases, the CEMS will not be certified until the end of the commissioning period.

4.1.5.5 Proposed Criteria Pollutant Emissions during Project Operation

Emission estimates for gas turbine startup and shutdown modes and steady-state operation were developed based on vendor data and engineering estimates. Natural gas will be the only fuel burned in the gas turbine. The gas turbine will use water injection combined with SCR to limit emissions of NO_x to 2.5 ppmv, corrected to 15 percent O_2 (ppmvc), on a 1-hour average basis. Best combustion practices, combined with the use of an oxidation catalyst, will be used to limit CO emissions to 4.0 ppmvc, on a 1-hour average basis and VOC emissions will be limited to 2.0 ppmvc, on a 1-hour average basis. PM_{10}, $PM_{2.5}$ and SO_x emissions will be kept to a minimum through the exclusive use of natural gas.

Startup and Shutdown Emissions. The startup and shutdown of this fast-start gas turbine occurs in a relatively short time (well under one hour). However, during the startup and shutdown operating modes, the emission control systems are not fully functional, which may result in higher air emission rates relative to the steady-state operating mode.

The time from fuel initiation until minimum compliant operating load is reached is expected to take up to 25 minutes. Although the exhaust emissions are expected to reach BACT levels sooner, this startup period provides a conservative estimate of the time needed for the SCR and oxidation catalyst systems to reach their respective operating temperatures and to achieve allowable BACT emission levels.

The gas turbine startup and shutdown emission rates are presented on a pound-per-hour (lb/hr) basis in Table 4.1-19. The startup and shutdown event data are based on manufacturer data and engineering estimates. The hourly startup and shutdown emission rates assume that for the remainder of the hour following completion of the startup, the gas turbine operates at full load.

Table 4.1-19. Facility Startup/Shutdown/Restart Emission Rates
Small Power Plant Exemption Application for the Pomona Repower Project

	Time Required to Reach Emissions Compliance, minutes	NO_x	CO	VOC	$PM_{10}/PM_{2.5}$
Startup					
Startup (lb/hr)[b]	25	23.5	14.3	3.9	3.5
Shutdown					
Shutdown (lb/hr)[b]	13	7.7	11.0	4.9	3.5
Startup/Shutdown/Restart					
Restart (lb/hr)	60	35.3	21.6	7.7	3.5

[a] Emission rates provided by GE.
[b] NO_x, CO, VOC and PM_{10} emissions for the balance of the hour were based on the hourly emission rate for 100 percent load at 28°F.

Emissions during Normal Operation. Gas turbine performance data are provided in Appendix 4.1B, Table 4.1B-1. Hourly emissions of NO_x, CO, and VOC were calculated from emission limits (in ppmv @ 15 percent O_2) and exhaust flow rates. The NO_x emission limit reflects the application of water injection and SCR. The VOC emission limit reflects the use of good combustion practices. The CO emission limit reflects the expected performance of the oxidation catalyst. Maximum emissions were based on the heat input rates shown in Table 4.1-17. SO_x emissions were calculated based on a maximum allowable fuel sulfur content of 0.75 grain per 100 scf (short-term average) and the hourly heat input rate in Table 4.1-17. Maximum hourly PM_{10} emissions reflect information provided by the gas turbine vendor. $PM_{2.5}$ emissions were determined based on the assumption that all particulate matter emissions are less than 2.5 microns in size.

Maximum hourly emission rates are summarized in Table 4.1-20. The BACT analysis upon which the emission factors are based is presented in Appendix 4.1C.

Table 4.1-20. Maximum Pollutant Emission Rates for the LMS 100PA Gas Turbine[a]
Small Power Plant Exemption Application for the Pomona Repower Project

	Emission Rate		
Pollutant	**ppmvd @ 15% O_2**	**lb/MMBtu**	**lb/hr**
NO_x	2.5	0.0091	8.84
CO	4.0	0.0088	8.61
VOC	2.0	0.0025	2.46
SO_x [d]	[c]	0.0021	2.00
PM_{10} /$PM_{2.5}$ [b]	[c]	0.0037	3.50

[a] Maximum values are for the turbine at an ambient temperature of 28°F and exclude startups and shutdowns.
[b] 100 percent of particulate matter emissions assumed to be emitted as PM_{10} and $PM_{2.5}$.
[c] Not applicable.
[d] Estimated using a maximum of 0.75 grains of sulfur per 100 dscf of natural gas (short-term average).

Wet Cooling Tower Emissions. Particulate emissions result from evaporation of the cooling water. Drift will be minimized through the use of a high-efficiency drift eliminator. Recycled water will be used for makeup water, and the total dissolved solids (TDS) level of the recirculating water is expected to be approximately 2,970 parts per million, wet (ppmw) after concentration.

Details of the cooling water drift calculation for the wet cooling tower are shown in Appendix 4.1B, Table 4.1B-6. Particulate emissions from the cooling tower will be approximately 0.05 pounds per hour.

Facility Emissions. Maximum hourly NO_x, CO, and VOC emissions are expected to occur during an hour in which the gas turbine starts up, shuts down, and immediately restarts. The detailed CTG startup hourly emissions are shown in Appendix 4.1B, Table 4.1B-3, along with the startup/shutdown emission rates and durations supplied by the gas turbine vendor. Because SO_x emissions are based on fuel consumption, the maximum hourly SO_x emissions are based on the turbine operating at full load at the minimum ambient temperature.

Gas turbine performance specifications were evaluated for four ambient temperature scenarios: extreme hot temperature (100°F), annual average temperature (74°F), ISO temperature (59°F) and extreme low temperature (28°F). The cold temperature scenario (or cold startup scenario) was used to characterize maximum hourly emissions during normal operation because it has the highest hourly heat input and emission rates. The worst-case day is defined as follows:[18]

- 4 hours in startup mode
- 16 hours of base load operation
- 4 hours in shutdown mode

The annual emissions profile assumes that the plant will operate 3,800 hours per year, which is based on 2,800 hours per year of full load turbine operation and 1,000 hours in startup/shutdown mode. The assumptions used in calculating maximum hourly, daily, and annual emissions from the new facility are shown in Appendix 4.1B.

Maximum hourly, daily, and annual emissions for the proposed project are presented in Table 4.1-21. Detailed calculations are provided in Appendix 4.1B, Tables 4.1B-8 to 4.1B-12.

Table 4.1-21. Maximum Emissions From New Equipment
Small Power Plant Exemption Application for the Pomona Repower Project

	Pollutant				
Emissions/Equipment	**NO_x**	**CO**	**VOC**	**$PM_{10}/PM_{2.5}$**	**SO_x**
Maximum Hourly Emissions*					
Gas Turbine	35.3	21.6	7.7	3.5	2.0
Cooling Tower	N/A	N/A	N/A	0.1	N/A
New Gas Compressor	N/A	N/A	0.0	N/A	N/A
Total, pounds per hour	**35.3**	**21.6**	**7.7**	**3.6**	**2.0**
Maximum Daily Emissions*					
Gas Turbine	266.2	238.8	74.8	84.0	48.1
Cooling Tower	N/A	N/A	N/A	1.2	N/A
New Gas Compressor	N/A	N/A	0.1	N/A	N/A
Total, pounds per day	**266.2**	**238.8**	**74.9**	**85.2**	**48.1**
Maximum Annual Emissions*					
Gas Turbine	20.0	18.2	5.6	3.8	1.3
Cooling Tower	N/A	N/A	N/A	0.1	N/A
New Gas Compressor	N/A	N/A	0.0	N/A	N/A
Total, tons per year	**20.0**	**18.2**	**5.6**	**3.9**	**1.3**

* Maximum hourly, daily and annual gas turbine emission rates include emissions during startups/shutdowns.

[18] The daily emissions calculation for NOx, CO, and VOC encompass startup and shutdown hours. SOx and PM_{10} emissions are not higher during startups or shutdowns, so daily emissions of these pollutants are based on 24 hours of full load operation.

Emissions from Existing Turbine at the San Gabriel Facility. The San Gabriel Facility consists of one gas turbine, rated at 44.5 MW. As part of the proposed project, the existing gas turbine at the San Gabriel Facility will be shut down and demolished prior to construction of PRP. To determine the actual emissions associated with the operation of the existing San Gabriel Facility unit, it is necessary to determine the baseline period. The three regulatory programs that discuss baseline periods for air quality purposes are CEQA, the SCAQMD NSR regulations, and the federal PSD regulations. These three baseline periods are summarized below:

- **CEQA –** Under the CEQA regulations there is no specific baseline period defined or required. The CEQA baseline period needs to reflect the actual conditions that exist at the start of the environmental review process for a project.
- **SCAQMD PSD –** Under SCAQMD NSR rules (Rule 1706) the baseline period to establish the actual emissions for existing units is the 2-year period immediately preceding the filing of a permit application with the SCAQMD.
- **Federal PSD –** Under the federal PSD regulations (40 C.F.R. 52.21.b.48.1), the baseline period to establish the actual emissions for existing units is any consecutive 24-month period within the 5-year period preceding when actual construction of a new project begins. The USEPA allows the use of a different lookback period to calculate actual emissions if it is more representative of normal operation.

To be consistent with the SCAQMD PSD applicability analysis, for CEQA purposes this analysis examines actual historical emissions for the existing San Gabriel Facility unit averaged over the 2-year period immediately preceding the filing of the permit application with the SCAQMD (i.e., 2014 and 2015). The emission reductions associated with the shutdown of the existing unit is shown in Table 4.1-22. The detailed calculation of the historical baseline emissions for the existing unit at the San Gabriel Facility is included in Appendix 4.1B.

Net Changes in Criteria Pollutant Emissions for PRP. Net emissions changes as a result of the proposed project are calculated on an annual basis for SCAQMD PSD and CEQA purposes. These net emission changes are shown in Table 4.1-23.

Table 4.1-22. Emissions for Existing Unit (2-Year Average for Period From 1/1/14 to 12/31/15)
Small Power Plant Exemption Application for the Pomona Repower Project

	Pollutant (tpy)				
Emissions/Equipment	**NO_x**	**CO**	**VOC**	**$PM_{10}/PM_{2.5}$**	**SO_x**
Annual Emissions San Gabriel Facility					
Existing Equipment	11.1	34.8	2.3	1.3	0.3
Total	**11.1**	**34.8**	**2.3**	**1.3**	**0.3**

Table 4.1-23. Net Emissions Change for Proposed Project
Small Power Plant Exemption Application for the Pomona Repower Project

	Pollutant (tpy)				
Emissions/Equipment	**NO_x**	**CO**	**VOC**	**$PM_{10}/PM_{2.5}$**	**SO_x**
San Gabriel vs. PRP					
Potential to Emit for New Equipment (PRP)	20.0	18.2	5.6	3.9	1.3
Reductions for Shutdown of Existing Unit	11.1	34.8	2.3	1.3	0.3
Net Emission Change	**8.9**	**-16.6**	**3.3**	**2.6**	**1.0**

4.1.5.6 Non-criteria Pollutant Emissions during Project Operation

Non-criteria pollutant emissions were estimated for the proposed new equipment. These emissions are summarized in Table 4.1-24.[19] The detailed non-criteria pollutant emissions calculations are provided in Appendix 4.1B and the associated SHRA is shown in Section 4.9, Public Health.

Table 4.1-24. Non-criteria Pollutant Emissions
Small Power Plant Exemption Application for the Pomona Repower Project

Compound	Emissions (tpy)
Gas Turbine	
Ammonia (not a HAP)	12.41
Propylene (not a HAP)	1.08
Acetaldehyde	0.06
Acrolein	0.01
Benzene	0.02
1,3-Butadiene	0.00
Ethylbenzene	0.05
Formaldehyde	1.28
Hexane	0.36
Naphthalene	0.00
PAHs (other)	0.00
Propylene oxide	0.04
Toluene	0.19
Xylene	0.09
Subtotal (HAPs)	**2.09**
Subtotal (All)	**15.58**
Cooling Tower	
1,2-Dichloroethane	0.00
Bromoform	0.00
Chloroform	0.00
Methylene chloride	0.00
Toluene	0.00
Subtotal (HAPs)	**0.00**
Subtotal (All)	**0.00**
Total HAPs Proposed Project	**2.09**
Total All Proposed Project	**15.58**

[19] There will also be small quantities of non-criteria pollutant emissions from the cooling tower, resulting from trace amounts of impurities in the circulating water. These are quantified in Appendix 4.1B and are part of the SHRA.

4.1.5.7 Greenhouse Gas Emission Estimates

GHG emissions for normal facility operation were calculated based on the maximum fuel use predicted for project operation and emission factors contained in the USEPA GHG Reporting Regulation.[20] GHG emissions resulting from project operation are presented in Table 4.1-25.

The estimated emissions include the combustion emissions for the gas turbine (CO_2, CH_4, and N_2O. Because the project includes the installation of new SF_6-containing equipment, the GHG emission estimates also include a small amount of SF_6 emissions from this equipment.

The annual fuel use upon which these calculations were based is provided in Table 4.1-17. The detailed GHG emission calculations are included in Appendix 4.1B.

Table 4.1-25. Project Greenhouse Gas Emissions
Small Power Plant Exemption Application for the Pomona Repower Project

	CO_2, metric tons/year	CH_4, metric tons/year	N_2O, metric tons/year	SF_6, metric tons/year	CO_2e, metric tons/yr[a]	CO_2, metric tons/ MWh (gross)[b]
Gas turbine	190,661	4	0	NA		
Circuit breakers	NA	NA	NA	1.55E-03		
Total Emissions	190,661	4	0	1.55e-03	190,893	0.46

[a] Shows CH_4, N_2O, and SF_6, weighted by their GWP.
[b] Reflects gross rated output of the plant. See Appendix 4.1B.

4.1.6 Impacts

The SCAQMD NSR regulations require the project owner to prepare ambient air quality modeling analyses and other impact assessments. An ambient air quality impact assessment (AQIA) is also required by the CEC for CEQA review. These analyses are presented in this section.

4.1.6.1 CEQA Environmental Checklist

The checklist in Table 4.1-26 assesses the significance of potential air quality impacts.

Table 4.1-26. CEQA Checklist to Assess Potential Impacts
Small Power Plant Exemption Application for the Pomona Repower Project

	Potentially Significant Impact	Less than Significant w/Mitigation	Less than Significant	No Impact
AIR QUALITY – Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project**:**				
a. Conflict with or obstruct implementation of the applicable air quality plan?				X
b. Violate any air quality standard or contribute substantially to an existing or projected air quality violation?			X	
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)?			X	

20 40 C.F.R. 98 (as revised on 11/29/13).

4.1.6.2 Air Quality Modeling Methodology

An assessment of impacts from the proposed project on ambient air quality has been conducted using USEPA-approved air quality dispersion models. These models use a mathematical description of atmospheric turbulent entrainment and dispersion to simulate the actual processes by which emissions are transported to ground-level areas.

Based on conservative assumptions, modeling was used to determine the maximum ground-level impacts of the project. The results were compared with state and federal AAQSs and PSD significance levels.[21] If the standards are not exceeded in the analysis, then the facility will cause no exceedances under any operating or ambient conditions, at any location, under any meteorological conditions. In accordance with the air quality impact analysis guidelines developed by USEPA (USEPA, 2005), the ground-level impact analysis encompasses the following assessments:

- Impacts in simple, intermediate, and complex terrain
- Aerodynamic effects (downwash) as a result of nearby building(s) and structures
- Impacts from inversion breakup (fumigation)

Simple, intermediate, and complex terrain impacts were assessed for all meteorological conditions that will limit the amount of final plume rise. Plume impaction on elevated terrain, such as on the slope of a nearby hill, can cause high ground-level concentrations, especially under stable atmospheric conditions. Another dispersion condition that can cause high ground-level pollutant concentrations is caused by building downwash. A stack plume can be impacted by downwash when wind speeds are high and a sufficiently tall building or structure is in close proximity to the emission source. This can result in building wake effects where the plume is drawn down toward the ground by the lower pressure region that exists in the lee (downwind) side of the building or structure.

Fumigation conditions occur when the plume is emitted into a layer of stable air (inversion) that then becomes unstable from below, resulting in a rapid mixing of pollutants out of the stable layer and towards the ground in the unstable layer underneath. The low mixing height that results from this condition allows little dispersion of the stack plume before it is carried downwind to the ground. Although fumigation conditions are short-term, rarely lasting as long as an hour, relatively high ground-level concentrations may be reached during that period. Fumigation tends to occur under clear skies and light winds, and is more prevalent in summer.

Inversion breakup fumigation occurs under low-wind conditions when a rising morning mixing height caps a stack and “fumigates” the air below. The AERSCREEN ((USEPA, 2015a) model was used to evaluate inversion breakup fumigation associated with the proposed project, following the methodology provided in “Screening Procedures for Estimating the Air Quality Impact of Stationary Sources, Revised” (USEPA, 1992b).

[21] Although the project is not subject to PSD review, the PSD significance levels may be used as one potential measure of significance under CEQA.

The basic model equation used in this analysis assumes that the concentrations of emissions within a plume can be characterized by a Gaussian (statistical) distribution around the centerline of the plume. Concentrations at any location downwind of a point source such as a stack can be determined from the following equation:

$$C(x,y,z,H) = \left(\frac{Q}{2\pi\sigma_y\sigma_z u}\right) * \left(e^{-1/2(y/\sigma_y)^2}\right) * \left[\left\{e^{-1/2(z-H/\sigma_z)^2}\right\} + \left\{e^{-1/2(z+H/\sigma_z)^2}\right\}\right] \quad \text{(Eq. 1)}$$

Where:

- C = pollutant concentration in the air
- Q = pollutant emission rate
- $\sigma y \sigma z$ = horizontal and vertical dispersion coefficients, respectively, at downwind distance x
- u = wind speed at the height of the plume center
- x,y,z = variables that define the downwind, crosswind, and vertical distances from the center of the base of the stack in the model's three-dimensional Cartesian coordinate system
- H = the height of the plume above the stack base (the sum of the height of the stack and the vertical distance that the plume rises as a result of the momentum and thermal buoyancy of the plume)

Gaussian dispersion models are approved by USEPA for regulatory use and are based on conservative assumptions (i.e., the models tend to over predict actual impacts by assuming steady-state conditions, no pollutant loss [through conservation of mass], no chemical reactions). The USEPA models were used to determine if AAQSs will be exceeded, and whether a more accurate and sophisticated modeling procedure will be warranted to make the impact determination.

Details of the analysis procedures are provided in the following subsections:

- Gas turbine screening modeling
- Refined air quality impact analysis
- Specialized modeling analyses
- Results of the ambient air quality modeling analyses
- PSD significance levels

Modeling for the proposed project was performed in accordance with the modeling protocol submitted to the CEC and included in Appendix 4.1D. Based on comments received from the CEC, the following is a summary of clarifications/updates to the modeling approaches discussed in the enclosed modeling plan.

- With regard to the meteorological data used for the air quality modeling analysis - The meteorological data was provided and processed by SCAQMD using AERMET version 14134. The data was collected at the Pomona monitoring station and covers 5 years from 2008-2012. The SCAQMD is not planning on processing the meteorological data for the project site using the most current version of AERMET (Version 15181) for a number of months. Therefore, for PRP SCAQMD recommended that the Applicant use the SCAQMD-provided meteorological data (processed using AERMET version 14134) in AERMOD version 15181. The most current version of AERMAP (version 11103) was used in processing the terrain data for the PRP air quality impact analysis.

- With regard to the approach used in modeling compliance with the federal 1-hour NO_2 AAQS - The SCAQMD provided a complete hourly O_3 data set for the Pomona monitoring station for the 2008-2012 period. With regard to background NO_2 data, CAPCOA's Tier 9 approach (i.e., seasonal hour of day background NO_2 levels) was used for the PRP air quality modeling analysis. These NO_2 background levels were also provided by the SCAQMD based on data collected at the Pomona monitoring station during the same period.

- With regard to the background ambient monitoring stations used for the analysis - For background SO_2 and $PM_{2.5}$ levels, the data collected at the Fontana-Arrow Highway and Ontario-1408 Francis Street monitoring stations, respectively, were used for the air quality modeling analysis. For background PM_{10} levels, based on the coordinates for the Ontario-1408 Francis Street monitoring station (site ID 60710025), this monitoring station is located at 1408 E Francis Street which is approximately 8.7 miles east of the project site. At approximately 7 miles from the project site, the Glendora monitoring station appears to be the nearest PM_{10} monitoring station to the project site. Therefore, the background PM_{10} data collected at the Glendora station was used for the air quality modeling analysis.
- With regard to the possible use of non-default modeling options - None of the non-default modeling options discussed in the modeling protocol were used in the air quality modeling analysis performed for PRP.

The modeling procedures used for each type of modeling analysis are described in more detail in the following sections.

Two different USEPA guideline models were used for different meteorological conditions in the ambient air quality impact analysis: AERMOD[22] and AERSCREEN.

The USEPA-approved AERMOD model was used to evaluate impacts in simple, intermediate, and complex terrain. AERMOD is a Gaussian dispersion model capable of assessing impacts from a variety of source types in areas of simple, intermediate, and complex terrain. The model can account for settling and dry deposition of particulates; area, line, and volume source types; downwash effects; and gradual plume rise as a function of downwind distance. The model is capable of estimating concentrations for a wide range of averaging times (from one hour to one year), and was applied with 5 years of actual meteorological data (2008 to 2012) recorded at the Pomona monitoring station.

The AERSCREEN model was used to evaluate gas turbine impacts under inversion breakup conditions because these are special cases of meteorological conditions. The AERSCREEN model uses a range of meteorological conditions that could occur under inversion breakup. The fumigation analysis is discussed in more detail below.

The air dispersion modeling was conducted based on guidance presented in the USEPA AERMOD Implementation Guide (USEPA, 2015b), USEPA's *Guideline on Air Quality Models* (USEPA, 2005) and SCAQMD Modeling Guidance for AERMOD, and as described in the modeling protocol that was submitted to the CEC and included in Appendix 4.1D. Modeling results are provided on a DVD submitted to the SCAQMD and CEC as part of the licensing process for this project.

Model Selection. The AERMOD model is a steady-state, multiple-source, dispersion model that incorporates hourly meteorological data inputs and local surface characteristics. The AERMOD model is well suited for this assessment based on the ability of the model to handle the various physical characteristics of project emission sources, including point, area, and volume source types. The required emission source data inputs to AERMOD encompass source locations, source elevations, stack heights, stack diameters, stack exit temperatures, stack exit velocities, and pollutant emission rates. The source locations are specified for a Cartesian (x,y) coordinate system where x and y are distances east and north in meters, respectively. The Cartesian coordinate system used for these analyses is the Universal Transverse Mercator Projection (UTM), 1983 North American Datum.

Where noted, the NO_2 1-hour modeling was refined using AERMOD's Plume Volume Molar Ratio Method (PVMRM) (Hanrahan, 1999) model option. PVMRM offers a more realistic approach to calculating concentrations of NO_2 by accounting for the fact that only a portion of the NO_x emitted from the gas

22 The acronym AERMOD was derived from American Meteorological Society/Environmental Protection Agency Regulatory Model.

turbine stacks is in the form of NO_2. The remaining stack gas is released as NO_x. In the atmosphere, NO_x chemically reacts with ambient concentrations of O_3 to form NO_2. The PVMRM option calculates NO_2 concentrations based on the ambient O_3 concentrations using this principle. The hourly O_3 data used for the PVMRM analysis were collected at the nearby Pomona monitoring station between 2008 and 2012 and preprocessed by the SCAQMD for use with AERMOD.

Model Options. The following technical options were selected for the AERMOD model:

- Regulatory default control options
- Urban dispersion mode based on the project's urban location[23]
- Receptor elevations and controlling hill heights obtained from AERMAP output

Meteorological Data. The CEC requires a minimum of one year of meteorological data approved by ARB or the local APCD to be used in the air dispersion modeling analysis. USEPA modeling guidance recommends use of a minimum of 3 years of meteorological data collected at the nearest station to the project site. According to USEPA's Guideline on Air Quality Models (USEPA, 2005), representativeness of meteorological data used in dispersion modeling depends on: (1) the proximity of the meteorological monitoring site to the area under consideration; (2) the complexity of the terrain; (3) the exposure of the meteorological monitoring site; and (4) the period of time during which data are collected.

The District has prepared a 5-year meteorological dataset (2008–2012) already processed in AERMET (version 14134) to generate AERMOD-compatible meteorological data for air dispersion modeling.[24] The surface meteorological data were recorded at the meteorological monitoring station in Pomona, and the upper air data were recorded at the *San Diego* Miramar Station (No. 03190). The representativeness of the surface and upper air data is discussed in detail in the modeling protocol in Appendix 4.1D.

The annual and quarterly wind rose plots for the Pomona meteorological station are presented in Appendix 4.1A.

Receptor Grid Spacing. Cartesian coordinate receptor grids were used to provide adequate spatial coverage surrounding the project area for assessing ground-level pollution concentrations, to identify the extent of significant impacts, and to identify maximum impact locations. A 250-meter resolution coarse receptor grid was developed that extended outwards at least 10 km (or more if necessary to establish the significant impact area).

For the full impact analyses, a nested grid was developed to fully represent the maximum impact area(s). The receptor grid was constructed as follows:

- One row of receptors spaced 20 meters apart along the facility's fence line[25]
- Four tiers of receptors spaced 25 meters apart, extending 100 meters from the fence line
- Additional tiers of receptors spaced 100 meters apart, extending from 100 meters to 1,000 meters from the fence line
- Additional tiers of receptors spaced 250 meters apart, out to at least 10 km from the most distant source modeled, not to exceed 50 km from the project site

[23] The rural vs. urban option in AERMOD is primarily designed to set the fraction of incident heat flux that is transferred into the atmosphere. This fraction becomes important in urban areas having an appreciable "urban heat island" effect due to a large presence of land covered by concrete, asphalt, and buildings. Land use within 3 km of the facility is primarily classified as urban based on the Auer Method; therefore, AERMOD will be run in the "Urban" dispersion mode with a population input of 9,862,049, as defined for Los Angeles County in the District's modeling guidance.

[24] SCAQMD Meteorological Data for AERMOD, www.aqmd.gov/home/library/air-quality-data-studies/meteorological-data/data-for-aermod.

[25] According to SCAQMD modeling guidance for AERMOD, 20 meter receptor spacing must be used along the project boundary of the project area is < 4 acres. A 20 meter fence receptor grid will be used, as the project area is < 4 acres.

Additional refined receptor grids with 25-meter resolution were placed around the maximum first-high or maximum second-high coarse grid impacts and extended out 1,000 meters in all directions. Concentrations within the facility fence line were not calculated.

Building Downwash and Good Engineering Practice Assessment. For the analysis of the potential gas turbine impacts during operation, USEPA's BPIP-Prime (Building Profile Input Program – Plume Rise Model Enhancement) was used to calculate the projected building dimensions required for AERMOD evaluation of impacts from building downwash.

Good engineering practice (GEP), as used in the modeling analyses, is the maximum allowed stack height to ensure that emissions from the stack do not result in excessive concentrations of any air pollutant in the immediate vicinity of the source as a result of atmospheric downwash, eddies, or wakes that may be created by the source itself, nearby structures, or nearby terrain obstacles. In addition, the GEP modeling restriction ensures that any required regulatory control measure is not compromised by the effect of that portion of the stack that exceeds the GEP.

USEPA's guidance for determining GEP stack height (Hg) (USEPA, 1985) is based on the height of a nearby structure(s) measured from the ground-level elevation at the base of the stack (H) and the lesser dimension—height or projected width—of the nearby structure(s) (L) as follows:

$$Hg = H + 1.5L$$

The GEP modeling restriction is the greater of the calculated GEP stack height or 65 meters. Therefore, based on the onsite and offsite building dimensions as input into BPIP-Prime, the calculated GEP height for the exhaust stack is the greater of 65 meters or the calculated height of 35.4 meters. The proposed gas turbine stack height of 27.43 meters (90 feet) does not exceed GEP stack height.

Ozone Limiting. As discussed above, one-hour NO_2 impacts during proposed project operation were modeled using the AERMOD PVMRM option. PVMRM uses the background hourly O_3 data for the project area to calculate the one-hour NO_2 impacts. The hourly O_3 data used for this analysis was supplied by the SCAQMD based on data collected at the Pomona monitoring station for the years 2008 to 2012.

Part of the NO_x in the exhaust is converted to NO_2 during and immediately after combustion. The remaining percentage of the NO_x emissions is assumed to be NO. For the gas turbine, the analysis was performed using the following NO_2/NO_x ratios recommended by GE:

- 30 percent during normal operating hours
- 40 percent during hours in which a startup/shutdown occurs
- 40 percent during commissioning tests when the SCR system is not fully operational

As the exhaust leaves the stack and mixes with the ambient air, the NO reacts with ambient O_3 to form NO_2 and molecular O_2. The PVMRM assumes that at any given receptor location, the amount of NO that is converted to NO_2 by this oxidation reaction is proportional to the ambient O_3 concentration. If the O_3 concentration is less than the NO concentration, the amount of NO_2 formed by this reaction is limited. However, if the O_3 concentration is greater than or equal to the NO concentration, all of the NO is assumed to be converted to NO_2.

Annual NO_2 concentrations were calculated using the Ambient Ratio Method (ARM), originally adopted in Supplement C to the Guideline on Air Quality Models (USEPA, 1995) with a revision issued by USEPA in March 2014 (USEPA, 2014b). The Guideline allows a nationwide default of 75 percent for the conversion of NO to NO_2 on an annual basis and the calculation of NO_2/NO_x ratios. This nationwide default conversion factor was used to model annual NO_2 impacts for the proposed project.

4.1.6.3 Demolition/Construction Impacts Analysis

Construction of PRP will require the removal of the existing San Gabriel Facility. The demolition of the existing plant, scheduled to occur in the first half of 2017, will provide the space for the construction of PRP. Demolition is expected to take 3 months. Actual onsite physical construction from site preparation to completion of all mechanical, electrical, and balance of plant equipment is expected to take 14 months[26] with an additional 2 months for commissioning/testing activities[27]. Normal operation of PRP is scheduled to begin during the first quarter of 2019.

The demolition and construction emission estimates include emissions from vehicle and equipment exhaust, and fugitive dust generated from material handling and paved/unpaved surface travel. A dispersion modeling analysis and a SHRA were conducted based on these emissions. The detailed analysis of the construction and demolition emissions and ambient impacts are included in Appendices 4.1F and 4.1G.

4.1.6.4 Operational Impacts

Screening Procedures and Unit Impact Modeling. Turbine emissions and stack parameters, such as flow rate and exit temperature, vary with ambient temperature and operating load. Therefore, to evaluate the worst-case air quality impacts for the new gas turbine, an initial screening-level dispersion modeling analysis was conducted to select the worst-case gas turbine operating mode for each pollutant and averaging period. The modeling used emissions data based on maximum temperature (100°F), annual average temperature (74°F), ISO temperature (59°F), and minimum temperature (28°F), and at nominal minimum and maximum gas turbine operating load points.[28] The determination of the worst-case gas turbine operating condition depends on how changes in emissions rates and stack characteristics (plume rise characteristics) interact with terrain features. For example, lower mass emissions resulting from lower load operation may cause higher concentrations than other operating conditions because lower final plume height may have a greater significant interaction with terrain features.

Initial AERMOD modeling runs were performed using normalized emission rates to assess the zone of impact and relative magnitude of the impacts. For the AERMOD gas turbine screening modeling, the gas turbine was modeled with a unit emission rate of 1 gram per second to obtain maximum 1-hour, 3-hour, 8-hour, 24-hour, and annual average concentration to emission rate (χ/Q in units of $\mu g/m^3$ per g/s) values. These χ/Q values were multiplied by the actual emission rate in grams per second from the gas turbine to calculate ambient impacts for NO_2, CO, SO_2, and $PM_{10}/PM_{2.5}$ in units of $\mu g/m^3$. Stack parameters used in the screening modeling analysis are shown in Appendix 4.1E.

The results of the screening analysis are shown in Appendix 4.1E, Table 4.1E-3. The stack parameters and emission rates corresponding to the operating case that produced the maximum impacts in the gas turbine screening analysis for each pollutant and averaging period were used in the refined modeling analysis to evaluate air quality impacts.

Refined Air Quality Impact Analysis. In simple, intermediate, and complex terrain, AERMOD was used to estimate proposed project impacts. The AERMOD model was used to calculate 1-hour, 3-hour, 8-hour, 24-hour, and annual average concentrations.

Refined modeling was performed in two phases: coarse grid modeling and fine grid modeling. Preliminary modeling was performed with the coarse grid to locate the areas of maximum

[26] From July 2017 to August 2018, per Table 4.10-6

[27] November 2018 and December 2018, per Table 4.10-6.

[28] Gas turbine loads range from 25 to 100 percent.

concentration; fine grids were used to refine the location of the maximum concentrations. Concentrations within the facility fence line were not calculated.

The stack parameters and emission rates used to model combined impacts from all new equipment at the facility are shown in Appendix 4.1E. Terrain features were taken from the U. S. Geological Survey (USGS) National Elevation Dataset (NED). These terrain data are part of the modeling DVD submitted to the SCAQMD and CEC as part of the SPPE process for the proposed project.

Commissioning Impacts Analysis. During the initial commissioning period, the gas turbine will initially be operated at various load rates without the benefit of the emission control systems to ensure proper operation. The AERMOD coarse and refined grid dispersion analyses were conducted using the parameters and emission rates presented in Appendix 4.1E, Table 4.1E-6. It is assumed that the maximum modeled impacts during commissioning will occur under the gas turbine operating conditions that are least favorable for dispersion. These conditions are expected to occur under low-load conditions.

One-hour average NO_2 impacts during commissioning were modeled using AERMOD with PVMRM and concurrent Pomona O_3 data. Modeled impacts are shown in Table 4.1-27. SO_x and $PM_{10}/PM_{2.5}$ emissions during the commissioning of the gas turbine are not expected to be higher than during normal operation of the existing unit.

The analysis excluded a comparison to the federal 1-hour NO_2 standard because the maximum hourly unabated emission rates that result in the highest predicted concentrations are expected to occur only once in the life of the project and that one time will be less than 220 hours. Furthermore, the federal 1-hour NO_2 standard is based on a 98th percentile statistical standard, so it is unlikely that simultaneous one-time unabated emissions for the gas turbine will occur on the days with the highest background NO_2 and O_3 concentrations.[29]

Table 4.1-27. Maximum Modeled Impacts for the Commissioning Period
Small Power Plant Exemption Application for the Pomona Repower Project

Pollutant	Averaging Period	Modeled Impact, µg/m³	Monitored Background Concentration, µg/m³	Total Impact, µg/m³	Most Stringent Standard, µg/m³	Percent of Most Stringent Standard
NO_2	1-hour[a]	19.1	167.5	187	339	55.2%
CO	1-hour	58.4	2,863.8	2,922	23,000	12.7%
	8-hour	33.6	1,832.8	1,866	10,000	18.7%
SO2	1-hour	0.5	11.3	12	655	1.8%
	24-hour	0.1	8.4	9	196	4.3%
PM_{10}	24-hour	0.2	100	100	50	200.4%
$PM_{2.5}$	24-hour[b]	0.2	32	32	35	91.4%

[a] Based on PVMRM.
[b] Total predicted concentrations for the federal 24-hour $PM_{2.5}$ standard are the respective maximum modeled concentrations combined with the three-year average of 98th percentile background concentrations.

Fumigation Impacts. Fumigation occurs when a stable layer of air lies a short distance above the release point of a plume and unstable air lies below. Under these conditions, an exhaust plume may cause high

[29] Although USEPA is not the reviewing authority for this permit, we note that excluding this short-term, one-time emissions scenario is consistent with USEPA's March 1, 2011, guidance (USEPA, 2011): "When EPA is the reviewing authority for a permit… we will consider it acceptable to limit the emission scenarios included in the modeling compliance demonstration for the 1-hour NO_2 NAAQS to those emissions that are continuous enough or frequent enough to contribute significantly to the annual distribution of daily maximum 1-hour concentrations."

ground-level pollutant concentrations because the plume is unable to rise upwards normally because of the stable layer capping it from above, and be drawn to the ground by turbulence within the unstable layer. Although fumigation conditions rarely last as long as one hour, relatively high ground-level concentrations may be reached during that time. For this analysis, fumigation was assumed to occur for up to 90 minutes, as recommended by USEPA guidance.

The AERSCREEN model was used to evaluate maximum ground-level concentrations for short-term averaging periods (24 hours or less). Guidance from the USEPA (USEPA, 1992) was followed in evaluating fumigation impacts.

Impacts during Gas Turbine Startup. Facility impacts were also evaluated during startup of the new gas turbine to evaluate short-term impacts under worst-case startup emissions. Gas turbine exhaust parameters used to characterize gas turbine exhaust during startup and the CO and NO_x emission rates are shown in Appendix 4.1E. Impacts during gas turbine startup are shown in Table 4.1-28.

Air Quality Modeling Results. The 1-hour NO_x and CO emission rates were based on the conservative assumption that the gas turbine will be in startup. The emission rates for 8-hour and 24-hour averaging periods were based on the assumption that the gas turbine will undergo a startup and a shutdown during the period, and will operate for the remaining hours at 100 percent load. The hourly emission rates for 24-hour PM_{10} and $PM_{2.5}$ were based on operation at 100 percent load.

As discussed previously, annualized hourly emission rates for the annual impact assessment were based on 2,800 hours per year of plant operation at full load, 1,000 hours per year in startup/shutdown mode and 3,800 hours per year of cooling tower operation.

The facility layout for modeling is shown in Section 2, Figure 2.1-1.

Table 4.1-28 summarizes the maximum impacts during the operation of the proposed project, calculated from the refined, startup/shutdown, and fumigation modeling analyses described above. These impacts reflect only operation of the proposed new equipment.

Table 4.1-28. Air Quality Modeling Results
Small Power Plant Exemption Application for the Pomona Repower Project

		Modeled Maximum Concentrations ($\mu g/m^3$)			
Pollutant	**Averaging Time**	**Normal Operation AERMOD**	**Startup/Shutdown AERMOD**	**Fumigation[c] AERSCREEN**	**Flat Terrain AERSCREEN**
Gas Turbine					
NO_2[e]	1-hour	1.0	7.7	1.5	2.8
	98th percentile	0.7	5.9	-	-
	Annual	0.0	N/A[a]	N/A[c]	N/A[c]
SO_2	1-hour	0.3	N/A[b]	0.3	0.7
	3-hour	0.2	N/A[b]	0.3	0.7
	24-hour	0.1	N/A[b]	0.2	0.4
	Annual	0.0	N/A[b]	N/A[c]	N/A[c]
CO	1-hour	1.1	5.2	1.5	2.8
	8-hour	0.5	3.0	1.3	2.5
$PM_{2.5}/PM_{10}$	24-hour	0.2	N/A[b]	0.2	0.4
	Annual	0.0	N/A[b]	N/A[c]	N/A[c]

Table 4.1-28. Air Quality Modeling Results
Small Power Plant Exemption Application for the Pomona Repower Project

		Modeled Maximum Concentrations (µg/m³)			
Pollutant	**Averaging Time**	**Normal Operation AERMOD**	**Startup/Shutdown AERMOD**	**Fumigation[c] AERSCREEN**	**Flat Terrain AERSCREEN**
Cooling Tower					
$PM_{2.5}$/PM_{10}	24-hour	0.0	N/A[b]	0.0	2.0
	Annual	0.0	N/A[b]	N/A[c]	N/A[c]
Facility-wide					
NO_2[e]	1-hour	1.0	7.7	N/A[d]	
	98th percentile	0.7	5.9	N/A[d]	
	Annual	0.0	N/A[a]	N/A[c]	
SO_2	1-hour	0.3	N/A[b]	N/A[d]	
	3-hour	0.2	N/A[b]	N/A[d]	
	24-hour	0.1	N/A[b]	N/A[d]	
	Annual	0.0	N/A[b]	N/A[c]	
CO	1-hour	1.1	5.2	N/A[d]	
	8-hour	0.5	3.0	N/A[d]	
$PM_{2.5}$/PM_{10}	24-hour	0.2	N/A[b]	N/A[d]	
	Annual	0.0	N/A[b]	N/A[c]	

[a] Not applicable, because startup/shutdown emissions are included in the modeling for the annual average.

[b] Not applicable, because emissions are not elevated above normal operation levels during startups/shutdowns.

[c] Not applicable, because inversion breakup fumigation is a short-term phenomenon and as such is evaluated only for short-term averaging periods.

[d] Not applicable for the following two reasons: First - The fumigation calculations are applicable only for rural inland sites[30] (this project is located in an urban area). Second - If the estimated fumigation impact is less than the maximum flat terrain impact, the fumigation impact may be ignored.[31]

[e] 1-hour NO_2 modeled using PVMRM. Annual NO_2 modeled using ARM.

Notes:

µg/m³ = micrograms per cubic meter
N/A = not available
PM_{10} = particulate matter less than 10 microns in diameter
$PM_{2.5}$ = particulate matter less than 2.5 microns in diameter
SO_2 = sulfur dioxide

4.1.6.5 Modeling Results Compared to the Ambient Air Quality Standards

To determine a project's air quality impacts, the modeled concentrations are added to the maximum background ambient air concentrations and then compared to the applicable AAQSs.

[30] SCREEN3 Model User's Guide, USEPA 1995, Chapter 2.4.7, Fumigation option

[31] Screening Procedures For Estimating The Air Quality Impacts for Stationary Sources, USEPA 1988, Chapter 4.5.3, Fumigation

Demolition/Construction Impacts Analysis. The results presented in Appendices 4.1F and 4.1G indicate that the maximum NO_2, CO and SO_2 demolition/construction impacts combined with the background concentrations will be below the AAQS for each averaging period. The project area already exceeds the state standards for PM_{10} and $PM_{2.5}$ (the project area is also classified as a nonattainment area for the federal $PM_{2.5}$ standards). The maximum demolition/construction 24-hour and annual PM_{10} impacts are below the 24-hour and annual average federal SILs of 5 µg/m^3 and 1 µg/m^3, respectively. In addition, the maximum construction 24-hour and annual $PM_{2.5}$ impacts are below the 24-hour and annual average federal SILs of 1.2 µg/m^3 and 0.9 µg/m^3, respectively. With the exception of a small area extending less than 100 meters from the project property line in which 24-hour impacts are above the 24-hour $PM_{2.5}$ federal SIL, the maximum demolition 24-hour and annual $PM_{2.5}$ impacts are below the 24-hour and annual average federal SILs. The primary purpose of federal SILs is to identify a level of ambient impact that is sufficiently low relative to an AAQS such that the impact can be considered *de minimis*. Hence, USEPA considers a source whose individual impact falls below a SIL to have a *de minimis* impact on air quality concentrations that already exist. If a project's impacts are below a federal SIL, these impacts are not considered to cause or contribute to a violation of an AAQS and/or increment.[32]

Consequently, since the PRP demolition/construction PM_{10}/$PM_{2.5}$ impacts are below federal SILs, the Applicant does not believe the impacts will cause or contribute to a violation of the 24-hour or annual PM_{10}/$PM_{2.5}$ AAQSs.[33] As such the PM_{10}/$PM_{2.5}$ impacts for project demolition/ construction will be less than significant.

Operation Impacts Analysis. As shown on Table 4.1-29, the modeling analysis shows that PRP will not interfere with the attainment or maintenance of the applicable air quality standards or cause additional violations of any standards, with the exception of PM_{10}/$PM_{2.5}$ for which the state standards are already exceeded (the project area is also classified as a nonattainment area for the federal $PM_{2.5}$ standards). As shown on Table 4.1-30, the maximum modeled 24-hour and annual average PM_{10} and $PM_{2.5}$ impacts for the project are below the 24-hour and annual average federal SILs and below the SCAQMD PM_{10} SILs. The purpose of the federal SILs is discussed above in regards to demolition/construction impacts. Since PRP's PM_{10}/$PM_{2.5}$ impacts are below federal SILs, the Applicant does not believe the impacts will cause or contribute to a violation of the 24-hour or annual PM_{10}/$PM_{2.5}$ AAQSs. As such the PM_{10}/$PM_{2.5}$ impacts for project operation will be less than significant.

PSD Significance Levels. The PSD program was established to allow emission increases that do not result in significant deterioration of ambient air quality in areas where criteria pollutants have not exceeded the NAAQS. Although the proposed project will not be subject to PSD review, the PSD SILs can be used as one measure of whether the project's impacts are significant.

The comparison in Table 4.1-30 shows that project impacts are below the PSD SILs for all pollutants and averaging periods except 1-hour NO_2. As discussed in Section 4.1.9.2, project emissions for these pollutants will be fully offset consistent with SCAQMD Rule 1303. Therefore, the NO_2 impacts from project operation will be less than significant.

[32] 75 FR 64891: "Accordingly, a source that demonstrates that the projected ambient impact of its proposed emissions increase does not exceed the SIL for that pollutant at a location where a NAAQS or increment violation occurs is not considered to cause or contribute to that violation."

[33] In January 2013, USEPA sought, and the U.S. Court of Appeals for the District of Columbia Circuit granted, remand and vacatur of these SILs as they apply for purposes of avoiding a cumulative impacts analysis under federal PSD requirements (40 C.F.R. Section 51.166(k)(2) and Section 52.21(k)(2)). However, USEPA has retained these SILs for purposes of demonstrating whether a source locating in an attainment/unclassifiable area will be deemed to cause or contribute to a violation in a downwind nonattainment area. See Sierra Club v. EPA, No. 10-1413 (D.C. Cir. 2013), slip op. 9. Accordingly, application of these SILs for purposes of satisfying the SCAQMD's requirement to assure that a new or modified facility does not interfere with the attainment or maintenance of an AAQS (SCAQMD Rule 1303) is appropriate.

Table 4.1-29. Operation Impacts Analysis—Maximum Modeled Impacts Compared to the Ambient Air Quality Standards
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Pollutant	Averaging Time	Maximum Modeled Concentration (µg/m³)	Background Concentration (µg/m³)[a]	Total Combined Predicted Concentration (µg/m³)	State Standard (µg/m³)	Federal Standard (µg/m³)
NO_2[b]	1-hour	7.7	167.5	175	339	--
	Federal 1-hour	5.9	--[c]	128[c]	--	188
	Annual	0.0	42.7	42.7	57	100
SO_2	1-hour	0.3	11.3	11.6	655	--
	Federal 1-hour[d]	0.3	10.5	10.8	--	196
	24-hour	0.1	8.4	8.5	105	
CO	1-hour	5.2	2863.8	2869	23,000	40,000
	8-hour	3.0	1832.8	1836	10,000	10,000
PM_{10}	24-hour	0.2	100	100	50	150
	Annual	0.0	33.6	34	20	--
$PM_{2.5}$	24-hour[e]	0.2	32	32	--	35
	Annual	0.0	13	13	12	12

[a] Background concentrations were the highest concentrations monitored during 2012—2014

[b] The maximum 1-hour NO_2 concentration is modeled using PVMRM, and the maximum annual NO_2 concentration uses ARM.

[c] Background concentrations are included in the Total Combined Predicted Concentration.

[d] Total predicted concentrations for the federal 1-hour SO_2 standard is the maximum modeled concentrations combined with the 3-year average of 99th percentile background concentrations.

[e] Total predicted concentrations for the federal 24-hour $PM_{2.5}$ standard are the respective maximum modeled concentrations combined with the three-year average of 98th percentile background concentrations.

Table 4.1-30. Comparison of Maximum Modeled Impacts and PSD/SCAQMD Significant Impact Levels
Small Power Plant Exemption Application for the Pomona Repower Project

Pollutant	Averaging Time	Significant Impact Level, µg/m³	Maximum Modeled Concentrations, µg/m³	Exceed Significant Impact Level?
PSD Significant Impact Levels				
NO_2	1-Hour	7.5[a]	7.7	Yes
	Annual	1	0.0	No
SO_2	1-Hour	7.8[b]	0.3	No
	3-Hour	25	0.2	No
	24-Hour	5	0.1	No
	Annual	1	0.0	No
CO	1-Hour	2,000	5.2	No
	8-Hour	500	3.0	No
PM_{10}	24-Hour	5	0.2	No
	Annual	1	0.0	No

Table 4.1-30. Comparison of Maximum Modeled Impacts and PSD/SCAQMD Significant Impact Levels
Small Power Plant Exemption Application for the Pomona Repower Project

Pollutant	Averaging Time	Significant Impact Level, µg/m^3	Maximum Modeled Concentrations, µg/m^3	Exceed Significant Impact Level?
$PM_{2.5}$[c]	24-Hour	1.2	0.2	No
	Annual	0.3	0.0	No
SCAQMD Significant Impact Levels (new gas turbine only)				
PM_{10}	24-Hour	2.5	0.2	No
	Annual	1	0.0	No

[a] USEPA has not yet defined SILs for 1-hour NO_2 and SO_2 impacts. However, USEPA has suggested that, until SILs have been promulgated, interim values of 4 ppb (7.5 µg/m3) for NO_2 and 3 ppb (7.8 µg/m3) for SO_2 may be used (USEPA [2010c]; USEPA [2010d]). These values will be used in this analysis as interim SILs.

[b] USEPA (2010e), p. 64891.

[c] In January 2013, the D.C. Circuit Court of Appeals ruled that the $PM_{2.5}$ SILs could not be used as a definitive exemption from the requirements to perform $PM_{2.5}$ preconstruction monitoring or a $PM_{2.5}$ increments analysis or AQIA. However, USEPA's March 2013 interpretation of the Court's decision indicated that the SILs can be used as guidance.

4.1.6.6 Screening Health Risk Assessment

An SHRA was conducted to determine expected impacts on public health of the non-criteria pollutant emissions from operation of the project. The potential health risks and a detailed discussion of the approach used for the screening level risk assessment, including the detailed non-criteria-pollutant calculations, are provided in Section 4.9, Public Health.

4.1.7 Consistency with Laws, Ordinances, Regulations, and Standards

This section considers consistency separately for federal, state, and local requirements.

4.1.7.1 Consistency with Federal Requirements

The SCAQMD has been delegated authority by the USEPA to implement and enforce most federal requirements that may be applicable to the proposed project, including new source performance standards and NSR for nonattainment pollutants. The proposed project will also be required to comply with the Federal Acid Rain requirements (Title IV). Because the SCAQMD has been delegated authority to implement Title IV through its Title V permit program, the Title V Federal Operating Permit that will be issued as a result of the proposed project will contain the necessary requirements for compliance with the Title IV Acid Rain provisions. In addition, the SCAQMD has obtained delegation from USEPA to implement the PSD program; however as discussed below, the project does not trigger PSD review.

PSD Program. USEPA has promulgated PSD regulations for areas that are in compliance with national AAQSs (40 C.F.R. 52.21). The PSD program allows new sources of air pollution to be constructed, or existing sources to be modified, while preserving the existing ambient air quality levels, protecting public health and welfare, and protecting Class I areas (e.g., specific national parks and wilderness areas). There are five principal areas of the PSD program: (1) Applicability; (2) Best Available Control Technology; (3) Preconstruction Monitoring; (4) Increments Analysis; and (5) Air Quality Impact Analysis.

Applicability. The federal PSD requirements apply on a pollutant-specific basis to any project that is a new major stationary source or a major modification to an existing stationary source. These terms are defined in SCAQMD Regulation XVII. To determine whether PRP triggered PSD review, the estimated project emissions were compared to the appropriate PSD applicability thresholds levels. As shown in Table 4.1-31, PRP emissions are below PSD major modification trigger levels. Therefore, PRP is not a major modification to an existing major source and, therefore, is not subject to PSD review.

Table 4.1-31. PSD Applicability
Small Power Plant Exemption Application for the Pomona Repower Project

Pollutant	Net Emissions Increase (tpy)	PSD Significance Levels (tpy)	Are Increases Significant?
NO_x	8.9	40	No
SO_x	1.0	40	No
VOC	3.3	40	No
CO	-16.6	100	No
PM_{10}	2.6	15	No
$PM_{2.5}$	2.6	10	No
GHG	145,635	N/A	No

Title V Operating Permits. SCAQMD Regulation XXX implements the Title V federal operating permit program. The permit application recently submitted to the SCAQMD includes a request to modify the existing Title V permit for the facility to include the installation/operation of the proposed new equipment.

40 C.F.R. Part 60, Subpart KKKK (Standards of Performance for Stationary Combustion Turbines). This new source performance standard applies to gas turbines with heat inputs equal to or greater than 10 MMBtu/hr that commence demolition/construction after February 18, 2005, and therefore, is applicable to the PRP CTG. Subpart KKKK limits NO_x and SO_2 emissions from a new gas turbine with a heat input greater than 850 MMBtu/hr to limits of 15 ppmvd @ 15 percent O_2 (ppmc) for NO_x and 0.90 lb/MW-hr for SO_x. As shown in Table 4.1-32, the proposed CTG at PRP will comply with these limits.

Compliance with the NSPS limits must be demonstrated through an initial performance test. Because the PRP CTG will be equipped with a NO_x CEMS that will comply with NSPS requirements, the initial performance test will be met as part of the initial NO_x CEMS certification testing process and ongoing annual performance testing will not be required under the NSPS.

Table 4.1-32. Compliance with 40 C.F.R. 60 Subpart KKKK
Small Power Plant Exemption Application for the Pomona Repower Project

	Project Emission Levels			
Pollutant	ppmc	lb/hr	lb/MW-hr	Subpart KKKK Limits
NO_x	2.5	NA	NA	15 ppmc
SO_x	NA	2.0	0.02	0.90 lb/MW-hr

40 C.F.R. Part 60, Subpart TTTT (Standards of Performance for Greenhouse Gas Emissions for Electric Generating Units). On Sept. 20, 2013, USEPA issued a revised proposed NSPS to control GHG emissions from new power plants (Subpart TTTT). The final rule was published in the Federal Register on October 23, 2015 and became effective on December 22, 2015. USEPA established separate standards for steam generating units, IGCC unit and stationary combustion turbines. The applicable GHG emission limit from 40 C.F.R. Part 60 Subpart TTTT, Table 2 is as follows:

Affected Electric Generating Units (EGU)	CO_2 Emission Standard
Newly constructed or reconstructed stationary combustion turbine* that supplies its design efficiency or 50 percent, whichever is less, times its potential electric output or less as net-electric sales on either a 12-operating month or a 3-year rolling average basis and combusts more than 90 percent natural gas on a heat input basis on a 12-operating-month rolling average basis	50 kg CO_2 per gigajoule (GJ) of heat input (120 lb CO2/MMBtu).

* Commenced construction after January 8, 2014 and Reconstruction after June 18, 2014.

"Design efficiency" is defined in the rule as "the rated overall net efficiency (e.g., electric plus useful thermal output) on a lower heating value basis at the base load rating, at ISO conditions …."

"Potential electric output" is defined in the rule as "33 percent or the base load rating design efficiency at the maximum electric production rate …, whichever is greater, multiplied by the base load rating (expressed in MMBtu/h) of the EGU, multiplied by 10^6 Btu/ MMBtu, divided by 3,413 Btu/KWh, divided by 1,000 kWh/MWh, and multiplied by 8,760 h/yr…"

According to Gas Turbine World 2015 Performance Specifications, the ISO base load design rated efficiency for the LMS 100PA proposed for PRP is 43.9 percent.

The percentage electric sales threshold that distinguishes base load and non-base load units is based on the specific turbine's design efficiency (commonly known as "the sliding-scale approach") and varies from 33 to 50 percent. Specifically, all units that have annual average electric sales (expressed as a capacity factor) greater than their net LHV design efficiencies (as a percentage of potential electric output) are base load units. All units that have annual average electric sales (expressed as a capacity factor) less than or equal to their net LHV design efficiencies are non-base load units. It is expected that on an annual average basis the new PRP CTG would supply approximately 43.4 percent of its potential electric output to a utility power distribution system. Because this expected potential annual average electric sales rate is less than the 43.9 percent design efficiency, the new PRP CTG would be a non-base load unit under the final rule. As a non-base load unit, the potential electric output for PRP is calculated as follows:

$$Design\ efficiency\ (\%)\ x\ Heat\ Input \frac{MMBtu}{hr}\ x\ \frac{10^6 Btu}{MMBtu}\ x\ \frac{1\ kW}{3412.1416\ Btu}\ x\ \frac{1\ MW}{1{,}000\ kW}\ x\ 8{,}760\ hr/yr$$

$$43.9\%\ x\ 945.6\ \frac{MMBtu}{hr}\ x\ \frac{10^6 Btu}{MMBtu}\ x\ \frac{1kW}{3412.1416\ Btu}\ x\ \frac{1\ MW}{1{,}000\ kW}\ x\ 8{,}760 \frac{hr}{yr} = 1{,}065{,}735\ MW/yr$$

As long as the PRP CTG has net electric sales of less than 0.439 * 1,065,735 MW or 467,857.7 MW per year, it will be subject to the 120 lb CO_2/MMBtu limit for non-base load gas turbines.

USEPA determined that the Best System of Emission Reduction (BSER) for non-base load natural gas-fired units is the use of clean fuels, specifically natural gas with a small allowance for distillate oil. USEPA concluded that it did not have sufficient information to set a meaningful output-based standard for non-base load natural gas-fired combustion turbines. The input-based standard requires non-base load units to burn fuels with an average emission rate of 120 lb CO_2/MMBtu or less. As noted by USEPA, this standard is readily achievable because the CO_2 emission rate of natural gas is 117 lb CO_2/MMBtu. Owners and operators of non-base load natural gas-fired combustion turbines burning fuels with consistent chemical compositions that meet the clean fuels requirement (e.g., natural gas, ethane, ethylene, propane, naphtha, jet fuel kerosene, distillate oils 1 and 2, and biodiesel) will only need to maintain records that they burned these fuels in the combustion turbine. No additional recordkeeping or reporting will be required. Because the PRP CTG will burn only natural gas, it will comply with the rule by maintaining appropriate records.

National Emission Standards for Hazardous Air Pollutants (NESHAP). This program establishes national emission standards to limit emissions of HAPs (or air pollutants identified by USEPA as causing or contributing to the adverse health effects of air pollution, but for which NAAQS have not been established) from major sources of HAPs in specific source categories. These standards are implemented at the local level with federal oversight. Only the NESHAPs for gas turbines (40 C.F.R. 63 Subpart YYYY), which limit formaldehyde emissions from a CTG, are potentially applicable to the proposed project. As shown in Section 4.1.5.6, PRP will not be a major source of HAPs (i.e., less than 10 tpy of one HAP or 25 tpy of all HAPs). Therefore, the NESHAP does not apply to the proposed project.

4.1.7.2 Consistency with State Requirements

As discussed in Section 4.1.4.2, state law established local APCDs and air quality management districts with the principal responsibility for regulating emissions from stationary sources. The proposed project is under the local jurisdiction of the SCAQMD; therefore, compliance with District regulations will assure compliance with state air quality requirements.

California Clean Air Act. AB 2595, the California CAA, was enacted by the California Legislature and became law in January 1989. The CAA requires the local APCDs to attain and maintain both the federal and state AAQS at the "earliest practicable date." The CAA contains several milestones for local districts and ARB. SCAQMD was required to submit an air quality plan to ARB, with updates as necessary, defining the program for meeting the required emission reduction milestones in the South Coast Air Basin.

Air quality plans must demonstrate attainment of the state AAQS and must result in a five percent annual reduction in emissions of nonattainment pollutants (O_3, PM_{10}, $PM_{2.5}$, and associated precursors) in a given district (California Health & Safety Code Section 40914). A local district may adopt additional stationary source control measures or transportation control measures, revise existing source-specific or NSR rules, or expand its vehicle inspection and maintenance program (California Health & Safety Code Section 40918) as part of the plan. District air quality plans specify the development and adoption of more stringent regulations to achieve the requirements of the Act. The applicable regulations that will apply to PRP are shown in the discussion of District prohibitory rules in Section 4.1.6.3.

Greenhouse Gas Initiatives. In 2006, California enacted the California Global Warming Solutions Act (AB 32). It requires ARB to adopt standards that will reduce statewide GHG emissions to statewide GHG emissions levels in 1990, with such reductions to be achieved by 2020; additional reductions are required by 2050. To achieve this, ARB has a mandate to define the 1990 emissions level and achieve the maximum technologically feasible and cost-effective GHG emission reductions.

ARB adopted early action GHG reduction measures in October 2007 and established statewide emissions caps by economic "sectors" in 2008. In December 2008, ARB adopted a scoping plan that identifies how emission reductions will be achieved from significant sources of GHG via regulations, market mechanisms, and other actions. ARB staff has developed regulations to implement its plan.

Among the applicable GHG requirements is the submittal of annual GHG emission reports to ARB for subject facilities, which must contain the project's emission rates of GHGs. The project will be required to track and report GHG emissions from the gas turbine and auxiliary equipment, fuels and materials handling processes, and delivery and storage systems, as well as from all onsite secondary emission sources. The facility will also be required to participate in the Cap-and-Trade Program.

SB 1368, also enacted in 2006, and regulations adopted by the CEC and the PUC pursuant to the bill, prohibits utilities from entering into long-term commitments with any baseload facilities that exceed the EPS of 0.50 metric tons of CO_2 per MW-hour (1,100 pounds CO_2/MWh). Specifically, the EPS applies to base load power from new power plants, new investments in existing power plants, and new or renewed contracts with terms of 5 years or more, including contracts with power plants located outside of California. Compliance with the EPS is discussed further below.

While the PRP gas turbine is not subject to this EPS, because the unit is not a base load unit (i.e., has a capacity factor less than 60 percent), the PRP CO_2 emission rate of 0.46 MT/MWhr would meet the EPS Standard of 0.50 MT/MWhr.

GHG Emissions during Project Demolition/Construction. Demolition/construction of the proposed power plant will involve the use of fuel-consuming equipment for demolition/construction and transportation and will produce GHG emissions. GHG emissions during demolition/construction are provided in Appendices 4.1F and 4.1G.

These small GHG emissions increases from demolition/construction activities will not be significant. Demolition is expected to take 3 months or less. Actual onsite physical construction from site preparation to completion of all mechanical, electrical, and balance of plant equipment is expected to take approximately 14 months. Emissions during the demolition/construction period will be intermittent. Additionally, the mitigation measures proposed by the project owner (such as limiting idling times) will minimize GHG emissions during the demolition/construction phase of the project.

GHG Emissions during Project Operation. GHG emissions during project operation were calculated based on the maximum fuel use predicted for project operation and emission factors contained in the USEPA GHG Reporting Regulation.[34] GHG emissions resulting from project operation are presented in Table 4.1-33.

GHG emissions for PRP will be offset in part by the decommissioning of San Gabriel Facility. The net GHG emission change is shown in Table 4.1-33.

Table 4.1-33. Net GHG Emissions Change for Proposed Project
Small Power Plant Exemption Application for the Pomona Repower Project

Emissions/Equipment	GHG (CO_2e MT/yr)
San Gabriel Facility vs. PRP	
Potential to Emit for New Equipment (PRP)	190,893
Reductions for Shutdown of Existing Unit (5-Year Average)*	58,774
Net Emissions Change (5-Year Average)	**132,120**

The detailed GHG emission calculations for the proposed new unit and the existing San Gabriel Facility unit are included in Appendix 4.1B.

See Section 4.1.8.2 for further analyses regarding GHG emissions

34 40 C.F.R. 98 (as revised on 11/29/13).

4.1.7.3 Consistency with Local Requirements: SCAQMD

The SCAQMD has been delegated responsibility for implementing local, state, and federal air quality regulations in the South Coast Air Basin. The proposed project is subject to District regulations that apply to new stationary sources, to the prohibitory regulations that specify emission standards for individual equipment categories, and to the requirements for evaluation of impacts from non-criteria pollutants. Facility compliance with applicable District requirements is evaluated below.

New Source Review Requirements. The SCAQMD's NSR rule (Regulation XIII - New Source Review) established the criteria for siting new and modified emission sources; this rule is applicable to the proposed project. There are three basic requirements within the NSR rules. First, BACT must be applied to any new emission unit with an increase in emissions. Second, all potential emission increases of nonattainment pollutants or precursors from the proposed source above specified thresholds must be offset by real, quantifiable, surplus, permanent, and enforceable emission decreases in the form of ERCs or RTCs depending on the pollutant. Third, an ambient air quality impact analysis must be conducted to confirm that the project does not cause or contribute to a violation of a national or California AAQS or jeopardize public health. The requirements of each of these elements of the SCAQMD's NSR program are discussed below.

Best Available Control Technology. BACT must be applied to a new or modified emissions unit resulting in an emissions increase. PRP will trigger the District NSR rules BACT requirements for NO_x, SO_x, VOC, PM_{10}, $PM_{2.5}$ and ammonia. BACT for the applicable pollutants was determined by reviewing a number of BACT guideline documents, including the SCAQMD BACT Guideline Manual, and the USEPA's RACT/BACT/LAER Clearinghouse. The detailed BACT analysis is included in Appendix 4.1C.

Emission Offsets. Emission offsets are required for increases in emissions of nonattainment pollutants that occur at the facility above SCAQMD offset threshold levels. Emission increases from the proposed project are compared with the District offset thresholds in Table 4.1-34.

Table 4.1-34. SCAQMD Nonattainment Pollutant Emission Offset Thresholds
Small Power Plant Exemption Application for the Pomona Repower Project

Pollutant	Proposed Emissions, PRP (tpy)	Emission Offset Thresholds (tpy)[a]	Emission Offsets Required	Proposed Emissions, PRP (lb/yr NO_x, lb/day VOC)	Offset Ratio[b]	ERCs Required (lb/hr NO_x, lb/day VOC	ERCs/RTCs Controlled by Applicant	Surplus/ Shortfall
NO_x	20.0	4	Yes	40,020	1	40,020	5,000	-35,020
SO_x	1.3	4	No	N/A	N/A	N/A	N/A	N/A
VOC	5.6	4	Yes	70.9	1.2	85.0	0.0	85.0
PM_{10}	3.9	4	No	N/A	N/A	N/A	N/A	N/A
$PM_{2.5}$	3.9	10	No	N/A	N/A	N/A	N/A	N/A

[a] SCAQMD Rule 1304.d.2.A for NO_x, VOC and PM_{10}. For $PM_{2.5}$, based on major source trigger level in SCAQMD Rule 1325.b.3. CO offsets not required because SCAQMD is in attainment of the CO standards.

[b] For NO_x RTCs based on SCAQMD Rule 2005.c.2. For VOCs ERCs based on SCAQMD Rule 1303.b.2.A.

lb/yr = pound(s) per year

Air Quality Impact Analysis. Under the SCAQMD NSR regulations, every project owner for a new or modified facility must demonstrate that the proposed emission increases will not interfere with the attainment or maintenance of an applicable AAQS. The modeling analyses presented in Section 4.1.6 show that the proposed project will not interfere with the attainment or maintenance of the applicable air quality standards or cause additional violations of any standards.

4.1.8 Cumulative Impacts

An analysis of potential cumulative air quality impacts that may result from PRP and other reasonably foreseeable projects is required by the SCAQMD and the CEC.

4.1.8.1 Criteria Pollutant Cumulative Impacts Analysis

Cumulative air quality impacts from PRP and other reasonably foreseeable projects may be both regional and localized in nature. Regional air quality impacts are possible for pollutants such as O_3, which is formed through a photochemical process that can take hours to occur, and $PM_{2.5}$, which is a mixture of locally generated pollutants and aerosols formed in the atmosphere. CO, NO_x, and SO_x impacts are generally localized in the area in which they are emitted. PM_{10} can create a local air quality problem in the vicinity of its emission source, but can also be a regional issue when it is formed in the atmosphere from VOC, SO_X, and NO_X.

The cumulative impacts analysis considers the potential for both regional and localized impacts due to emissions from operation of PRP. Regional impacts are evaluated by comparing maximum daily and annual emissions from PRP with emissions of O_3 and PM precursors in Los Angeles County. Localized impacts are evaluated by looking at other local sources of pollutants that are not included in the background air quality data to determine whether these sources in combination with PRP would be expected to cause significant cumulative air quality impacts.

Regional Impacts. Regional impacts are evaluated by assessing the project's contribution to regional emissions. Although the relative importance of VOC and NO_x emissions in O_3 formation differs from region-to-region and from day-to-day, state law requires reductions in emissions of both precursors to reduce overall O_3 levels. The change in the sum of emissions of these pollutants, equally weighted, provides a rough estimate of the impact of the project on regional O_3 levels. Similarly, a comparison of the emissions of PM_{10} and $PM_{2.5}$ precursor emissions from the project with regional PM_{10} and $PM_{2.5}$ precursor emissions provides an estimate of the impact of the project on regional PM_{10} and $PM_{2.5}$ levels.

Table 4.1-35 summarizes these comparisons; detailed calculations for PRP and the emission reductions for the decommissioning of the existing San Gabriel Facility are shown in Appendix 4.1B. The project's emissions are compared with regional emissions in 2020. Los Angeles County emissions projections for 2020 were taken from ARB's web-based emission inventory projection software.

As shown in Table 4.1-35, while the decommissioning of San Gabriel Facility will result in a reduction in both O_3 and PM_{10}/$PM_{2.5}$ precursors, there is a net emission increase in O_3 and PM_{10}/$PM_{2.5}$ precursors. The proposed mitigation for these pollutants are discussed in Section 4.1.9.

Table 4.1-35 Comparison of Project Emissions to Regional Precursor Emissions in 2020: Annual Basis[a]
Small Power Plant Exemption Application for the Pomona Repower Project

Ozone Precursors – Annual Basis	
Total Los Angeles County Ozone Precursors, tons/yr	181,202
Total Project Ozone Precursor Emissions, tons/yr	26
Project Ozone Precursor Emissions as % Regional Total	0.01%
Reductions from Shutdown of Existing Unit (5-Year Average), tons/yr	17
Project Net Ozone Precursor Emissions with Shutdown of Existing Unit (5-Year Lookback), tons/yr	9
Project Net Ozone Precursor Emissions as % Regional Total, with Shutdown of Existing Unit	0.00%

Table 4.1-35 Comparison of Project Emissions to Regional Precursor Emissions in 2020: Annual Basis[a]
Small Power Plant Exemption Application for the Pomona Repower Project

PM_{10} Precursors – Annual Basis	
Total Los Angeles County PM_{10} Precursors, tons/yr	225,551
Total Project PM_{10} Precursor Emissions, tons/yr	31
Project PM_{10} Precursor Emissions as % Regional Total	0.01%
Reductions from Shutdown of Existing Unit (5-Year Average), tons/yr	19
Project Net PM_{10} Precursor Emissions with Shutdown of Existing Unit (5-Year Lookback), tons/yr	12
Project Net PM_{10} Precursor Emissions as % Regional Total, with Shutdown of Existing Unit	0.01%
$PM_{2.5}$ Precursors – Annual Basis	
Total Los Angeles County $PM_{2.5}$ Precursors, tons/yr	202,300
Total Project $PM_{2.5}$ Precursor Emissions, tons/yr	31
Project $PM_{2.5}$ Precursor Emissions as % Regional Total	0.02%
Reductions from Shutdown of Existing Unit (5-Year Average), tons/yr	19
Project Net $PM_{2.5}$ Precursor Emissions with Shutdown of Existing Unit (5-Year Lookback), tons/yr	12
Project Net $PM_{2.5}$ Precursor Emissions as % Regional Total, with Shutdown of Existing Unit	0.01%

[a] LA County emissions calculated as 365 times daily emissions

Localized Impacts. In the modeling protocol for PRP, which was submitted to the CEC in January 2016 (Appendix 4.1D), the Applicant describes the approach that would be followed for the cumulative AQIA for CEQA purposes. The key elements in identifying stationary sources to include in the analysis are as follows:

- Identify new and or modified stationary emissions sources within a 6-mile radius of the proposed project that have received permits since January 1, 2014, or are in the permitting process; and
- Exclude from the cumulative AQIA for each criteria pollutant those new/modified stationary sources identified above that have a net emission increase of less than 5 tpy for that pollutant, which is considered *de minimis*.

A copy of the request to the SCAQMD for the above information is included in Appendix 4.1H. SCAQMD is still in the process of developing the requested information. Once this information is available, the Applicant will submit a copy to the CEC along with a cumulative air quality impact analysis if the information provided by the SCAQMD warrants such an analysis.

4.1.8.2 Greenhouse Gas Cumulative Effects Analysis

In the absence of established thresholds of significance or methodologies for assessing impacts, this analysis of GHG emission impacts consists of quantifying project-related GHG emissions, determining their significance in comparison to the goals of AB 32, and discussing the potential impacts of climate change within the state as well as strategies for minimizing those impacts.

GHG assessment is by its very nature a cumulative impact assessment. The emission of GHGs by a single project into the atmosphere is not itself necessarily an adverse environmental effect. Rather, it is the increased accumulation of GHG from more than one project and many sources in the atmosphere that may result in global climate change. According to the California Air Pollution Control Officers Association, “GHG impacts are exclusively cumulative impacts; there are no non-cumulative GHG emission impacts from a climate change perspective” (CAPCOA, 2008). It is global GHG emissions in their aggregate that contribute to climate change, not any single source of GHG emissions alone. The CEQA Guidelines clarify that the effects of GHG emissions are cumulative and should be analyzed in the context of CEQA's requirements for cumulative impact analysis. The administrative record of the promulgation of the GHG emissions amendments to the CEQA Guidelines also make clear "that the effects of GHG emissions are cumulative, and should be analyzed in the context of CEQA's requirements for cumulative impact analysis" (Bryant, 2009).

As the CEC's 2009 Integrated Energy Policy Report (IEPR) (CEC, 2009c) noted:

> *The Energy Commission's 'Framework for Evaluating Greenhouse Gas Implications of Natural Gas-Fired Power Plants in California' found that as California's integrated electricity system evolves to meet GHG emissions reduction targets, the operational characteristics associated with increasing renewable generation will increase the need for flexible generation to maintain grid reliability. The report asserts that natural gas-fired power plants are generally well-suited for this role and that California cannot simply replace all natural gas fired power plants with renewable energy without endangering the safety and reliability of the electric system. The report acknowledges that California will need to modernize its natural gas generating fleet to reduce environmental impacts, however. Overall, the report found that the future of natural gas plants will likely fill five auxiliary roles: 1) intermittent generation support, 2) local capacity requirements, 3) grid operations support, 4) extreme load and system emergencies support, and 5) general energy support. The question remains as to the quantity, type, and location of natural gas-fired generation to fill remaining electricity needs once preferred resource targets are achieved. (p. 110)*

Most renewable energy facilities, such as those using wind or solar energy, are "intermittent resources," meaning these resources are not available to generate during all hours and thus have limited operating capacity. For example, intermittent resources can be limited by meteorological conditions on an hourly, daily, and seasonal basis. Further, most renewable resources have no ability to provide regulation—the ability to ramp up and down quickly at the system operator's direction to ensure electric system reliability. In addition, the availability of intermittent resources is often unrelated to the load profile they serve. For example, some photovoltaic resources reach peak production around 12:00 noon while the demand on California's electric system typically peaks between 5:00 p.m. and 7:00 p.m.

"Firming" involves the use of fast-starting, flexible generation that is always available under all operating conditions to ramp up or ramp down, as necessary, to balance load and generation. Firming power is the cornerstone of system reliability. PRP can be operated without the limitations affecting intermittent renewable resources. The PRP gas turbine will be an efficient, fast-starting, flexible generating resource that will allow PRP to support generation from intermittent renewable resources and thus integrate renewable resources into California's generating system without affecting electric system reliability. Thus, in the context of the CEQA, the CEC's IEPR, and other state GHG policy documents, the project would not be expected to cause a significant cumulative impact with respect to GHGs. Instead, the project supports the State's strategy to reduce fuel use and GHG emissions. Furthermore, even though it is possible to quantify how many gross GHG emissions are attributable to a project, the displacement by the project of emissions from less efficient generating resources makes it difficult to determine whether this will result in a net increase of these emissions, and, if so, by how much. Therefore, it would be speculative to conclude that any given project results in a cumulatively significant adverse impact resulting from GHG emissions.

The GHG CEQA Guidance encompasses the following elements:

- Quantification of GHG emissions
- Determination of whether the project may increase or decrease GHG emissions as compared to existing environmental setting

- Determination of whether the project emissions exceed a threshold of significance determined by the lead agency
- The extent to which the project complies with state, regional, or local plans for reduction or mitigation of GHGs
- Mitigation measures

Certain GHG reduction strategies will require increases in natural gas consumption; for example, some fraction of electric generation from coal-fired power plants will need to be replaced by natural gas-fired generation. As the 2007 IEPR (CEC, 2007) and Presiding Member's Proposed Decision for the Avenal Energy Project (CEC, 2009a) acknowledged, "new gas-fired power plants are more efficient than older power plants, and they displace these older facilities in the dispatch order." The CEC's 2009 Framework report (CEC, 2009b) further discussed the role of new gas-fired power plants in displacing GHG emissions, and furthering the State's efforts to reduce GHG emissions. The 2009 Framework report concludes that as California expands renewable energy generation to achieve its GHG emissions reduction goals, it cannot simply retire natural-gas fired power plants; rather, new natural-gas fired power plants may be needed. Net GHG emissions for the integrated electric system will decline when new gas-fired power plants are added that: (1) serve load growth or capacity needs more efficiently than the existing fleet; (2) improve the overall efficiency of the electric system; and/or (3) permit increased penetration of renewable generation (CEC, 2009b). Because of its location and operational characteristics, PRP will contribute to the reduction of GHG emissions because it will achieve all of these goals.

In the 2009 CEC Siting Committee Report (CEC 2009a), the Committee established a three-part test to ensure that new natural gas-fired power plants approved by the CEC will support the goals and policies of AB 32 and the related parts of California's GHG framework. The elements of this test are listed below.

1. The project must not increase the overall system heat rate for natural gas plants.
2. The project must not interfere with generation from existing renewable facilities nor with the integration of new renewable generation.
3. Taking into account the factors listed in (1) and (2), the project must reduce system-wide GHG emissions and support the goals and policies of AB 32.

As a fast-starting, fast-ramping and highly efficient facility, PRP will meet all three of these criteria.

PRP Does Not Increase the Overall System Heat Rate. Because electricity generation and demand must be in balance at all times, the energy provided by a new generating resource must simultaneously displace the same amount of energy from an existing resource. The electricity from the new generating resource will only be dispatched if it were less expensive to operate, which will occur when the new generating resource is more efficient than the existing resource. By definition, then the new resource will produce fewer GHG emissions than the resource it is replacing.[35] Table 4.1-36 summarizes the thermal efficiency of many natural gas-fired simple-cycle projects built in California.

[35] CEC, 2015, Appendix AQ-1.

Table 4.1-36. Heat Rates, Capacity Factors and GHG Emissions Performance for Simple Cycle Peakers in California, 2014
Small Power Plant Exemption Application for the Pomona Repower Project

Plant Name	Capacity (MW)	Output (MWh)	Heat Rate (Btu/kWh)[a]	Capacity Factor	GHG Performance[b] ($MTCO_2$/MWh)
Colton Agua Mansa Peaker	43	23,670	10,145	6.3%	0.537
Wildflower Indigo	141	67,977	10,394	5.5%	0.550
Etiwanda Unit 5	120	14,044	10,668	1.3%	0.564
Riverside Springs	44	1,135	13.687	0.3%	0.724
Ellwood	54	1,075	14,374	0.2%	0.760
Colton Power Drews	41	1,239	15,067	0.3%	0.797
Colton Power Century	41	1,005	15,292	0.3%	0.809
Long Beach Peaker	170	20,376	16,653	1.4%	0.881
Mandalay Unit 3	130	955	22,236	0.08%	1.176
Total or Average (as applicable)	**786**	**131,477**	**11,577**	**1.9%**	**0.612**
PRP	**100[c]**	**--**	**8,696[d]**	**--**	**0.46**

[a] Based on the HHV of the fuel. The heat rate includes start-up and low load operations fuel use.

[b] GHG performance conversion factor for natural gas of 0.529 $MTCO_2$/MW per 10,000 Btu/KWh was used to derive these performance values.

[c] Nominal

[d] Based on ISO full load, gross output, HHV of fuel.

Note:

$MTCO_2$ = million metric tons of CO_2

Source:

Energy Commission Quarterly Fuel and Energy Report Database,
http://energyalmanac.ca.gov/electricity/web_qfer/Heat_Rates.php?goSort=HEAT_RATE&year=2014

As shown, the proposed PRP has the best thermal efficiency—that is, the lowest heat rate—of any of the projects listed.[36] Moreover, it is significantly more efficient than the least efficient facilities listed. Electricity from PRP would be available to displace generation from these (and other) peaking units; thereby, reducing operation of these less efficient units. Therefore, PRP satisfies the first part of the *Avenal* test, regarding its efficiency relative to other peaking generators.

PRP Will Not Interfere With Renewable Generation. The dispatch of PRP would not be expected to result in the displacement of energy from existing renewable resources or interfere with the integration of new renewable generation. Most renewable resources have must-take contracts with utilities, guaranteeing purchase of essentially all the energy produced by these renewable generators. Even in those instances where this is not the case (e.g., where renewable generation is participating in a spot market for energy) the variable costs associated with renewable generation are far lower than those associated with PRP (because fuel costs for wind, solar and other renewable generation technologies are

[36] In the Carlsbad PMPD, the Committee indicated that in considering a new facility's effect on overall system heat rate, it is "appropriate to compare like to like, i.e., combined-cycle to combined-cycle; simple-cycle to simple-cycle." (pp. 6.1-7 and 8). Therefore, only simple-cycle gas turbines are included in this comparison.

zero or minimal); these resources can bid into spot markets for energy at prices far below PRP and other natural gas-fired generators.

California law requires the state's utilities to obtain at least 20 percent of their electricity supplies from renewable sources by the year 2013, 33 percent by the year 2020, and 50 percent by 2030.[37] Much of this energy will come from variable wind and solar resources to be developed in California, or on an "as generated" basis from neighboring states.[38] Even so, gas-fired power plants are likely to have continuing roles in an evolving high-renewables, low GHG system by providing variable generation and grid operations support; meeting local capacity requirements; satisfying extreme load and system emergency requirements; and providing general energy support.[38] The CEC staff has also determined that, at levels of renewable energy penetration in excess of 33 percent, relatively efficient fast-start, fast-ramping resources such as PRP further contribute to GHG emission reductions by increasing the amount of renewable energy that can be integrated into the electricity system.[39]

PRP Will Reduce System-wide GHG Emissions and Support AB 32. CAISO is responsible for operating the system so that it provides power reliably and at the lowest cost.[40] Thus, CAISO dispatches generating facilities generally in order of cheapest to operate (typically the most efficient) to most expensive (typically the least efficient). Therefore, PRP would be expected to be dispatched only when it is a cheaper source of energy than an alternative, that is, when it would displace a more expensive, less efficient resource. Eighty to 90 percent of the cost of dispatching a power plant is the cost of fuel.[41] It follows that PRP would be dispatched when it is more efficient than, or burns less fuel per MWh than the resource(s) it displaces. If PRP burns less fuel than the resource it displaces, it will by definition produce fewer GHG emissions than that resource. The development and operation of PRP would reduce the use of less efficient generating resources, thereby reducing system-wide GHG emissions.

PRP's compliance with the ARB Cap-and-Trade Program is an additional basis for finding that PRP's GHG emissions will not cause a significant environmental impact. It is incomplete to consider the GHG emissions from the operation of PRP in isolation, without consideration of the overall effect on the electricity grid. However, even if the GHG emissions of PRP were considered in isolation, its operational GHG impacts would not be significant. This is because, in addition to being consistent with the state's goals, PRP will be required to comply with the state's Cap-and-Trade Program.

As previously discussed, ARB adopted the California Cap-and-Trade Program pursuant to its authority under AB 32. The Cap-and-Trade Program[42] is designed to reduce GHG emissions from major sources (deemed "covered entities") by setting a firm cap on statewide GHG emissions and employing market mechanisms to achieve AB 32's emission-reduction mandate of returning to 1990 levels of emissions by 2020. The statewide cap for GHG emissions from the capped sectors[43] (e.g., electricity generation, petroleum refining, and cement production) commenced in 2013 and will decline over time, achieving GHG emission reductions throughout the Program's duration.

Under the Cap-and-Trade Program, ARB issues allowances equal to the total amount of allowable emissions over a given compliance period and distributes these to regulated entities. Covered entities

[37] Pub. Util. Code Sections 399.11 et seq. The Governor signed Senate Bill 350 on October 7, 2015.

[38] CEC, FSA for the Carlsbad Energy Center Project Amendments, Air Quality Appendix AQ-1, February 2015.

[39] CEC, PMPD for the Carlsbad Energy Center Project Amendments, June 2015.

[40] https://www.caiso.com/market/Pages/MarketProcesses.aspx

[41] IEA/NEA, Projected Costs of Generating Electricity, 2015 Edition. "Fuel cost represents on average nearly 80 percent of the total levelized cost and up to nearly 90 percent in some cases." https://www.iea.org/Textbase/npsum/ElecCost2015SUM.pdf

[42] Cal. Code Regs. Title 17 Sections 95800 to 96023.

[43] See generally Cal. Code Regs. Title 17 Sections 95811, 95812.

that emit more than 25,000 million metric tons of carbon dioxide equivalent ($MTCO_2e$) per year must comply with the Cap-and-Trade Program.[44] Triggering of the 25,000 $MTCO_2e$ per year "inclusion threshold" is measured against a subset of emissions reported and verified under the California Regulation for the Mandatory Reporting of Greenhouse Gas Emissions (Mandatory Reporting Rule or "MRR").[45]

Each covered entity with a compliance obligation is required to surrender "compliance instruments"[46] for each $MTCO_2e$ of GHG they emit. Covered entities are allocated free allowances in whole or part (if eligible), buy allowances at auction, purchase allowances from others, or purchase offset credits. A "compliance period" is the time frame during which the compliance obligation is calculated. The years 2013 and 2014 were the first compliance period, the years 2015 to 2017 are the second compliance period, and the third compliance period is from 2018 to 2020. At the end of each compliance period, each facility will be required to surrender compliance instruments to ARB equivalent to their total GHG emissions throughout the compliance period. There also are requirements to surrender compliance instruments covering 30 percent of the prior year's compliance obligation by November of each year. For example, in November 2014, a covered entity was required to submit compliance instruments to cover 30 percent of its 2013 GHG emissions.

The Cap-and-Trade Regulation provides a firm cap, ensuring that the 2020 statewide emission limit will not be exceeded. An inherent feature of the Cap-and-Trade Program is that it does not guarantee GHG emissions reductions in any discrete location or by any particular source. Rather, GHG emissions reductions are only guaranteed on an accumulative basis. As summarized by ARB in its First Update to the Climate Change Scoping Plan:

> *The Cap-and-Trade Regulation gives companies the flexibility to trade allowances with others or take steps to cost-effectively reduce emissions at their own facilities. Companies that emit more have to turn in more allowances or other compliance instruments. Companies that can cut their GHG emissions have to turn in fewer allowances.* ***But as the cap declines, aggregate emissions must be reduced.***[47] (Emphasis added.)

Because climate change is a global phenomenon and the effects of GHG emissions are considered cumulative in nature, a focus on aggregate GHG emissions reductions is warranted. If California's direct regulatory measures reduce GHG emissions more than expected, then the Cap-and-Trade Program will be responsible for relatively fewer emissions reductions. If California's direct regulatory measures reduce GHG emissions less than expected, then the Cap-and-Trade Program will be responsible for relatively more emissions reductions. In other words, the Cap-and-Trade Program functions sort of like an insurance policy for meeting California 2020's GHG emissions reduction mandate:

> *The Cap-and-Trade Program establishes an overall limit on GHG emissions from most of the California economy—the "capped sectors." Within the capped sectors, some of the reductions are being accomplished through direct regulations, such as improved building and appliance efficiency standards, the [Low Carbon Fuel Standard] LCFS, and the 33 percent [Renewables Portfolio Standard] RPS. Whatever additional reductions are needed to bring emissions within the cap is accomplished through price incentives posed by emissions allowance prices. Together, direct regulation and price incentives assure that emissions are brought down cost-effectively to the level of the overall cap.*[48]

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[44] Cal. Code Regs. Title 17 Section 95812.

[45] Cal. Code Regs. Title 17 Sections 95100-95158.

[46] Compliance instruments are permits to emit, the majority of which will be "allowances," but entities also are allowed to use ARB-approved offset credits to meet up to 8 percent of their compliance obligations.

[47] ARB, 2014a. First Update to the Climate Change Scoping Plan: Building on the Framework, p. 86, May 2014.

[48] ARB, 2014a, p. 88.

> *[T]he Cap-and-Trade Regulation provides assurance that California's 2020 limit will be met because the regulation sets a firm limit on 85 percent of California's GHG emissions.*[49]

While the 2020 cap would remain in effect post-2020,[50] the Cap-and-Trade Program is not currently scheduled to extend beyond 2020 in terms of additional GHG emissions reductions. However, ARB has expressed its intention to extend the Cap-and-Trade Program beyond 2020 in conjunction with setting a mid-term target. The "recommended action" in the First Update to the Climate Change Scoping Plan for the Cap-and-Trade Program is: "Develop a plan for a post-2020 Cap-and-Trade Program, including cost containment, to provide market certainty and address a mid-term emissions target."[51] The "expected completion date" for this recommended action is 2017.[52]

Per CEQA Guidelines, Section 15064(h)(3), a project's incremental contribution to a cumulative impact can be found not cumulatively considerable if the project will comply with an approved plan or mitigation program that provides specific requirements that will avoid or substantially lessen the cumulative problem within the geographic area of the project. To qualify as adequate mitigation, such a plan or program must be specified in law or adopted by the public agency with jurisdiction over the affected resources through a public review process to implement, interpret, or make specific the law enforced or administered by the public agency. Examples of such programs include a "water quality control plan, air quality attainment or maintenance plan, integrated waste management plan, habitat conservation plan, natural community conservation plan, [and] plans or regulations for the reduction of GHG emissions." Put another way, CEQA Guidelines, Section 15064(h)(3) allows a lead agency to make a finding of nonsignificance for GHG emissions if a project complies with the ARB Cap-and-Trade Program.

The San Joaquin Valley Air Pollution Control District (SJVAPCD) has taken this approach via the adoption of a policy to provide guidance to SJVAPCD staff on how to determine significance of GHG emissions from projects subject to the Cap-and-Trade Program or occurring at entities subject to the Cap-and-Trade Program.[53] By its terms, this policy applies both when the SJVAPCD is the lead agency and when it is a responsible agency under CEQA. The SJVAPCD "has determined that GHG emissions increases that are covered under ARB's Cap-and-Trade regulation cannot constitute significant increases under CEQA…."[54] Other pertinent statements in the SJVAPCD policy are as follows:

> *Consistent with [Cal. Code Regs. Title 14] Section 15064(h)(3), the District finds that compliance with ARB's Cap-and-Trade regulation would avoid or substantially lessen the impact of project-specific GHG emissions on global climate change. … The District therefore concludes that GHG emissions increases subject to ARB's Cap-and-Trade regulation would have a less than significant individual and cumulative impact on global climate change.*[55]

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[49] ARB, 2014a, pp. 86-87.

[50] California Health & Safety Code Section 38551(a) ("The statewide greenhouse gas emissions limit shall remain in effect unless otherwise amended or repealed.").

[51] ARB, 2014a, p. 98.

[52] ARB, 2014a, p. 98.

[53] San Joaquin Valley Air Pollution Control District, 2014. CEQA Determinations of Significance for Projects Subject to ARB's GHG Cap-and-Trade Regulation, APR – 2030 (June 25, 2014).

[54] San Joaquin Valley Air Pollution Control District, 2014. p. 4.

[55] San Joaquin Valley Air Pollution Control District, 2014. pp. 4-5.

In sum, the SJVAPCD modified its existing CEQA significance threshold for GHG emissions to acknowledge the progress being made by the state in regulating and reducing such emissions, in particular with regard to the Cap-and-Trade Program.

As described in more detail above, the design of the Cap-and-Trade Program assures reductions in GHG emissions. Accordingly, a project's GHG emissions subject to the Cap-and-Trade Program should neither count against a project when assessing its significance under CEQA nor require further mitigation. In its recently adopted policy, the SJVAPCD has taken the same position on the mitigation provided by the Cap-and-Trade Program:

> *[I]t is reasonable to conclude that implementation of the Cap-and-Trade program will and must fully mitigate project-specific GHG emissions for emissions that are covered by the Cap-and-Trade regulation. … [T]he District finds that, through compliance with the Cap-and-Trade regulation, project-specific GHG emissions that are covered by the regulation will be fully mitigated.*[56]

The SCAQMD has also taken this position in CEQA documents it produced as a lead agency. The SCAQMD has prepared three Negative Declarations and one Draft Environmental Impact Report that demonstrate the SCAQMD has applied its 10,000 $MTCO_2e$ /yr significance threshold in such a way that GHG emissions covered by the Cap-and-Trade Program do not constitute emissions that must be measured against the threshold.[57]

4.1.8.3 Nitrogen Deposition Analysis

Nitrogen deposition is the input of NO_x and ammonia (NH_3) derived pollutants, primarily nitric acid (HNO_3), from the atmosphere to the biosphere. Nitrogen deposition can lead to adverse impacts on sensitive species, including direct toxicity, changes in species composition among native plants, and enhancement of invasive species.

The total nitrogen emission levels (based on NO_x and NH_3 emissions) for the project will be mitigated with the purchase of NO_x RTCs as discussed in Section 4.1.8. The net nitrogen emission change is shown below in Table 4.1-37. Detailed nitrogen emission calculations are included in Appendix 4.1B.

Table 4.1-37. Net Nitrogen Emissions Change for Proposed Project
Small Power Plant Exemption Application for the Pomona Repower Project

Equipment	Total Nitrogen Emissions (as N)*
New Equipment at PRP (Gas turbine)	16
Reductions from Shutdown of Existing Unit (5-Year Average)	7
Net Emissions Change (5-Year Average)	**9**

* Includes the nitrogen associated with NO_x and NH_3 emissions

[56] San Joaquin Valley Air Pollution Control District, CEQA Determinations of Significance for Projects Subject to ARB's GHG Cap and Trade Regulation, APR – 2030, at 5 (June 25, 2014).

[57] SCAQMD, Final Negative Declaration for: Ultramar Inc. Wilmington Refinery Cogeneration Project, SCH No. 2012041014 (October 2014)(available at http://www.aqmd.gov/docs/default-source/ceqa/documents/permitprojects/2014/ultramar_neg_dec.pdf?sfvrsn=2); SCAQMD, Final Negative Declaration for: Phillips 66 Los Angeles Refinery Carson Plant - Crude Oil Storage Capacity Project, SCH No. 2013091029 (December 2014)(available at http://www.aqmd.gov/docs/default-source/ceqa/documents/permit-projects/2014/phillips-66-fnd.pdf?sfvrsn=2); Final Mitigated Negative Declaration for: Toxic Air Contaminant Reduction for Compliance with SCAQMD Rules 1420.1 and 1402 at the Exide Technologies Facility in Vernon, CA, SCH No. 2014101040 (December 2014)(available at http://www.aqmd.gov/docs/defaultsource/ceqa/documents/permit-projects/2014/exide-mnd_final.pdf?sfvrsn=2); Draft Environmental Impact Report for the Breitburn Santa Fe Springs Blocks 400/700 Upgrade Project, SCH No: 2014121014 (April 2015)(available at http://www.aqmd.gov/docs/default-source/ceqa/documents/permit-projects/2015/deir-breitburn-chapters-1-3.pdf?sfvrsn=2).

4.1.9 Mitigation Measures

4.1.9.1 Demolition/Construction Mitigation

SCAQMD Rule 403 governs the emissions of fugitive dust, prohibiting visible fugitive dust beyond property lines and requiring the minimization of fugitive dust emissions from excavation, grading, and land clearing operations. Construction and demolition impacts will be further minimized with the implementation of a demolition/construction fugitive dust and diesel-fueled engine control plan that will be submitted to the CEC. This plan will focus on reducing demolition/construction air quality impacts and will encompass the demolition/construction mitigation measures listed below.

- Applying dust suppressants to unpaved roads and disturbed areas
- Limiting onsite vehicle speeds to 10 mph and posting the speed limit
- Applying dust suppressants frequently during periods of high winds when excavation is occurring
- Sweeping onsite paved roads and entrance roads on an as-needed basis
- Replacing ground cover in disturbed areas as soon as practical
- Covering truck loads when hauling material that could be entrained during transit
- Applying dust suppressants or covers to soil stockpiles and disturbed areas when inactive for more than 2 weeks
- Using ultra-low sulfur diesel fuel (15 ppm sulfur) in all Diesel-fueled equipment
- Using Tier 4 and Tier 4i diesel demolition/construction equipment to the extent feasible
- Maintaining all diesel-fueled equipment per manufacturer's recommendations to reduce tailpipe emissions
- Limiting diesel heavy equipment idling to less than 5 minutes, to the extent practical
- Using electric motors for demolition/construction equipment to the extent feasible

Construction and demolition emissions and mitigation are described in more detail in Appendices 4.1F and 4.1G.

4.1.9.2 Operational Mitigation

During operation, the appropriate mitigation measure is to reduce potential air emissions before they are emitted. This is accomplished by the careful design of the project, including the installation of the BACT to minimize air emissions. Air quality impacts will be further mitigated by providing emission offsets.

A detailed analysis of BACT options for the gas turbine and cooling tower is provided in Appendix 4.1C. A summary of the proposed controlled emission rates is provided in Table 4.1-38.

Table 4.1-38. Proposed Controlled Emission Limits
Small Power Plant Exemption Application for the Pomona Repower Project

Pollutant	Control Technology	Proposed Limit
Gas Turbine		
NO_x	Water injection, SCR	2.5 ppmc (1-hour average)
CO	Oxidation catalyst, good combustion practices	4.0 ppmc (1-hour average)
VOC	Good combustion practices	2.0 ppmc (1-hour average)
SO_x	Natural gas fuel	0.75 gr/100 dscf (short-term) 0.25 gr/100 dscf (annual average)
$PM_{10}/PM_{2.5}$	Natural gas fuel	3.5 lb/hr (1-hour average) 2.0 lb/hr (annual average)
Ammonia	Good combustion practices	5 ppmc (1-hour average)
Cooling Tower		
$PM_{10}/PM_{2.5}$	high-efficiency drift eliminators	0.0005 percent (drift rate)

Emission Offsets. SCAQMD Rule 1303.B requires that projects with operational emissions above certain thresholds provide emission offsets by reducing emission from other sources. As shown in Table 4.1-34 above, the increase in annual NO_x and VOC emissions for the project will exceed the District's offset thresholds. As discussed above in Section 4.1.7.3, the Applicant will provide the necessary NO_x RTCs and VOC ERCs to cover these emissions. Regarding SO_x, PM_{10}, and $PM_{2.5}$ emissions, the emissions for PRP with be partially mitigated by the emission reductions achieved by the shutdown of the existing equipment at the San Gabriel Facility. For the remaining net emission increases for these pollutants shown on Table 4.1-24, the Applicant will review options to mitigate these emissions including funding the Carl Moyer Program or a similar emission reduction program specific to this project.

4.1.10 Agencies and Agency Contacts

Each level of government (state, federal, and county/local air district) has adopted specific regulations that limit emissions from stationary combustion sources, several of which are applicable to this proposed project. The air agencies having permitting authority for this proposed project are shown in Table 4.1-39.

Table 4.1-39. Involved Agencies and Agency Contacts
Small Power Plant Exemption Application for the Pomona Repower Project

Issue	Agency	Contact/Title	Telephone/E-mail
Permit issuance and oversight, enforcement	USEPA Region 9	Gerardo Rios Chief, Permits Office USEPA Region 9 75 Hawthorne Street San Francisco, CA 94105	(415) 744-1259 rios.gerardo@epamail.epa.gov
Regulatory oversight	California Air Resources Board	Wes Ingram Manager Project Assessment Branch ARB 1001 I Street Sacramento, CA 95814	(916) 322-3984 wingram@arb.ca.gov

Table 4.1-39. Involved Agencies and Agency Contacts
Small Power Plant Exemption Application for the Pomona Repower Project

Issue	Agency	Contact/Title	Telephone/E-mail
Permit issuance, enforcement	South Coast Air Quality Management District	Andrew Lee Manager 21865 Copley Drive Diamond Bar, CA 91765	(909) 396-2643

4.1.11 Permits and Permit Schedules

Under Regulation II of its Rules and Regulations, SCAQMD regulates the construction, alteration, replacement, and operation of new stationary emissions sources and modifications to existing sources. As part of the application review process, the District's Air Pollution Control Officer will conduct a DOC review upon receipt of the SPPE application. A separate application package for a DOC/PTC was submitted to the SCAQMD on February 23, 2016. This DOC for the project will be prepared by SCAQMD as part of the CEC review to confirm that the project will meet all of the District's rules and regulations.

A PDOC is expected within approximately 180 days after acceptance of the application is complete. The PDOC will be circulated for public comment, and a FDOC will be issued by the SCAQMD after comment has been considered and addressed. Upon receiving CEC's final approval of PRP, the SCAQMD will be responsible for issuing a PTC and PTO for PRP. This permitting process allows the SCAQMD to adequately review new and modified air pollution sources to ensure compliance with all applicable prohibitory rules and to ensure that appropriate emission controls will be used. A PTC allows for the construction of the air pollution source and remains in effect until the PTO application is granted, denied, or canceled. Once the project has completed construction and commences operations, SCAQMD will require verification that PRP conforms to the PTC application and, following such verification, will issue a PTO. The PTO specifies conditions that the air pollution source must meet to comply with all air quality standards and regulations.

The SCAQMD has also received delegation from USEPA to administer the federal Title IV and Title V programs for sources within its jurisdiction. The project will be subject to acid rain program requirements. The District's permit program is an integrated program; the PTC is also the amended Title V permit. USEPA has delegated authority to the SCAQMD to issue PSD permits. However, as discussed above PRP will not trigger PSD review.

4.1.12 References

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